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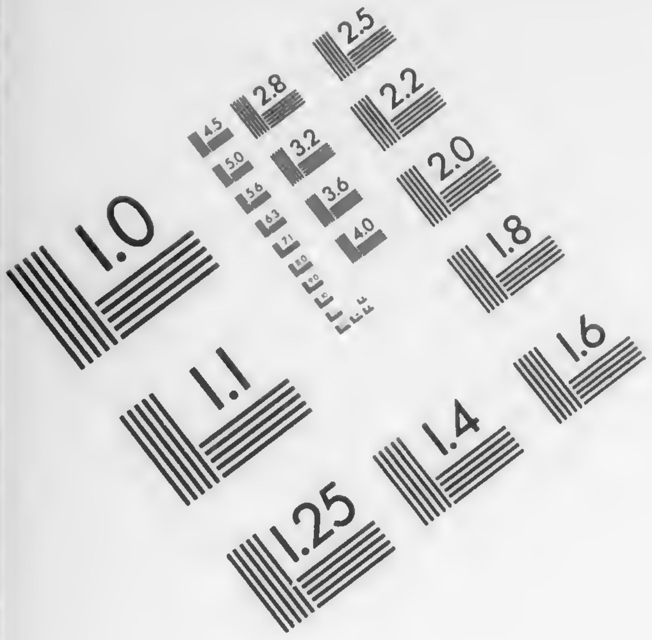

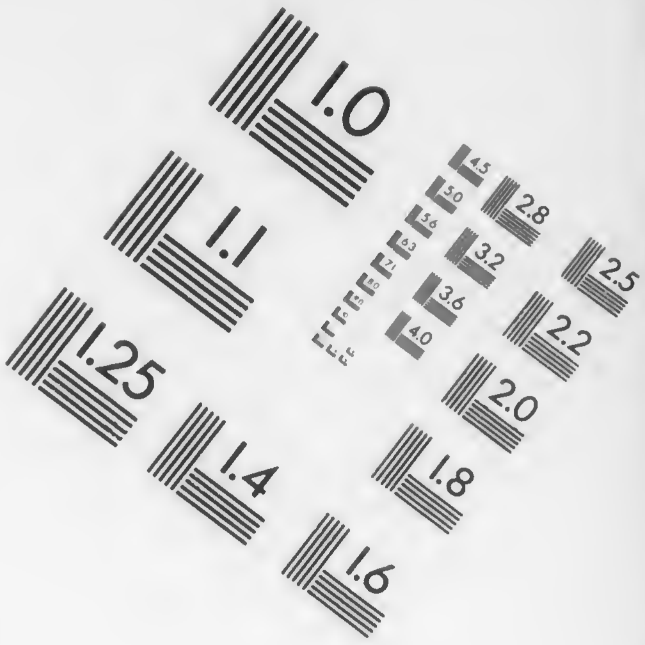

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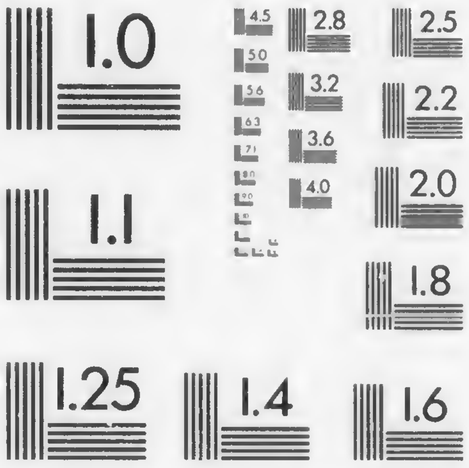

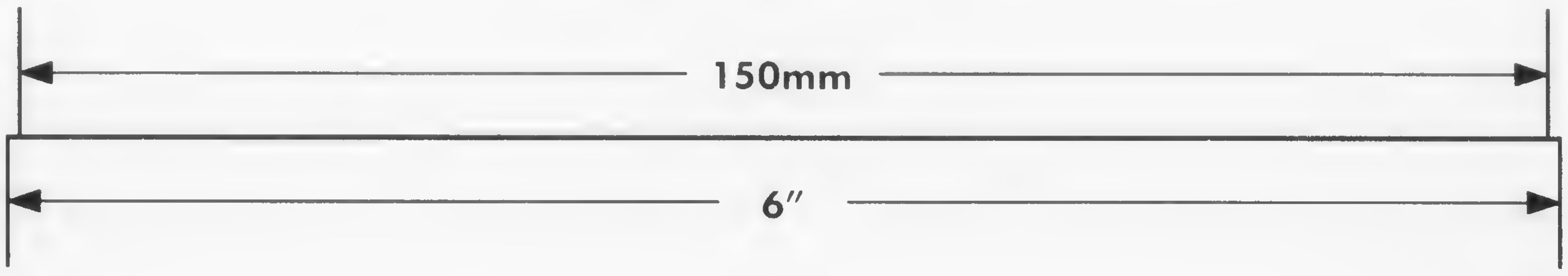

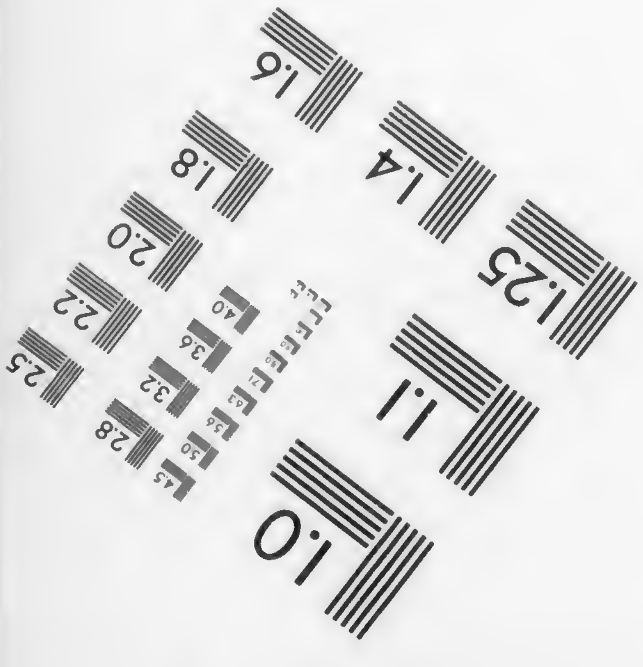

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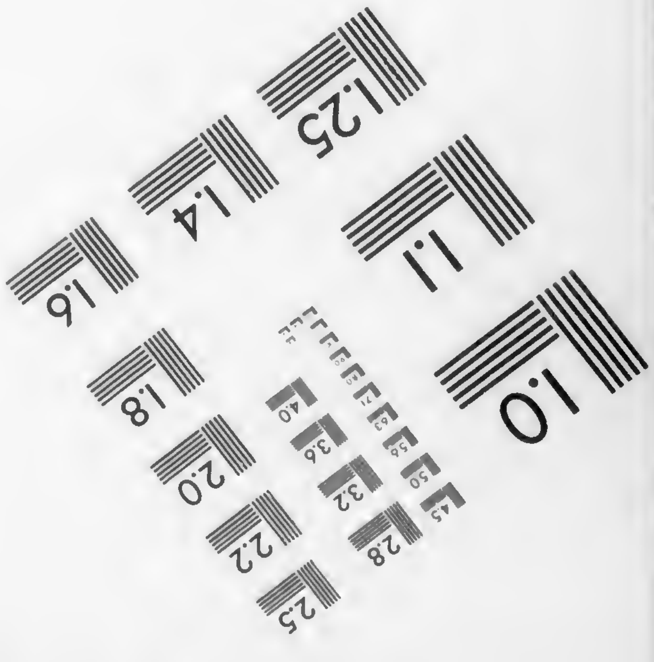

Volume 39, 1916

DUE TO TIGHT
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Vol. 39—No. 1. PHILADELPHIA, PA., SATURDAY, JANUARY 1, 1916. 2 Years for $1.00

N.J. Agr.

LESSONS OF THE SEASON

A Season's Reckoning on Pequa Farm

By J. Aldus Herr, Lancaster Co., Pa.

> Note.—What has the season just closed taught us? Each year is a chapter in the book of life. Each chapter has its particular lessons; its warnings of wrong methods and its guides to future success. The prudent farmer adds to his store of useful knowledge of his trade by a study of those lessons. We have asked a number of farmers to discuss their particular lessons for us. The articles here given are but the first of a series on this subject. Other articles will follow in later issues.—The Editors.

The year of 1915 will long be remembered as one of unusual bright prospects for abundant crops and a full harvest. It will also be known as one of excessive rain storms, which did much destruction to crops in general.

From April 10 to November 18 there was more than 26 inches of rainfall on Pequa Farm. The crops started to grow very rapidly and prospects for a full harvest were never more promising. August 4th will long be remembered in our county of Lancaster as giving us one of the most severe and destructive storms in many years. The corn was beginning to tassel, and what a pitiful sight it did present after the storm had abated. The corn had the appearance of being gone over with a huge land roller; the long blades hanging in shreds beggared description.

A Lesson from the Wheat.—But to return to the general routine of farm labor, and the results from the crops in general. The fall of 1914 was exceedingly dry, and the seeding of wheat was long delayed; in fact, some farmers did not sow the usual acreage. The soil being so void of moisture, it was difficult to prepare a good seed bed. On Pequa Farm we did not begin to sow wheat until October 13th, and in precaution we drilled the fertilizer and then followed sowing the wheat. The soil being rather dry, we were afraid that the acid in the fertilizer would affect the germination of the seed. We did not finish sowing until Oct. 23rd; too late, especially in a dry season in our latitude.

The lesson learned from this experience was this: Plow ground intended for wheat as early in the season as possible. Cultivate frequently to retain what moisture is there, and to secure better capillary attraction, thus having your soil ready for the regular time of seeding. The advantage of a few days or probably a week in the late fall, adds much to the chances of the wheat coming thru the winter in good condition. The difference in yield between that sown October 13, and that sown the 26th was most eloquent. The former gave 30 bushels per acre; the latter 15 bushels per acre. That is a difference sufficient to change the balance on the wrong side of the ledger. The one meant success; the other failure. Much of the wheat in our county was light in yield, because it did not have sufficient time to tiller.

The Corn.—The corn was planted in due time and germinated well, which gave a good stand. It grew rapidly and never looked more thrifty. Knowing the custom of most farmers to plant corn too thick, and grow stalks at the expense of the ear, I was determined to thin the corn thoroly and grow a bumper crop. But the rain and storm of August 4th changed the physiognomy of my corn field. The result was half as much corn stover as usual, and but 65 percent of a crop of corn. And from the time of the storm the weeds began to grow, and many a good practical farmer's reputation was lost, at least to those persons who viewed his corn field not knowing the situation. It would have been better had I not thinned the corn so severely. I would have had more corn stover, and this is an important item, especially since we use silos for the economic storing of the corn crop. I have been a user of silage for the past eighteen years and I am a firmer advocate than ever of silage for economical feeding of cattle.

Another experiment worthy of note: To half of the corn ground we applied 30[illegible] pounds of 16 percent acid phosphate, in addition t[illegible] the stable manure. The difference in yield was quite marked, the ears being larger and better matured where the fertilizer was applied. I shall try th[illegible]e experiment again. We nearly always grow stalks at the expense of the grain, indicating the need of [illegible] phosphoric acid.

Feeding Cattle.—We are again feeding 30 head of beef cattle, an[illegible] it looks to me as tho the larder will be quite ba[illegible]e by the time the cattle are ready for market.

Nitrogen on Grass Land.—Another experiment that did not work out this past season: We made an application of nitrate of soda to a grass field intended for hay, the field having been top dressed with a light application of stable manure some months previous. Of course we expected an exceptional crop. But it did not materialize. There was very little difference where we made the application of soda. The season being very wet and cold, grass was late in starting to grow, and by the time the plants were ready to utilize the nourishment, it had leached away beyond the reach of the rootlets. Thus it could not show much benefit. It is my belief that nitrate of soda becomes available too rapidly to apply to general farm crops. And the farmer who has good stable manure should not be compelled to use commercial fertilizers containing nitrate of soda.

Owing to the high price of potash, in sowing our wheat this fall we side stepped from our usual custom. We applied 400 pounds of 16-percent acid phosphate per acre, thinking we had sufficient nitrogen in the soil for the time being. We have turned down sods and applied manure from the feeding of beef cattle. Good cultivation should make sufficient potash available for the plant. We know not what the future harvest will be.

Poor Seed. — Another experience of much value was in sowing rye as a nurse crop. I purchased some rye and sowed 1½ bushels per acre, expecting to have a fine thick stand. But to my disappointment, not one grain out of six germinated. I later learned that the germ was ruined by the seed heating in the bin before I purchased it. The heating of rye or wheat is caused by the grain being too damp when threshed, or being infected by moth. One of my neighbors had to sow his entire field of 60 acres the second time because the seed had become warm in the bin and spoiled the germ. Never sow wheat that has heated in bag or bin previous to time of sowing. Such heating lessens the vitality of the germ if it does not destroy it and it will not give a good stand. Always keep in mind that a poor, half-nourished plant can not give a good yield. And it seems well to remember that all other care and labor is lost if the seed is not good. Time spent in securing safe seed is a good investment.

Summary.—In summing up our season's work, we have learned from the hard school of practical experience that conservatism is a good rule in farm operations. The way to grow good crops is to begin a few years before you expect results. Preparedness goes a long way toward success on the farm; and frequently "the early bird catches the worm". So let us one and all be contented with our lot."

"ALL SIGHTS ARE MELLOWED AND ALL SOUNDS SUBDUED;
THE HILLS SEEM FARTHER AND THE STREAMS SING LOW."

MUTILATED TEXT

Successes and Failures of 1915

By T. L. Wall, Clearfield Co., Pa.

The value of these lessons of successes and failures in 1916's work will depend upon myself. It will depend upon my ability to properly interpret these experiences, not only in the light of this season's results but in connection with other and varying seasonal conditions of temperature and rainfall as experienced in the past and their future likelihood. The unusual seasonal conditions have conspired to produce unusual results, and we must not be too quick to decide upon change of methods long successful just because this time they produced failure or incomplete success.

Yet we may from these unusual conditions learn how better to guard against the same failures in the future to some extent. Indeed, my view is that it is these varying seasonal and other conditions incident to the pursuit of agriculture that make it a calling worthy of engaging the activities of the highest order of mind. So I do not feel that we should be discouraged if we have met these new conditions bravely, even tho we have had only partial success.

Peas.—Our planting of peas, of which we make something of a specialty, was apparently all right and as early as usual—the first planting being in March, with the soil conditions quite good. Yet, thru the necessity for haste to take advantage of the few days of favorable weather, the seed was not dropped quite thick enough for early planting, especially as some of it is almost sure not to grow. This mistake can and must be guarded against next year. The quality of seed, its germinating power and vigor, were especially tried the past season. But the peas would not hurry up! They seemed like the average small boy doing his chores these cold frosty mornings. No matter how much he is told to get his blood into circulation so he will not feel the cold, he will still draw himself up and be slower and slower.

So the peas and other vegetables just stood around in the cold and wet, and shivered, apparently, until warm weather did come. Then they all came in together—early and late—with a rush. That was too much for the market to take care of in so short a time. Thus in our case we were confronted with a problem in conservation, and I think we solved it with some success. Instead of throwing the extra quantity on the market we did what the Yankee told the Englishman the Americans do with all the great crops of corn: "Sell all we can, eat all we can, and what we can't we can." So we canned the surplus peas and are now selling home-canned peas at a good price. Also, we have secured a nice lot of seed for next year from rows that got too old for canning purposes before we got to them.

Tomatoes.—But let me show the negative value of the experience of one year as the basis for the next. Last year, 1914, tomatoes in our markets were quite plentiful and cheap in mid-season for canning. So in 1915 we decided to raise only a limited number of plants and try to have them in best condition for the early crop. They succeeded fairly well for that purpose but were not suficient for the canning demand in our local market, for which we should have had at least 100 bushels more.

But for anoher mistake we might have still made good. We sent for an additional supply of plants, having conceived the idea that their product would be profitable. But when they were being set, a pressure of other work, whose importance we now see was exagerated in our minds, kept us from watering them in, and they nearly all fell victim to the short drouth which followed. All of which goes to show that "whatever is worth doing at all is worth doing well." As we knew this before, we draw the further lesson that we should "practice what we know."

Spraying Grapes.—Still another mistake was to spray the grapes with weak copper sulphate without lime or rot late in the season. Little damage might have resulted in a dry season but this year of damp weather the leaves were quite badly scalded, resulting in retarding the already late season of ripening so much that frost caught many fine clusters and spoiled them for basketing. Grapes being locally scarce, however, we were still able to sell all at a good price for jelly.

Potatoes.—Last year's experience was in favor of early potatoes. So this year we planted more of them than of late varieties, and failed to secure as large a yield, and will have some less money, for prices are now good on late potatoes.

As to our successes, they can this year mainly be found in better prices and the retrieving of seeming failures by hard thinking and prompt acting.

A Community Products Show

More and more each year we learn of farm communities holding a Farm Products Show. When such shows have been repeated a number of times we can see in that locality excellent results in the quality of its principal agricultural products. The exhibitors at such a show will not take the time and interest in a larger agricultural fair, but they will be glad to give a day or two at the end of the season to a show put on in their immediate vicinity.

TIE SCORE IN THE QUOIT GAME AT BRADFORD COUNTY FAIR.

The primary purpose of such an exhibition should be educational. If the community is especially well adapted to any one product, that product will come to light in this show. The exhibit of fruit will eclipse any other department where fruit is the principal product. Being of an educational nature, the judging should be well explained as to the reasons why awards are made.

In connection with the show there should always be demonstrations, showing up-to-date methods of marketing as well as production, and in a general way the community show will thus obtain a better result because of the fact that it reaches the average exhibitor rather than the expert show exhibitor who makes a specialty of showing products. In connection with the corn department, excellent opportunity is furnished for dem nstrating corn varieties and their adaptation to the community in which they are shown. A grower might feel that he is using a variety of corn well adapted to his conditions, but by comparing it with his neighbors in a show of this kind, and having the points discussed, one is sure to learn considerable about different varieties of corn which might be adapted as well, if not better, to his community.

SOME OF THE FARM COLTS IN THE BRADFORD COUNTY COLT SHOW.

These exhibits of farm crops are always popular with the farmer, if they are properly arranged and marked with information concerning their production, etc. There is no doubt that every exhibitor who enters such a show will gain inspiration and knowledge concerning what are the necessary points that a good product should possess, and the writer has noticed that entries of inferior quality for one year are sure forerunners of a distinct improvement the following sesaon on account of the knowledge obtained at the previous show.

Prizes should be awarded on a utility basis and be removed from any fancy features. The primary purpose of such a show is to improve the products so that they will receive a greater value on the market. Some communities have gone so far as to introduce some special live stock feature for each year, and at that time have a public demonstration explaining some of the essential points that a class of live stock on exhibition should possess.

At Canton, Bradford County, Pa., there was held two such shows and each year they have had a special live stock feature. In the fall of 1914 there was held a bull show. After the animals had been placed, the judge gave instructions to the audience on what points in conformation they should look for in selecting the sire to place at the head of their herd. This demonstration was followed by a chart talk on pedigrees. This feature told what a pedigree should show in combination with conformation in selecting a sire.

At the 1915 show the live stock feature was colts. There were shown colts bred from draft or general purpose sires, between one and two years old. The judge gave reasons for placing and then suggestions for improvement. At this show there were 16 entries, and the accompanying illustration shows that it was a very interesting detail. Another live stock feature of special interest at the Canton show has been poultry. The poultry department includes only a pen class, in which there were shown four pullets and one cockerel. This proves to be a class which allows further development in prize awards and still gives wonderful opportunity for variety in the breeds and types. This feature is judged entirely on utility points.

At this year's show there was introduced as a diversion of sport, a quoit-pitching contest and the accompanying illustration shows the interest taken in that event. The regular horse race or baseball game staged at the County Fair could not arouse any more interest than a quoit-pitching contest of local contestants.

A special requirement for such a show is, first, a complete understanding that it is to be of educational nature, and second, that there be ample prizes donated. Without the prizes the number of exhibits would be limited, but when you make a first prize of from $15 to $20 in value, a second prize from $8 to $10, a third prize $4 to $6, and a fourth prize $2 to $3, you have sufficient inducement to insure the personal interest of practically every family in the community, and the show from year to year will gain in attendance and interest. By holding this exhibition in a small town or city the merchants are remunerated by extra business for the prizes they donate. The donations as prizes for the Canton Farm Product Show were made up of feed, lime, fertilizer, machinery, harness and blankets, spray material, equipment, etc. The merchants during this week made special bargains and held demonstrations of their wares. The farmer brought his family with him and spent the greater part of the day attending the show but before returning home inspected the various stores and laid in his normal supply of household and farm equipment for a portion of the winter.—D.

Farmstead Improvement

The size of a farm business is not necessarily measured or limited by the number of acres in a farm. One of the field men of the department, engaged in farm-survey work, reports the case of a Wisconsin farmer, so situated as to make it impossible for him to buy or rent more land, who solved the problem of small acreage by "speeding up" the 80 acres that he had.

This farmer's first move was to dispose of his scrub cows and to replace them with grades and purebreds; next, without great expense, he improved the sanitary condition of his barns. He established a cropping system based on corn and alfalfa, choosing the latter rather than clover because on his farm it produces at least 50 percent more feed per acre than does clover, and is much more dependable.

Pastures have now entirely disappeared from this farm, because its owner has demonstrated that one acre of corn and one of alfalfa together furnish him with more feed than do 5 acres of pasture. His improved, well-fed herd, housed in a clean, well-lighted, and thoroly ventilated barn, is yielding him more than double the milk he formerly got from his scrub herd. Furthermore, the quality of the milk has improved, and he demands and gets the price of a first-class article.

The largely increased net income which this farmer now receives from the sale of milk and of purebred cattle is based on the comparatively small changes in his type of farming, which have augmented his business without entailing any increase in the size of his farm.

A comparison of this farm with other dairy farms recently studied by the department indicates that the example of this Wisconsin man might well be followed in sections where dairy products are high priced and who has a low-grade herd, provided he has sufficient knowledge of cattle to give high-class dairy cows the care that they demand.—News Letter.

Power On Corn Binder

The Michigan Agricultural College this fall made a test with light gasoline engine mounted on a corn binder. The ground was wet and the test was to determine the efficiency of a certain type of engine, and only incidentally whether or not engine power thus utilized would permit operating the machine over ground where it could not be handled well by team. Prof. H. H. Musselman, Associate Professor in Farm Mechanics, writes as follows:

A light high-speed engine was designed for this work and attached to one of the corn binders which we had been using for our work. Inasmuch as this was an experiment machine, it did not prove economical for us but the principle is right. Our corn was extremely heavy, down and tangled and many breakages occured causing considerabel delay with the machine. However, as these were gradually overcome, the outfit did more satisfactory work and it may be said that it should prove entirely successful when properly worked out.

Under the conditions which we worked, two horses were able to handle the binder with ease and I think it would be possible to operate under conditions where it would scarcely be possible to operate under conditions where it would scarcely be possible to secure traction in case of muddy fields, etc. However, the machine was not tested out under the worst possible conditions and, therefore, we would not want to say that the harvesting could not have been done under these conditions with horses. The accompanying illustration shows the machine in operation.

ENGINE ATTACHMENT ON A CORN BINDER.

Experience With Iron Corn Crib

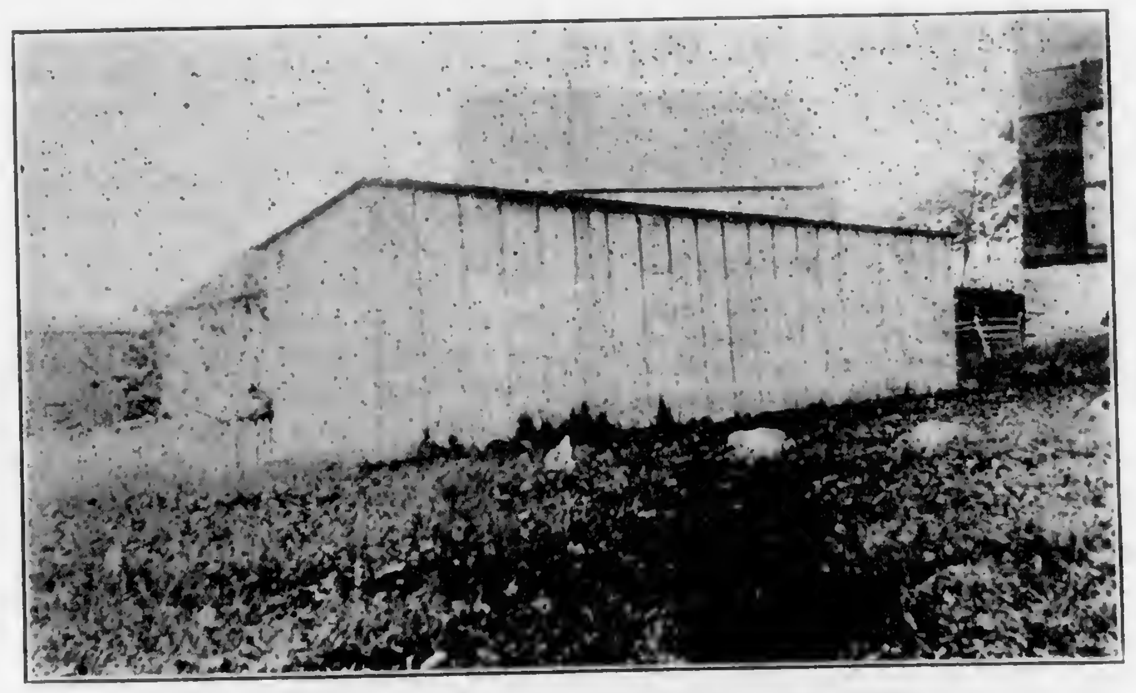
I have been raising and storing corn since 1888. When I came to take the corn out of the crib each year I always had a lot of shelled and soiled corn, caused by rats and mice. In the spring of 1912 there was an unusual amount of spoiled corn. It was not only shelled but in such a condition that I was almost ashamed to offer it for market. Then I began to study the crib question and I saw the iron cribs advertised in a farm paper. I wrote to the firm for prices and they directed me to our home dealer. He had a crib and I was much pleased with it and decided to purchase one. I did so and have stored two crops thus far and now I laugh at the rats. They can run along on the outside but the corn is safe from their teeth and dirt, and also free from mould. It is a satisfaction to go to the crib for corn now. If I was to build a dozen cribs, they would be of iron.

I have not had the crib long enough to say much about the wear, but it looks as tho it would wear well. I put down a concrete bottom, high in the center. The material for the crib came crated and in such shape that it was easily put together. The crib is 6 feet wide by 48 feet long and 10 feet on the high side by 8 feet on the lower side. Some may think that 6 feet is too wide, but the crib has four ventilators in the center which ventilate the corn quite well. I am well pleased with the crib. It cost me $270 without the foundation. I am not able to say what a wooden crib of the same size would cost, but I will save enough corn to pay the interest on the money invested.—N. Z. Hess, Lancaster Co., Pa.

Caring For The Manure

It used to be the custom of the farmers generally in this part of the country to either throw the manure out of the stalls and let it lie in heaps by the stable until spring, or else to draw it to the field and dump it off in small piles and leave it there, perhaps for months. I tried the first method for a year or two but the manure got so hot and burned up so badly that I decided that I had lost most of its value. And I had noticed when I was a boy that no matter how well the small manure piles were gathered up and scattered, the corn grew much larger where the pile had been than where it was thrown when scattered. It was very reasonable that it should because the rains had washed most of the real strength or plant food out of the manure pile and it was held in the soil under it. It was only the bulk of the manure that I scattered with my fork. The plant food was in the soil immediately under the pile.

For years I have made a practice of drawing the manure direct from the stable to the field and scattering it over the field. It was out of the way and it is preparing the soil to grow a larger crop the next year. A few years ago I scattered two loads of manure on a field intended for corn. There was no more manure put out for a month or two. When I began putting out manure again I put it on another part of the field and did not get up to the first two loads until near spring. This field was plowed for corn in the spring. When the crop grew there was a marked difference in favor of the early scattered manure.



A DURABLE VERMIN-PROOF METAL CORN CRIB.

I have often noticed that the early scattered manure shows up best in the succeeding crop. Some are afraid that plant food is wasted when the manure is scattered over the soil during the winter season, but I am persuaded that there is not nearly so much plant food wasted by this method as there is by the methods usually practiced when the manure is left at the stable until spring. The potash and phosphoric acid that are soluble in the manure form new combinations in the soil, and the nitrogen in the form of ammonia may be held by the carbonaceous matter in the soil until it is used by the growing crop.

Prof. Steele says, in his work on Chemistry, that pure carbon may absorb twenty times its own weight of ammonia. It is stated upon good authority that bacteria living on the carbonaceous matter of the soil draws upon the air for nitrogen. If this is true, it seems to be an economy to have the manure on the soil as food for bacteria.—A. J. Legg, W. Va.

Queries And Comments

Ginseng—Golden Seal

"Will you kindly tell me in "Queries and Comment" of Pennsylvlania Farmer what you can about the growing of ginseng and golden seal?"—A Reader, New Jersey.

In the first place we would not advise you to invest any great amount of time or labor in the business. It takes a great deal of time and considerable expense to establish and bring into bearing beds of either one and the returns are uncertain. The price of cultivated ginseng is now about one half that of the wild roots.

A shaded place must be provided, usually made by covering the entire space with strips of wood supported on posts. The soil must contain large amounts of leaf mould, making conditions as nearly like those in the woods as possible. The seed is planted in beds and then transplanted into the permanent beds in about one year. It then requires three years for the roots to grow to salable size.

There are several diseases and inset pests which it is often necessary to fight, such as, blight, fiber rot, mildew, wilt, and root rot. It will be necessary to refer to a good work on plant disease in order to combat them.

Soy Beans—Hog Pasture—Movable Fence

"I have a field I wish to improve by sowing soybeans, followed by rye. Is that all right for my locality? How much seed to the acre should I drill? The land is poor. Would fertilizer help any? When should the beans be turned under?

"In another field I wish to plant something early for hog pasture. Is rape all right? What time should I plant it? How much seed to the acre? Will fertilizer help on poor ground?

"Can you tell me how to make a hog fence I can move in sections?"—P. P., Montgomery Co., Pa.

Soybeans will be all right for your locality. They should be drilled in rows about 28 inches apart. This will give space to allow two or three cultivations which is advisable, especially when soil is poor. Drill about one half bushel per acre after the soil and weather are permanently warm, say about the latter part of May. It would be well to drill a couple of hundred pounds of fertilizer per acre before sowing the beans. Turn the beans under as pods begin to form. This will probably be early in August. Keep the ground harrowed until time to seed rye, about the middle of September.

For hog pasture, we have found that Canada field peas and oats are best for early forage, and rape for fall and late fall pasture. The oats and peas should be planted as early as possible in the spring, say the fore part of April. Drill one and one-half bushels of peas as deep as possible. Then sow broadcast, or drill the opposite way, the same amount of oats. The hogs may be turned in when the peas begin to come in blossom. They should be thoroly ringed first to keep them from rooting. Yes, use 200 or 300 pounds per acre of a good complete fertilizer. If you sow rape, which also makes good pasture, broadcast 3 or 4 pounds of seed per acre and cover with a light harrow.

We will ask our readers for directions how to make a good, movable hog fence—one that the writer has actually built and used successfully. The kind generally built are of the "hurdle" type—that is, built in section panels having braces extending from the top on each side, but unless they are anchored it is difficult to keep them in place. Another kind is made from wire web hog fencing. This requires permanent posts at ends of the lot and the moving of fence as desired.

I'll Rid Your Hogs of WORMS

GILBERT HESS,
M. D., D. V. S.

Your hogs are almost certain to be troubled with worms right now; in fact, at all seasons of the year. Unless you treat for worms and get rid of them you can't fatten your swine at a profit.

How about the spring pigs? The chances are that your brood sows are worm-infested. This means stunted litters—pigs from a wormy sow can't get the right start.

I guarantee that if you feed my Stock Tonic regularly as directed, you will rid your hogs of worms, they will keep toned up and vigorous, resist disease better and fatten quickly and cheaply.

Dr. Hess Stock Tonic

25-lb. pail, $1.60. 100 lbs., $5.00.

A Fine Conditioner—A Sure Worm Expeller

Your horses, cattle and sheep are apt to be out of fix right now, because animals off pasture and on dry feed are deprived of the laxatives so plentifully furnished in grass.

Feed my Stock Tonic to your animals now. It contains tonics for enriching the blood, tonics to help their digestion and help them assimilate their feed better, as well as laxatives for keeping the bowels regular and clean.

Remember, when you buy my Stock Tonic from your local dealer you save peddler's horse, team and traveling expenses, and the small dose quantity will prove that my Stock Tonic is the most economical, too. Now read this guarantee:

So sure am I that Dr. Hess Stock Tonic will positively rid your hogs of worms and keep your stock healthy and vigorous, that I have authorized my nearest dealer to supply you with enough for your stock, and if it does not do what I claim, return the empty packages and get your money back.

25-lb. pail, $1.60; 100-lb. sack, $5.00; smaller packages as low as 50c (except in Canada and the far West and the South). Why pay the peddler twice my price?

Dr. Hess Poultry Pan-a-ce-a

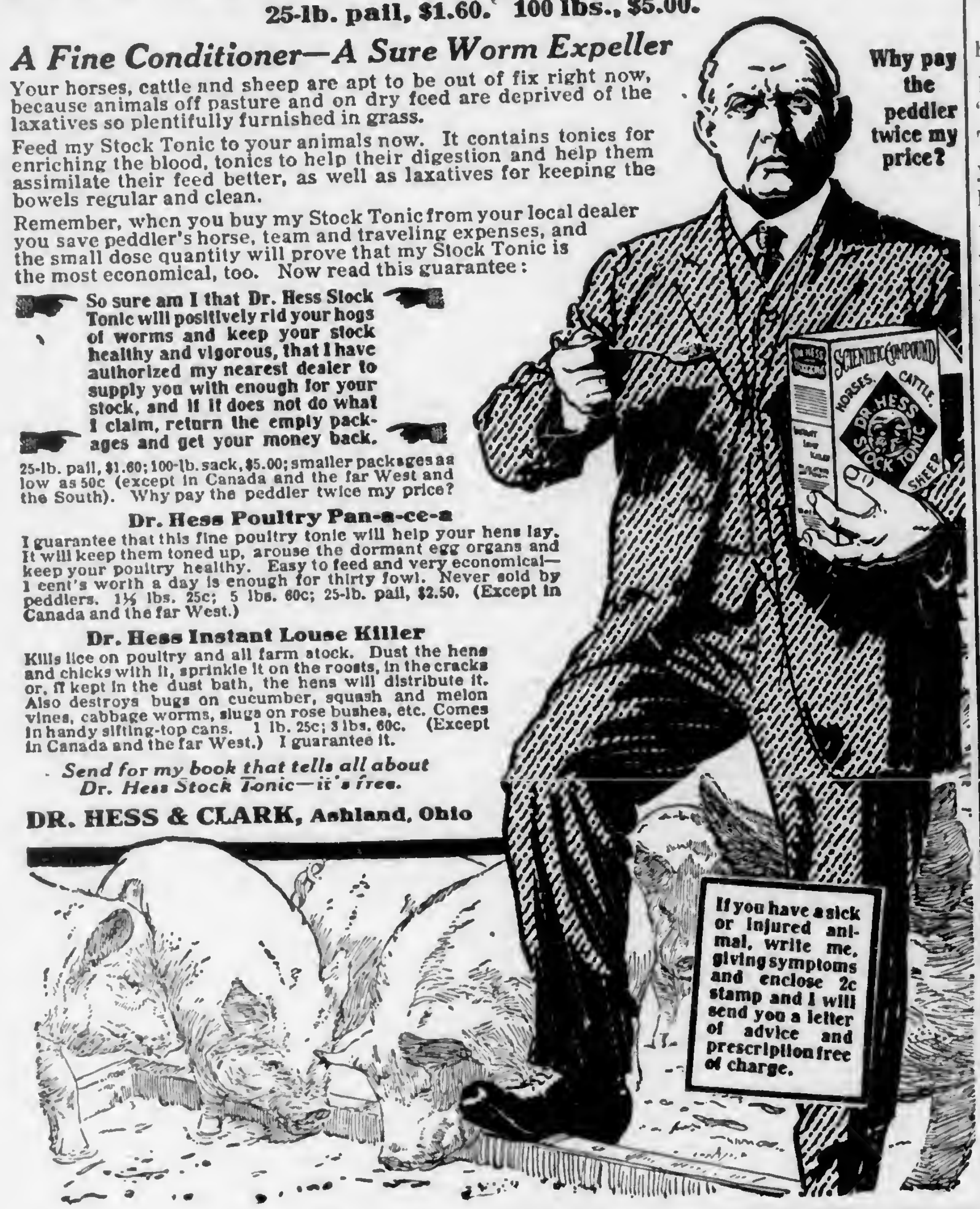
I guarantee that this fine poultry tonic will help your hens lay. It will keep them toned up, arouse the dormant egg organs and keep your poultry healthy. Easy to feed and very economical—1 cent's worth a day is enough for thirty fowl. Never sold by peddlers. 1½ lbs. 25c; 5 lbs. 60c; 25-lb. pail, $2.50. (Except in Canada and the far West.)

Dr. Hess Instant Louse Killer

Kills lice on poultry and all farm stock. Dust the hens and chicks with it, sprinkle it on the roosts, in the cracks or, if kept in the dust bath, the hens will distribute it. Also destroys bugs on cucumber, squash and melon vines, cabbage worms, slugs on rose bushes, etc. Comes in handy sifting-top cans. 1 lb. 25c; 3 lbs. 60c. (Except in Canada and the far West.) I guarantee it.

Send for my book that tells all about Dr. Hess Stock Tonic—it's free.

DR. HESS & CLARK, Ashland, Ohio


Why pay the peddler twice my price?
SCIENTIFIC COMPOUND
DR. HESS STOCK TONIC
HORSES. CATTLE. SHEEP.

If you have a sick or injured animal, write me, giving symptoms and enclose 2c stamp and I will send you a letter of advice and prescription free of charge.

Branford Farms-Berkshires

Headed by the following great boars:

Lee Premier's Rival
Branford Artful Rival
Hopeful Lee's Successor

We are now making room for 1916 Spring litters, and offer over 100 head, including tried brood sows (open) and gilts ready to breed for Spring litters, service boars, including Hopeful Lee's Successor. Spring and Fall pigs at surprisingly low prices.

We will contract to breed a number of the sows to be sold, to Lee Premier's Rival and Branford Artful Rival, the latter used in the A. J. Lovejoy herd.

Buy a son or daughter of Lee Premier's Rival, the greatest boar we ever owned, bred, raised and owned by Branford Farms. When writing, specify what you desire us to price you. Everything high-class. Satisfaction guaranteed. Visitors always welcome.

Branford Farms, Groton, Conn.

SHROPSHIRES Bred Ewes; Yearling Ewes, and Ewe lambs. Breeding bucks of all ages for sale. All good vigorous stock and prices moderate.
CHESTERBROOK FARM, Berwyn, Penna.

Poland Chinas Boars that are real herd leaders with quality. Will price reasonable to move quickly. They will please you. Bred sows and fall pigs from registered stock.
C. S. EPPLEY, Zanesville, Ohio.

Registered Berkshires Blood of Masterpiece 77000, 6 boars 6 mos. old, $20 to $30 each. Archer B. Mifflin, Mine Run Farm, Audubon, Montgomery Co., Penna.

Berkshires 100 gilts, August farrow, Duke of Sussex 6th breeding. 10 bred sows. My prices will surprise you. Write for them.
L. T. DAVIS, Frankford, Delaware.

Meadowview Berkshires. Herd numbers 160 head. Size and prolificacy increased by balanced feeding. 15 boars ready for service at reasonable price.
VALLIE HAWKINS, Fawn Grove, Pa.

Shropshire Sheep Rams and ewes from noted English and American flocks. Quality high, prices reasonable.
NUTWOOD FARMS, R. D. No. 4, Syracuse, N. Y

Hillcrest O. I. C. Fall Pigs, Service Boars, Bred Sows. Reg. free. Prices low.
F. S. MURDOCK, Hartstown, Pa.

Chester White pigs, service boars, brood sows and gilts. Registered free. Satisfaction guaranteed. John L. Van Horn, Troy, Pa.

Berkshires A limited number of boars and gilts from spring litters.
ATKINSON BROS., Wrightstown, Pa.

SAY you saw the advertisement in Pennsylvania Farmer when you are writing to our advertisers.

Tankage Best for Hogs

It puts vitality into your stock, makes them healthier and insures better and quicker growth. But be sure your tankage is the best. You can't afford to feed them inferior quality.

Martin's Tankage

is made from the best meat scraps, carefully sterilized and is guaranteed. You buy direct from manufacturer, get the best and save money on the price. Write us for quantity prices.

D. B. MARTIN CO., Phila., Pa.

Discriminating Buyers Satisfied with "Woodrow Farm" Berkshires. All fashionable families; outstanding individuals. Open orders given especial care.
P. F. BUCKLEY, Woodrow Farm, Broad Axe, Pa.

CHOICE BERKSHIRE PIGS sired by Prides Hopeful 167999, a grandson of Masterpiece 77000 and from dams of equal breeding $12.50 each. Registered, crated and express paid. Satisfaction guaranteed.
PRIDE HOME FARM, Box 122, Howard, Pa.

Choice Poland-Chinas Best registered large type stock. Sows Bred and young boars ready for use. Also young pigs. All healthy and thrifty. Bargain prices. Write me.
G. S. HALL, Farmdale, Ohio.

MULEFOOT HOGS Oldest breeder in the State. Pedigreed stock for sale.
SAMUEL JOHNS, Wilmington, Ohio. Sec. D

Chester White pigs, either sex; also a few bred sows. Write or better come and see them. ELMER D. WHISLER, Twin Brook Farm, Newville, Pa.

Large Berkshire Swine Registered High Grade. Prices reasonable. Write
HOME FARM. Center Valley, Pa.

Registered Berkshires. Service boars. Bred sows and pigs. Excellent breeding. Prices reasonable.
C. C. KEISER, R 2, Marietta, Lanc. Co., Pa.

O. I. C. service boars and fall pigs at farmers' prices.
Clover Leaf Stock Farm. R 1, Monroe, Mich.

Thoroughbred Mule-foots, Born Aug. 5th, $10.

Live Stock

WINTERING IDLE HORSES

At this time of the year practically all the heavy work on most farms has been finished, and with the advent of winter horses are more or less idle. Since idle horses give no return in labor performed, the feeding should be as economical as possible, and proper care should be taken of the animals in order that they may be in the best possible condition for work in the early spring.

Horses should not be confined to the barn during the winter on a liberal supply of grain. It is far better to "rough" them thru the cold months. They should be given the run of the yard or lot during the day. This should be provided with a protected shed, one that is thoroly dry and well provided with bedding. While nature does her part and protects the horse with a heavy coat of hair during the cold months, the shed is necessary in order to afford the necessary shelter and protection against rains, snow and cold winds. Winter winds come mostly from the north and northwest, and the shed should be so situated and constructed as to give the proper protection from this quarter.

HEREFORD MATRON WITH HER TWO BABIES.

In feeding of idle horses the high-priced feeds should be avoided in order to keep them in proper condition at the lowest cost. It has been found that idle horses do very well on a winter feed consisting of all the hay, oat straw, cornstalks, or sorghums they will consume, so that little grain is necessary. Idleness also permits of a more thoro mastication of the feed, thus insuring proper digestion.

From six to eight weeks before the spring work is started the horses should be put at light work and started on a small grain ration in order that they may be in proper condition for the work required of them. The grain ration may then be gradually increased until the regular allowance has been reached for the working season.

Growing colts require considerable protein. They should be so fed as to secure proper development and at a minimum cost. Rough feed, such as clean mixed hay, alfalfa, or clover, may be fed along with a mixture of bran, oats and corn.—Dept. News Letter.

WINTERING CATTLE ON SILAGE

Investigations at the Missouri Experiment Station show conclusively that cattle can be wintered economically on a ration made up largely of silage. In one experiment, a ration of corn silage and clover hay without grain fed to yearling cattle resulted in a gain of 200 pounds for the feeding period of 150 days, at a total cost of $11.60 or a cost of 5.5 cents a pound of gain, as compared with a total cost of $15.75, and 7.8 cents a pound, when a similar lot of cattle was fed on 6 pounds of shelled corn per head per day and clover hay.

These results have been confirmed in other experiments which all point to the conclusion that when silage constitutes the major portion of the ration fed to wintering or stock cattle, the cost of wintering is much reduced.

THE DOG AS A CARRIER OF DISEASE

The dog is a useful and pleasant adjunct to the farm if he is properly controlled and cared for, but when neglected, may readily become a carrier of disease to stock, in addition to gaining opportunity to kill sheep and destroy gardens and other property. Dog ordinances, as a general rule, have been intended chiefly to curb the dog's power of doing harm by attacking, biting, killing or running sheep or stock. The part that he plays as a carrier of diseases to animals has only recently been recognized, according to the zoologists of the Department of Agriculture.

Of the diseases carried to stock by dogs, the foot-and-mouth disease is probably of the greatest interest at this time. In this case the dog acts as a mechanical carrier of infection. The dog that runs across an infected farm may easily carry in the dirt on his feet the virus of this most contagious of animal diseases to other farms and thus spread the disease to the neighboring herds. In infected localities it is absolutely essential, therefore, to keep all dogs chained and never to allow them off the farm except on leash.

There are, however, many other maladies in the spread of which the dog takes an active part. In Bulletin 260 of the United States Department of Agriculture, "The Dog as a Carrier of Parasites and Disease," it is pointed out that rabies, hydatid, ringworm, favus, double-pored tapeworm, round worm, and tongueworm are often conveyed to human beings in this way. It occasionally happens, also, that the dog helps fleas and ticks in transmitting bubonic plague or the deadly spotted fever.

Hydatid disease is caused by the presence in the liver, kidneys, brain, lungs, and other organs, of a bladder worm or larvae tapeworm. Bladder worms are often as large as an orange and may be larger. A dog which is allowed to feed on carrion or the raw viscera of slaughtered animals may eat all or part of a bladder worm containing numerous tapeworm heads. These tapeworm heads develop into small segmented tapeworms in the intestines of the dog. The tapeworms in turn develop eggs which are passed out in the excrement of the dog. They are spread broadcast on grass and in drinking water where animals can very well eat them and thus become infeted. The hog is particularly liable to this disease because of its rooting habits. The eggs may get into human food, and persons who allow dogs to lick their hands and face also run the risk of getting the eggs of the tape worm in their systems.

Prevention on the farm consists in so restraining the dog that he can not get at carrion or raw viscera. Viscera should be boiled before being fed to dogs and should never be thrown on the fields. If not cooked and fed, viscera and carcasses should be burned or so disposed of as not to be accessible to dogs. Proper feeding of the dog is essential, and the owner who does not feed a dog properly has no right to keep one.

The parasite which causes gid in sheep somewhat resembles the hydatid worm. A dog allowed to eat the brain of a giddy sheep may swallow this parasite and later distribute the eggs of the resulting tapeworm over the pasture. Sheep while grazing swallow the eggs with the grass which they eat. In the case of sheep dogs it is important to administer vermifuges often enough to keep them free of these worms. In the case of sheep measles, the bladder worm in the meat, typical of this disease, is swallowed by the dog and again the tape worm eggs are passed by the dog to grass or water, and there are eaten by sheep.

Of the external parasites which dogs may carry to animals, fleas and the various kinds of ticks are both troublesome and dangerous. The remedy is clear. The owner must keep his dog clean, not merely for the comfort and happiness of the dog, but to prevent it from becoming a carrier of disagreeable and dangerous vermin.

These reasonable measures, important to the stock on the farm, have a direct connection with the health of the family. Where ringworm or other skin diseases break out among the children, or the worm parasites develop, it is well to determine whether a dirty or uncared-for dog may not be carrying infection on his skin or hair, or be conveying disease from carrion directly to the food and persons of his friends. Even if no one is infected with disease, the folly of allowing a dog to remain dirty and have the freedom of a home where personal cleanliness and hygiene are respected, is apparent.—Dept. Circular.

HOG AND SHEEP PROBLEMS

N. Y. State Breeders' Meeting

In his discussion of various problems of the swine breeder, H. B. Harpending, of Dundee, N. Y., advised the placing of size and constitution ahead of show points in swine breeding. He advocated the selection of parent stock with a view of increasing the length of body, width of head and breadth, with increase of heart girth and depth of flank. Most breeds of swine from generation to generation, unless much care is exercised in the selection of the parent stock, have a tendency to lengthen in the nose and head and narrow up there, with a shortening of the body. This is most noticeable with the Duroc Jerseys, Poland Chinas and Berkshires. The Chester Whites have a tendency to lengthen in the nose and to drop back of the shoulders with a decrease of heart girth. All these faults must be carefully considered in the mating of males and females and no line breeding should be practiced with animals possessing any of them in common or individually to a marked degree.

Hog Cholera.—Mr. Harpending spoke at some length on the hog cholera situation, advising the use of serum, with sanitation, but no virus except in case of exceptional troubles, and then only with the most rigid quarantine. He advocated that the utmost reliance be placed upon the efficacy of serum, when secured from reliable agencies. He warned swine keepers against the use of trimmings from bacon or ham in the swill barrel, as that is perhaps the most frequent source of cholera infection in this state. Occasionally an animal in the large packing houses that is infected but has no clearly defined leisions will pass the inspectors. The cholera bacillus or germ will live in the bacon and hams even after the most thoro pickling and smoking. This has been definitely established at Cornell. Such trimmings from the meat shop or from the table will surely infect swine when fed to them and this explains the frequent outbreaks of cholera at the state institutions and garbage plants.

Profit From Sheep.—The desirability of keeping purebred sheep of good quality was emphasized by H. L. Wardwell, Springfield Center, N. Y., in a discussion of the sheep breeder's problems. Mr. Wardwell, who has one of the best Shropshire flocks in the state, said he had no trouble to sell registered ewes at $35 to $40 each. He has sold $9,000 worth of sheep this year, and 2,500 pounds of wool. He advised the sheep keeper to start with one breed and stick to it, and breed up until he has a flock of uniform type. When he went into sheep keeping his farm was producing 75 tons of hay; now it produces 300 tons annually. With alfalfa, clover and roots it is no trouble to make sheep do well.

The New York breeders elected F. W. Sessions, of Utica, president of their state organization. The other officers for the coming year are: vice president, H. B. Harpending, of Dundee; secretary, Albert E. Brown, of Syracuse; treasurer, Wing R. Smith, of Syracuse. —H.

DRESSING ROASTING PIGS

The following directions for dressing roasting pigs is quoted from a New York market paper. The directions represent the market requirements and should be a guide to those who seek the top quotations:

Pigs weighing 10 to 15 pounds usually sell best, but heavier weights are in demand during the holiday season. Great care should be used in scalding; the skin is so tender that if the water be too hot it cooks them and spoils the appearance of the stock. Open the belly just enough to take out all the entrails including the liver; drag the hind legs up as close as possible and run a strong skewer thru each foot and the belly; then bring the fore legs down and secure them in the same way as the hind legs. It is necessary to do this before the meat is "set." Pack them carefully in barrels or boxes, and see that they are kept clean.

Roasting pigs were quoted from 12 to 15 cents per pound, dressed weight, in the New York market week of December 13. Pigs weighing from 15 to 20 pounds each were quoted at 12 to 12½ cents per pound, and those weighing from 12 to 14 pounds were quoted at 14 to 15 cents. This would make such pigs range from about $1.85 to $2.15 each; not a particularly tempting return.

Don't borrow nor lend breeding hogs. Don't buy feed from infected farms. Don't let your hogs go to a running stream.

Have a "warm-all-over" house

In cold weather do you hate to go upstairs or from one room to another? Do you huddle up in one or two rooms and often suffer from chill or drafts? If you are comfortable in only, say, 3 of the 8 rooms of your house, you are getting the use of only *three-eighths* of what your house costs—a poor investment! Make a warm, cheerful *home* out of your *whole house* by putting in an outfit of

Do not live like this five months every year!

AMERICAN RADIATORS & IDEAL BOILERS

IDEAL Boilers and AMERICAN Radiators enable you to enjoy every room, hallway, nook and corner of the house. Not only do you get the full use and enjoyment of the home, but IDEAL Boilers and AMERICAN Radiators will actually pay for themselves in the fuel savings.

They are so simple to run, and so thoroughly rid the house of ash dust (giving long life to furniture and decorations) that house-cleaning is reduced one-half. IDEAL Boilers are the only heaters so made that all the coal-gases and soot are kept inside the boiler—burned there—thus protecting the family health. No other heating apparatus in any way competes with IDEAL Boilers and AMERICAN Radiators, hence their rapid and wide use in farm houses and other buildings—more than a million installations at home and abroad.

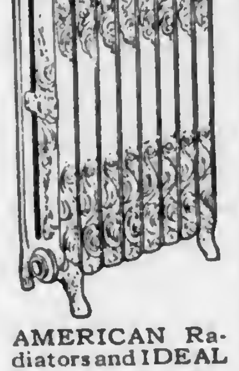
Phone your local dealer but specify and insist on IDEAL Boilers and AMERICAN Radiators. Do not take any other. In so important a matter you can not afford to run any risks, especially when IDEAL Boilers and AMERICAN Radiators are so fully *guaranteed* and cost no more than inferior makes. They protect the farm house against fire risk and run independently of water works supply or mains, as same water is used over and over again for years.

The smallest farm cottage or largest house is equipped at very reasonable cost. At present low iron market the cost will surprise you. The IDEAL Boiler is put in cellar, side room or lean-to and will burn any local fuel—wood, oil, gas, lignite, hard or soft coal (even cheap grades of pea coal, slack, run of mine, screenings, etc.) If warm cellar spoils vegetables, boiler and pipes may be covered and all heat then goes to upper floors.

A No. 4-19-W IDEAL Boiler and 270 ft. of 38-in. AMERICAN Radiators, costing the owner $200, were used to heat this farm house. At this price the goods can be bought of any reputable, competent Fitter. This did not include cost of labor, pipe, valves, freight, etc., which vary according to climatic and other conditions.

Our catalogue (free) is a volume of concise heating and ventilating information which every owner or tenant—small or large—in country or town—ought to have. Write us today. All inquiries cordially welcomed.

No obligation to buy.



AMERICAN Radiators and IDEAL Boilers change any house into a *home*.

Showrooms in all large cities AMERICAN RADIATOR COMPANY Write to Dept. F-30 Chicago

Also makers of stationary, unfailing ARCO WAND Vacuum Cleaners.

TANKAGE for HOGS

Every experiment station test shows *Tankage* the cheapest and best feed for hogs and growing pigs. Build big frames to carry fattening. Use Roberts *Tankage* and *buy direct* from manufacturer. Write for prices.

Ellwood Roberts Co., 675 Drexel Bldg., Phila.

The South—The Homeland

FOUR TO SIX TONS OF ALFALFA, 50 to 100 bushels of corn to the acre, $100 to $500 an acre from fruit or truck, opportunities for the stock raiser and dairyman, a climate which means two to four crops a year, pleasant home locations, attractive land prices, are things the South offers homeseekers. Our publications and special information on request.

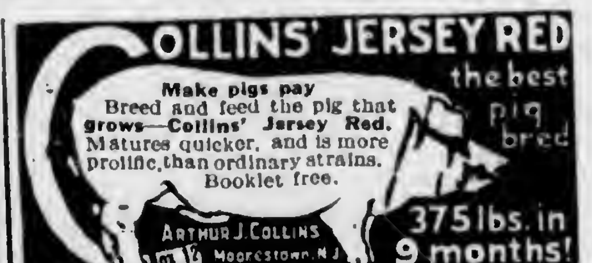
M. V. RICHARDS
Ind. and Agr. Com'r, Southern Ry. Room 74 Washington, D. C.

Elmwood Berkshires. An unusual selection of spring boars of the right type. Satisfaction guaranteed.
JOHN C. BREAM, R 4, Gettysburg, Pa.

OXFORD AND CHEVIOT rams and ewes. Berkshire and Hampshire hogs, either sex. Red Polled cattle, all ages. O. H. Swogger & Son, Mercer, Pa

SAY you saw the advertisement in Pennsylvania Farmer when you are writing to our advertisers.

COLLINS' JERSEY RED the best pig bred



Make pigs pay
Breed and feed the pig that grows—Collins' Jersey Red. Matures quicker, and is more prolific than ordinary strains. Booklet free.
ARTHUR J. COLLINS Lot 12 Moorestown, N.J.
375 lbs. in 9 months!

A Civil Service Job For YOU!

There are many fine openings in the Railway Mail Post Office and other government branches for American citizens 18 and over. Let us show you how Mr. Patterson, a former U. S. Civil Service Secretary-Examiner, can help you obtain one of these positions. Booklet 16-W gives full particulars. It's free, without obligation. Write to-day.
Patterson Civil Service School, Rochester, N. Y.

For Sale Registered Chester Whites and Poland Chinas. All ages. Recording free.
J. A. BOAK, Route 4, Newcastle, Pa.

O. I. C. Silver strain fall pigs, none better. Write for catalog. WHITE HOMESTEAD,
F. C. White, R. D., Cincinnatus, N. Y.

Poland China pigs. Large type; registered. Best of breeding.
H. L. BROOKS, Newtown, Pa.

VIRGINIA and NORTH CAROLINA Farms Mean Independence

Yes actual independence, if you are willing to do your part. Farms bought at $15 per acre and up will earn you a comfortable living and under proper cultivation will increase in value 10% or more annually. Delightful climate, sociable neighbors, good schools, churches, good roads, nearby markets. Close to railroad. New York, Philadelphia, Washington, Baltimore 6 to 12 hours. Our magazine, "The Southern Homeseeker," describes in every day language Southern opportunities emphasized by letters from those who have located here. It tells the truth about taxes, labor, low priced lands, climate, crops and living conditions. Write today for years subscription, Official farm list, maps, etc. It's All Free.

F. H. LaBAUME, Agrl. & Indsl. Agt., Norfolk & Western Ry.
Room 403 N. & W. Bldg. Roanoke, Virginia

Horticulture

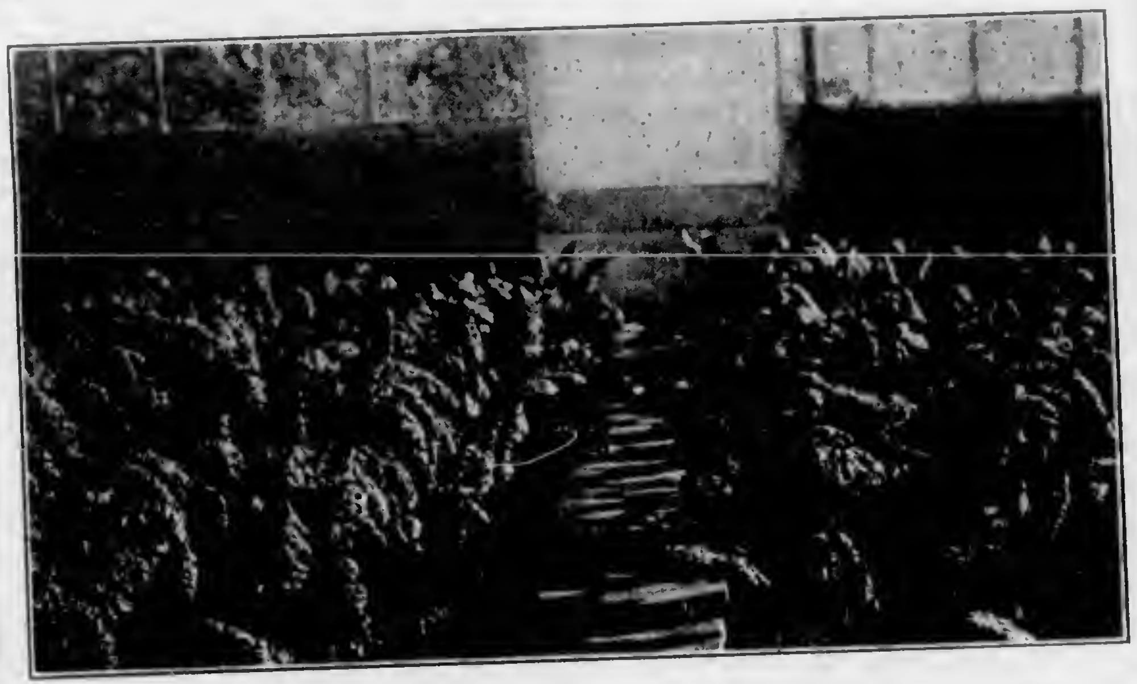
COMMERCIAL FERTILIZER FOR GARDEN

Few farmers have the proper idea of the importance of commercial fertilizers. Most farmers who use them do so because they are unable to obtain a sufficient supply of manure and not from a belief that they are as essential in keeping the soil in a good state of productiveness as is manure.

Manure carries an excess of nitrogen and is not a balanced fertilizer. The use of sufficient manure, then, to give the soil the quantity of phosphorus and potash it needs would result in a waste of the most valuable fertilizing constituent, nitrogen. In many cases, where heavy applications of manure are made year after year, the nitrogen is not only wasted but its excess in the ground causes an immense vine or stalk growth at the expense of grain or fruit.

No matter how great a supply of manure is available, it certainly will pay the gardener to use commercial fertilizer. Stable manure must undergo certain changes in the soil before it can be used by crops On the other hand a commercial fertilizer can be purchased that will give up its plant-food immediately. The use of commercial fertilizers will hasten the maturity of vegetabels. To be in prime condition for marketing certain vegetables must grow rapidly. This is especially true of radishes, lettuce and onions. Another point to be considered in applying a fertilizer that is immediately available, is that insects are not nearly as bothersome on plants that make rapid growth.

Commercial fertilizers and barnyard manure should be used together. Manure is, of course, essential in keeping up the humus content of the soil, but the use of manure alone not only means a waste of nitrogen, but it soon gets the soil in such an unbalanced state of fertility that it is impossible to produce good crops.—T. Z. Richey.


CHARD IN GREENHOUSE.—Transplanted Oct. 20 1915 From Field-Grown Plants. Cut Nov. 23, making 72¾ pounds of leaves which sold at 9 cents per pound.

SWISS CHARD

During the last two or three years growers of vegetables in greenhouses have been looking for new crops. There are several who have been trying the production of Swiss Chard. Very successful reports have been obtained regarding the growing of this crop in the greenhouse. The variety used is the Lucullus.

The crop is generally seeded in the open and later transplanted to the greenhouse. Generally, the best practice seems to be to start the seed from the first to the fifteenth of July, giving the plants good cultural conditions, as to a rich soil, plenty of water and freedom from weeds. Do not harvest the leaves from the outdoor crop until ready to lift for the greenhouse. About September 10 to 20, however, the large foliage can be harvested and sold. The roots may be dug and transplanted to the greenhouse. A good rich greenhouse soil should be supplied,—one composed of sandy loam and heavy applications of well-rotted stable manure offer inducements for rapid growth of this plant.

The average distance for setting the plants is twelve or fourteen inches between rows and from seven to ten inches between plants in the row. A day temperature from sixty to sixty-five degrees should be maintained and the night temperature should not fall below fifty degrees. The crop delights in ample ventilation and fresh air. Careful attention should be given to watering, in order, that a large enough supply can be given to insure rapid development of the leaves.

During the growing period occasional applications of nitrate of soda or sheep rapid large growth. Ordinarily, it is possible to harvest from one and a half to two and a half pounds from each plant during the growing season in the greenhouse.

The prices received vary from eight to sixteen cents a pound. In harvesting the leaves, the pedicel or stem should be cut very close to the crown but care should be exercised not injure the crowns. Sometimes a grower can sever the stalk from the crown by a slight twist.

Do not in anyway leave stubbs for decay soon spreads from stubbs and spoils the crowns. Showers of cold water ordinarily will keep the thrips and red spiders under control. Occasionally insect pests become very numerous, then it will be necessary to spray with a reliable tobacco extract, diluted one part to 400 parts of water.

Growers who are interested in another greenhouse crop are advised to try this crop in a small way increasing the number of plants as the market demands the increase.—A. E. Wilkinson.

ANNUAL MEETING OF PENNSYLVANIA VEGETABLE GROWERS' ASSOCIATION

The Second Annual convention of the Pennsylvania Vegetable Growers' Association will be held in the Berkshire Hotel, Reading, Pa., January 18, 19 and 20, 1916. Plans and arrangements have been completed and everything is in readiness for a very successful convention.

The past season has emphasized in a most startling manner the dire need for organization and co-operation among producers of perishable crops and for greater efficiency in the production and Pennsylvania Vegetable Growers in convention at Reading have selected for their watchwords: Organization, Co-operation, Advertising and efficiency in Production and Marketing. List of subjects follows: "Potatoes for Pennsylvania," Professor Alva Agee, Director of the Department of Extension, New Brunswick, N. J.; "Wrinkles and Kinkles," Dean R. L. Watts, State College, Pa.; "Standardization of Vegetables," Dr. C. T. Johnson, Director of Norfolk Truck Experiment Station, Norfolk, Va.; "Organizations," Dr. C. T. Johnson; "Co-operative Marketing Associations," H. W. Selby, Phila., Pa.; "Storing and Marketing of Celery," S. Herbert Starkey, Market Gardener, Bustleton, Phila., Pa.; "Advertising", W. F. Therkildson, W. Atlee Burpee Company, Phila., Pa.; "Food Values of Fruits and Vegetables," Miss Pearl MacDonald, State College, Pa. "Economic Fertilization," Thomas M. Knight, Phila., Pa.; "Supplying the Local Market," R. M. Garrahan, Market Gardener, Kingston, Pa.; "Some Aspects of Pacific Coast Horticulture," Dr. J. P. Stewart, State College, Pa., "Strawberries," M. J. Krull, Angola, N. Y.

The opening session will begin at 1.30 P. M., Tuesday the 18th.

Announcement should be made at this time of the fact that the Pennsylvania Vegetable Growers' Association has made its arrangements with the New York State Vegetable Growers' Association to co-operation in the seed service work. For several years the New York Association has been rendering valuable services to its members in helping them to secure reliable seeds at rasonable prices. The Pennsylvania growers are now given the opportunity of being served in like manner. The printed seed lists will be mailed out to members as soon as they come from the printer.

For a complete program, or for further particulars in regard to any of the activities of the Association, address Mr. John R. Bechtel, Secretary, State College, Pa.

STATE COLLEGE COMPETES IN FRUIT JUDGING CONTEST

The annual fruit judging contest of the Intercollegiate Fruit Judging League, composed of the agricultural colleges of Maryland, Kentucky, Pennsylvania, Ohio, West Virginia, Delaware and New Jersey, was held at Baltimore, Maryland, November 19, in connection with annual fruit show of the Maryland Horticultural Society. The object of this league is to promote more uniform standards of judging fruit in the States represented in its membership.

Sixty plates of five apples each were judged by the competing teams, composed of three students from each college. Twenty-four varieties of apples were represented. Contestants were required to pick out the several varieties and to pass upon the superiority of different plates of the same variety.

Out of a possible 100 points the scores made by the different teams were as follows:

Ohio, 95.11; West Virginia, 94.40; New Jersey, 91.63; Pennsylvania, 90.88; Kentucky, 89.31; Delaware, 83.97; Maryland, 81.92.

The following scores were made by the students composing the team from the Pennsylvania State College: R. P. Wetherald, 94.41; J. M. Klingensmith, 90.84; H. W. Staiger, 87.04.

A FARMER'S BLACKSMITH SHOP

On one of my recent trips I came across a very interesting farm blacksmith shop. The most interesting thing about it is the fact that the farmer made most of the tools himself. In various ways he had picked up some small knowledge of blacksmithing and could do such simple things as welding and elementary tempering before he decided to have a shop at all. Then, not being possessed of more money than he knew what to do with he paid visits to various junk shops to pick up such articles as might meet his needs. His second hand forge cost about two dollars, his sledge half as much, pincers and a few other tools, trifling sums. At first he had only a piece of steel forging for an anvil. Now he has an anvil which he got in a neighboring village from a blacksmith's widow. From her he also purchased a vise and a few other necessaries.

He did not build the shop to cut out the village blacksmith. His object was to save himself time rather than money. Of course, in saving time he also saves himself money, but that is not the point he emphasizes. What he uses his equipment for is mainly in making small repairs, tempering harrow and cultivator teeth, and manufacturing chains, links, clevices, and the dozen and one little things that are in constant use on the farm but which must either be purchased or made to order by the blacksmith. Nor does the shop save him only the time necessary in going and coming. It also saves the long wait for a turn at the village shop. For instance, when a sleet storm came last winter he sharp-shod his team in a little over an hour, whereas he would have had to walk to the village two miles, wait probably not less than half the morning, and then not get the work he had to do done before afternoon.

It is his firm conviction that he can do certain kinds of work better than the ordinary blacksmith does them. He even declares that any farmer can do such things more satisfactorily. For instance, the farmer, not the blacksmith uses the harrows, cultivators, and plows. He therefore knows just how hard or how soft the iron and steel should be to secure best results in actual practice. Further, unless he has had some experience in blacksmithing he can rarely explain just this point to the average blacksmith. But with his own shop he can soon acquire experience enough to make his points exactly as he wants them, or as experience teaches

His experience bears out his statements. Last spring he sharpened all the points on his field tools and tho he had over fifty acres of corn, besides other crops that required inter-tilliage the operation did not have to be repeated in the case of even one point! He says that few farmers who depend upon the village smith have any idea of the satisfaction that comes from using well sharpened, well tempered tools and implements. One of his neighbors had to have the teeth of his tools sharpened three times during the season, tho his acreage was scarcely larger. Each time the bill came to $1.50. Since owning his shop he never has a dull tool on the place. His men are under orders to bring tools to the shop whenever dullness begins to manifest itself.

One more point. He always does the blacksmithing himself. It is his belief that to teach the hired man is waste of time because the man is almost sure to leave before he becomes really helpful in this direction. So he keeps the men busy at other things, unless he needs one of them to swing the sledge. When his sons are old enough to do this work he would teach them. In fact, he is teaching the boys the rudiments of smithing as well as farming because he sees the great value that such knowledge will be to them in after years. He allows the boys to experiment upon scraps of iron when he is able to be present to teach them, on rainy days, for instance. In fact, the boys tag after their father all over the place when they are not in school or busy with their chores. Not one of them has his nose pointed cityward, but that is another story.—M. G. Kains.

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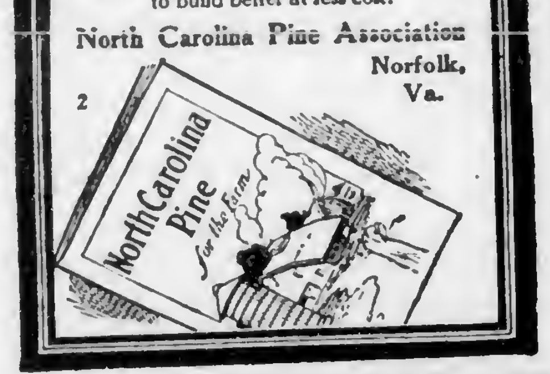
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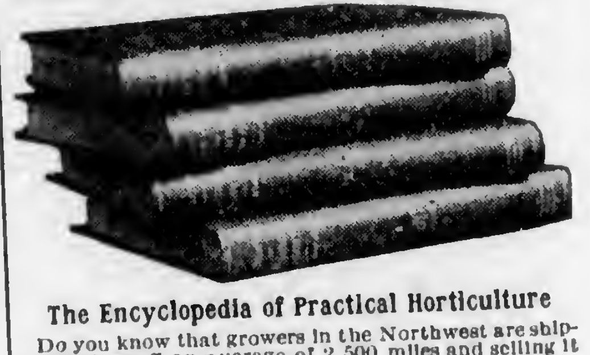
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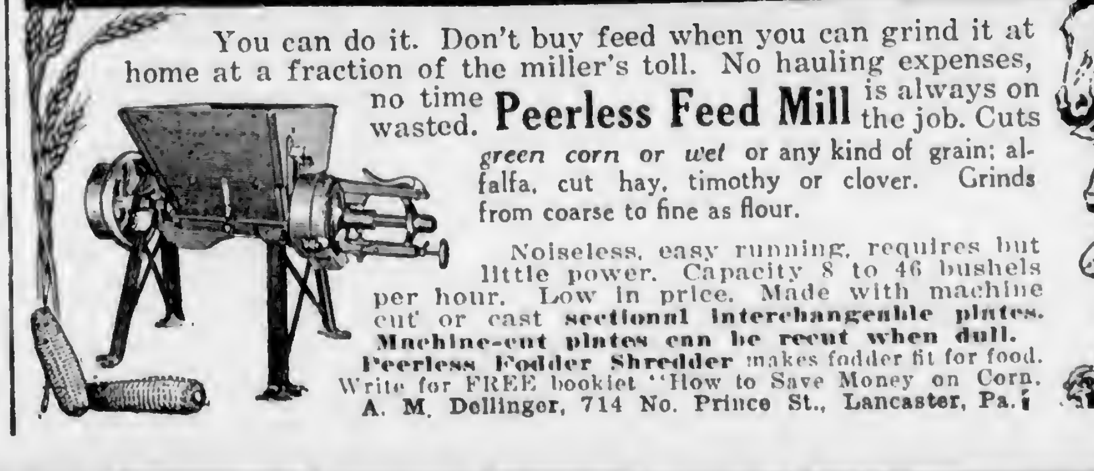

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Philadelphia, Pa., January 1, 1916.

THE NEW YEAR With what feelings of anticipation and even awe we approached the New Year when younger! Somehow, we expected things to be so different after that date. We felt sure that the joyous and charitable spirit of the Christmas season, and the good resolutions which everyone made for the new year would bring a noticeable change; that in the New Year life would be so much easier, mistakes fewer and everyone happier and more kindly. But experience has tempered our anticipations. We still believe in all these things, but have lost some of the impetuosity of youth, a quality that magnifies expectations. We have learned as all do sooner or later, that the upward climb of the race is slow—exceedingly slow—but nevertheless, upward. They who do not learn this lesson become pessimists. Their expectations have been guaged by the child's story of Jack and the Bean Stalk, and would like to see the development of the human race as rapid. How much better to learn well the lesson taught by the Great Teacher, "First the blade, then the ear; after that, the full corn in the ear." May each one experience the kind wishes for the New Year, keep the resolutions made, and lend to the common effort his strength towards making 1916 the best year humanity has ever seen.

FAKE PAPERS Every legitimate business and profession has its fakers, those who pose as genuine but whose purpose is to make gain and to do it by masquerading in the guise of useful service. The publishing of farm papers is no exception. The faking consists mainly in exaggerated claims of circulation. Every imaginable scheme is resorted to in order to get names. Subscription price counts for little or nothing. "All we ask is for you to pay the postage," is a favorite offer. Papers are sent on years after the time has expired. Lists are bought wholesale in spite of Post Office ruling. All this is done to swell the subscription list for advertising purposes. How long will this policy pay? Both the reading public and the advertisers are beginning to learn that a paper that is sent where it is not wanted, or to fake subscribers is of little value. The public can help to rid the country of these concerns if it will refuse to be held up or imposed upon by their pleas. A paper that is not worth asking a fair subscription price for is not worth having at all. A paper that does not have as its first object the dissemination of the latest and best in agriculture and the willingness to stand between the farmers' best interests and crooked schemers, is a paper to be suspicious of. Let readers of farm papers help to rid the land of the parasites in the farm paper field by refusing to have such papers forced upon them.

START THE NEW YEAR RIGHT A great deal of advice is given every year on the subject of book keeping for the farmers but comparatively few make any pretensions to a systematic keeping of accounts. At the risk of tiresome repetition we wish to again urge at this the opening of the new year, the desirability of adopting a simple plan of keeping farm accounts. The account book advertised on page nine of last week's Pennsylvania Farmer is one of the simplest and best adapted for general use that we have ever seen. But if such a book is not at hand, a common blank book can be adapted. Spend New Year's day taking an inventory. First, put down a fair valuation for the farm; then, under Equipment set down each piece of farm machinery and the price you think it worth now. On another page, enter each animal with its value, on another, the hay, grain, straw and feed on hand. Add each list separately, then add the totals and you will have the amount of the inventory to begin with. The satisfactory way is then to open an account with each department—cows, hogs, chickens, and each crop raised. But if this detailed system is not desired, keep account of cash received and cash paid out, each on its own pages. When an animal is bought, enter it where the others are entered in the inventory. When permanent improvements such as, draining, liming, roofing, building, etc., place under separate head, "Improvements." It does not require a complicated system to keep quite a satisfactory set of accounts and almost any system is better than none. The one outlined above, if followed carefully thru the year, will enable you this time next year to ascertain whether you made or lost during 1916, something that comparatively few can say definitely this New Year's day. Don't forget to give the farm credit on January 1, 1917 for the home and living—a credit that is frequently overlooked in farm book keeping, and an item which takes most of the income of men in other callings.

FIND OUT While looking at a nice herd of dairy cows the other day, we asked the farmer which was the best cow in the herd and were surprised when he said he did not know, altho he had been in the dairy business several years. Upon thinking of it afterwards we wondered how many farmers would have to give the same answer as this man, "I don't know." When he was asked why he did not find out, he answered that he had often thought of it but it seemed so much trouble he never got at it. Another man, one who weighs the milk of every cow at every milking, said the other day that it would take half the satisfaction out of dairying if he should cease to keep a record. This is part of the answer to the first man's objection. Keeping exact records of animals adds a zest to the work that is entirely lacking in the happy-go-lucky plan. It is the business of the farmer, dairyman, poultryman, etc., to find out what is paying and what is not. Life is too short and labor and feed too expensive to squander on crops or animals that do not return a profit. Many an old cow returns less than she gets every year and it is foolish to keep her. The same is true in other lines. Find out. Every dairy community should have a cow-testing association. Many have learned more in a year about the exact status of their dairying than they found out in a lifetime before. Will your seed for next year grow? "I don't know." Find out. Does your soil need lime? Find out. It is possible to find out the truth about almost every doubtful question and the difference between a good farmer and a poor one—between success and failure—is that the one finds out and the other "guesses". It may not be a disgrace to be ignorant, but to remain ignorant when the truth may be had is disgraceful.

THE PUBLIC CONSCIENCE We realize very readily the value and, in varying degree, the sensitiveness of the individual conscience. But we sometimes forget that there is also a public conscience. The individual conscience assists in directing the actions shaping the morality of individuals. Its sensitiveness varies with individuals. The public conscience is probably about the average of the total of the whole. However individuals may differ in their conception of what is right and wrong, there is a limit past which no man or nation can go and not arouse the public conscience against him. It is well that this is so, else degenerates would know no limit in cruelty, injustice and dishonesty. Several things have been done during the conduct of the present war which have aroused the public conscience of the world, and its universal condemnation has tended to check if not stop them entirely. Men and nations both fear and respect the public conscience more than any other thing. Speaking of the attitude of the public towards dishonesty and corruption in politics a New York business man recently said that the public never does anything until the degree of badness has passed certain limits. Then, "the people throw a fit," and there is a clean-up. The degree of progress the human race is making is to be measured by the sensitiveness of the public conscience, and one optimistic note is that never before was there so quick a public condemnation of cruelties and outrages. All the civilizing influences —religion, education, social activity, tend to develop this public conscience. In other words, as the individual's knowledge of duty, right, and wrong increases, to that degree is the morality and righteousness of the whole increased. In this way only is the world made permanently better.

RURAL DELIVERY It is said that where there is smoke there must be fire, and the almost universal complaint on the part of the rural people about the service they are receiving from the Rural Delivery routes since the changes have been made by the Department indicate that there must be something radically wrong. The lengthening and re-routing of the routes was said to be done in the interest of economy, but if this is achieved at the expense of efficiency it is a mighty unsatisfactory kind of economy. Country people have a right to kick at the result and they should place their kicks where they will count most. It took years of effort on their part to establish rural delivery, a service that was long past due when it was instituted, and if the officials think they can safely withdraw it or cripple it they will find their mistake. We understand many farmers are cut off entirely; others compelled to go long distances to a box, and in many instances the trip is made so long as to make it almost impossible for the carrier to make it in time to deliver mail to out-going trains. Nothing has done more to improve country life and link it to the life of the world than rural mail delivery and what is needed and just is extension of its service, not curtailment. The government is making great pretensions, in fact is rendering good service, in other directions for the benefit of agriculture and the improvement of rural life, but let it not forget that they who are living the life out on the farms of our land and raising the food for the millions have other interests in life than tilling the soil and raising bigger crops. Let there be no hypocrisy in this work, neither underestimation of the character and force of the people who live out on the farms. Since economy is needed in order to meet the treasury's needs, let there be a reduction in the size of the pork barrel, and a more serious questioning whether intelligence, good service and justice are not quite as important in the scheme of "preparedness" as armies and battle ships.

CROSS PURPOSES We have been watching with a good deal of interest the activities and deliberations of the different bodies as they meet for consideration of questions relative to farming and agriculture in general. Some of these conventions are composed mainly of farmers and their wives; others are made up of professional and business men and women who are interested for various reasons and from different motives. On reading the reports of these meetings one is struck with the difference in the character of the subjects considered. In the farmers meetings, made up largely of National, State, and Pomona Grange gatherings, we find questions discussed bearing almost exclusively on such matters as: Equal taxation, good roads at reasonable cost, improvement of rural schools, opposition to large expenditures for military purposes, suppression of the liquor traffic, satisfactory rural mail delivery, organization, etc. The meetings of the other interested classes—officials, teachers, bankers, railroad men, improvement leagues, etc., discuss entirely different questions—those relating to agricultural education, bureaus, extension work, rural sanitation, increasing production, better grading and marketing methods, etc. It will be seen that farmers are most interested in questions that have to do with economy, reduction of expenses, and equalization of burdens. The recommendations of the other class call for increased outlay. The references to either class by the other is not always complimentary, chiefly because of a lack of understanding of motives and an underestimate of the importance of the subjects treated by the other side. There must come a better understanding. Each must realize that the other is honestly interested and has opinions of value. What is needed is to hold joint meetings in which producers, consumers, and the scientific man may meet together, all coming with open minds, willing to learn one from another. All these questions are of great importance to the whole people and must be settled right, but let neither side think it has a monopoly on facts and good sense. There is no place in the scheme of agricultural betterment for unwarranted display of egotism, or autocratic action.

It would be a good idea to start the boys and girls in something for themselves, by giving them a piece of ground, a flock of chickens, a good animal, or some other money-making proposition. Or, if preferred, give them a partnership in some line. This is part of their education.

HARRISBURG NOTES

After Cold Storage.—The state authorities are keeping a close watch on the manner in which cold storage foods are being put on the market just now. The time limit on millions of dozens of eggs is up this month and they must be put into trade or be outlawed. The agents of the state are insisting that these goods be sold as cold storage and not as fresh. Some arrests have been made for palming off the stored eggs for fresh in cities and the effort will be to prevent the state being flooded with these eggs as their time limits expire.

To See The Farms.—Governor Brumbaugh, who led a party of prominent Pennsylvanians on a tour of almost 1,000 miles last fall to see the natural beauties of the state and to try the roads, is thinking about a journey to see the farms of Pennsylvania next autumn. The governor has not made any plans as yet, but according to the way he puts it, the farms are what Pennsylvania must depend upon for its food and there are a heap of people interested in farming, as owners and workers, who ought to be in closer touch with each other, and then there are many Pennsylvanians who do not realize what splendid farms there are in the Keystone state and what great opportunities there are for development of agriculture. Scientific farming, the governor has said several times, is going to mean much for the people of this state in a few decades and as land owners and land tillers are commencing to see the importance of improved methods, and the state authorities to grasp the signs of the times there will be a revival of interest in the proposition of the state raising its own food supply before very long. When one considers the diversified farming carried on in the state, the truck, dairying, stock raising and similar enterprises together with the numerous "model" farms to be found in accessible counties this tour offers a chance for Pennsylvanians to become familiar with activities in which all too little pride is taken by the people of the state.

Crops That Paid.—So much attention was given last fall to the wheat and corn crops in Pennsylvania and so much talk of foreign shipments that the average reader, and farmer, too, for that matter, did not realize that one of the most paying of the crops was being harvested. It was the hay crop, which in Pennsylvania, amounted to 3,558,000 tons, one of the biggest ever reported to the State Department of Agriculture and valued at $56,572,200. The corn crop was worth $41,000,000 and the wheat $26,000,000. The truth is that Pennsylvania has been giving much attention to hay but without a brass band. The state department's reports show that the potato crop which was declared to have been ruined by the bad weather, was over 20,500,000 bushels and was worth $16,401,600. Oats, another crop which was declared to have been badly affected by weather, is shown by state reports to have been greater than last year and to have been worth the tidy sum of $19,823,000. These figures look dry, but they all go to show the tremendous extent and possibilities of Pennsylvania agriculture and the necessity for more care for their development when the next legislature starts to make up its appropriations.

Many New Laws.—The State will start off the new year with more new laws than it has encountered in many a long time. There will be the state workmen's compensation system, the new child labor law with its continuation schools, the new lime inspection act, the new insurance laws, the stock transfer tax law, new forms for reporting for state corporation tax, whence most of the money comes, health inspection and the escheat act. The latter law is expected to bring into the state treasury many thousands of unclaimed deposits in banks, some of which might be used to advantage on improvement of roads and bridges.

State Is Healthy.—Except for the grip, say officials at the State Department of Health, Pennsylvania is healthy this winter. There is less smallpox, typhoid and similar diseases and while the grip has prostrated many, the reports show that the bulk of the cases have been in the cities and towns. Outbreaks of the disease in the country have been comparatively few or perhaps the folks in the rural districts do not make as much fuss over it as they do in the urban communities. A general improvement in health of youngsters in country schools is reported by medical inspectors. The medical inspection work is now carried on more extensively in this state than in most of the states of the Union.

Still Less Cholera.—Late reports to the State Live Stock Sanitary Board indicate that there is less hog cholera in the State than a month ago and that the new year will start with the state in better situation in respect to disease among its swine than for a long time. This is very fortunate when it is considered that there has been a marked increase in the number of hogs raised in the State and that the disease is prevalent in adjacent states.

The School Appropriation. — It is probable that as a result of the delay in paying the State school appropriation and the complaints that what the state allows for rural districts does not reach that some attention will be given by school authorities to the proposition before the next legislature meets. The situation is that the increase in population in the cities is absorbing the increase in the school appropriation for aid of common schools, that is the increase made in 1907 and not that in 1915, and that the rural population being stationery, in some places decreasing, the country schools are no better off than they were five years ago. The attention of Governor Brumbaugh has been brought to the conditions and it is likely that schools will receive recommendations in his message to the next legislature.

Institute Attendance.—The reports of the farmers institutes held during the last three weeks have indicated a good attendance on the part of farmers in spite of the weather conditions. Incidentally, it has been found that there is considerable talk at institutes about the changes in the rural mail routes.

Oleo Licenses Away Up.—It is believed that the end of the year will see a larger number of licenses for the sale of oleomargerine issued than ever known since the system was established. The total is about 2,830 and over 500 applications for 1916 licenses have been put on file. — Hamilton, Harrisburg.

NEW YORK LETTER

Official Election Returns.—The state board of canvassers has announced the official returns on the various questions submitted to the people at the last election. Woman Suffrage was defeated by 188,313. Question No. 2 relative to altering the rate of interest on state bonds defeated by 291,450. Bond issue for the barge canal approved by 45,197. Amended constitution defeated by 504,669. Taxation referendum defeated by 568,476. These figures do not include the vote in Oneida county where the vote of the city of Utica is held up by a court order.

New York City May Eat Horse Flesh. —For many years there has been a section in the Sanitary Code forbidding the use of horse flesh as food. It is there no longer, the Board of Health having this week revoked the section. This means that horse meat may be sold at the butchers as is other meat. The question is, who will eat it? Not many Americans who can buy anything better. It will find its largest sales on the East Side among the alien population. It is interesting to note what the Board of Health has to say as a defense of its position. It hastens to say that while the department does not exactly recommend the eating of horse meat it sees no harm in it from a medical or sanitary point of view. The commission says that the horse is free from many diseases that afflict animals, as tuberculosis, and it does not communicate disease to mankind but he forgets to say anything about glanders and the like. And he remarks that no longer need old horses be sold for what their bones will bring "but they can be fattened up and disposed of as meat." Imagine a fattened horse after its service between traces is past and it is a candidate for the bone yard or would be if it were not possible to divert it to the butcher's shop.

Dairymen's League. — The annual meeting of the Dairymen's League was held last week in Albany when 22 directors were nominated to be elected at Sussex, N. J., at a later day. The league is incorporated in New Jersey. Secretary Manning said that there was now 190,000 cows represented by the membership of the league and about 140,000 agreements signed. This represents between 40 and 50 percent of the cows producing milk for the New York market. The chief address was given by Prof. Tuck who remarked on the pressing need for education in the dairy districts on sane, practical co-operation, information as to costs, ways of selling and methods of distribution. He also said that the league had raised a number of important legal questions as the relation of the league to the Sherman Anti-trust law and the Donnelly Act, and how far an association may go in attempting to fix prices in the face of these laws. He said that success in co-operation depended upon having a successful home, co-operatively-owned milk plant and with this as a basis, to work together with other like plants and so work from the bottom up. Plants might federate thru a central sales committee. Each plant would need to be bound by contract to place the disposal of its product in the hands of the committee.

Proposed Highway Law.—The governor will ask for a law to provide that the state treasurer rather than each county treasurer shall have the custody of the highway funds, according to a report from the office of the highway department. The county treasurers do not now give bonds for the deposits and the total of these deposits has been between four and five million dollars in recent years. Gov. Whitman does not believe that officials who owe no responsibility to the state should handle these funds. Commissioner of highways, Duffey will ask for his department this coming year the sum of $3,506,000.

Agricultural Conference.—At the call of the commissioner of agriculture a large number of interested persons attended the agricultural conference in Albany last week. The Assembly parlor was filled with the conferees. The conference was divided into four groups representing animal husbandry, the plant industry, foods, feed and fertilizers, and commercial relations. Mr. A. L. Brockway, of Syracuse, stirred up the conference to quite a heated discussion on the subject of laws to permit the sale of milk regardless of its butter fat content, provided that content be stated on the container. The present law requires the butter fat content to be 3 percent. The matter was finally referred to a committee for executive discussion. The conference did not seem to be in very hearty sympathy with Mr. Brockway's proposition and it is hardly likely that it will receive very favorable consideration at the hands of the committee or of any other conference of farmers. Another subject that provoked much discussion was that of the protection of sheep from dogs. C. W. Larmon, chief of the bureau of Farm Lands, desired a revision of the law on the subject. Others thought that the matter was covered by the county laws rather than by the agricultural law. Mr. Larmon argued that he had inquiries from "hundreds of people" who wanted to come to the state to engage in sheep raising but who would not unless they could be protected from the ravages of dogs. The following legislative committee was appointed to act as an agricultural "steering board" to consider proposed statutes and prepare them for introduction into the legislature: Dr. W. H. Jordan, C. A. Weiting, W. N. Giles, C. W. Burkitt, C. H. Kimball and J. L. Morrell.—D.

PENNSYLVANIA FARMERS' INSTITUTES

First Section. — Lebanon County, Schaefferstown, January 3, 4; Annville, January 5, 6; Jonestown, January 7, 8. Speakers, Sheldon W. Funk, Raymond S. Smith, and H. M. Anderson.

Second Section. — Cambria County, Benshoff Church, January 3, 4; Somerset County, Boswell, January 5; Stoyestown, January 6; Somerset, January 7, 8. Speakers, D. H. Watts, M. H. McCallum, and R. O. Umholtz.

Third Section. — Lawrence County, Moravia, January 3, 4; Plaingrove, January 5, 6; Pulaski, January 7, 8. Speakers, E. B. Dorsett, Robert S. Seeds and C. M. Barnitz.

Fourth Section. — Susquehanna County, Dimock, January 3; Hartford, January 4, 5; Clifford, January 6; Thompson, January 7, 8. Speakers, William M. Patton, H. M. Gooderham and Dr. W. T. Phillipy.

Fifth Section. — Schuylkill County, Summit, January 3, 4; Klingerstown, January 5; Pitman, January 6; Andreas, January 7, 8. Speakers, J. T. Campbell, John D. Herr, Professor Franklin Menges and M. S. Bond.

FARM MEETING CALENDAR

Madison Square Poultry Show, New York City	Dec.31-Jan.6
American Delaine Marino Association, Columbus, O.	Jan. 5
W. Virginia Horticultural Society, Morgantown, W. Va.	Jan. 5- 6
N. Y. Fruit Growers' Assn. Rochester, N. Y.	Jan. 5- 7
Peninsula Hort. Society, Easton, Md.	Jan.11-14
Ayrshire Breeders' Association, Philadelphia, Pa.	Jan.13
N. Y. Agri. Society, Albany, N. Y.	Jan.19
N. Y. Assn. of Co. Agricultural Societies, Albany, N. Y.	Jan.20
Liverpoon Sale and Pedigree Co. Sale, Syracuse, N. Y.	Jan.17-18
Liverpool Sale and Pedigree Co. Sale, Earlville, N. Y.,	Jan.19-20
Penna. Hort. Society, Reading, Pa.	Jan.18-20
National Poland-China Record Association, Dayton, O.,	Jan.26
Western N. Y. Hort. Society, Rochester, N. Y.	Jan.26-28
Penna. Board of Agri. Harrisburg, Pa.	Jan.26-28
N. Y. Tobacco Growers' Association, Baldwinsville, N. Y.	Jan.29
N. Y. State Grange, Jamestown, N. Y.	Feb. 1- 4
N. J. Board of Agri., Trenton, N. J.	Feb. 2- 4
N. Y. Farmers' Week, Ithaca, N. Y.	Feb. 7-12
N. Y. Vegetable Growers, Ithaca, N. Y.	Feb. 8-12
N. Y. Holstein-Friesian Club, Syracuse, N. Y.,	Mar. 1

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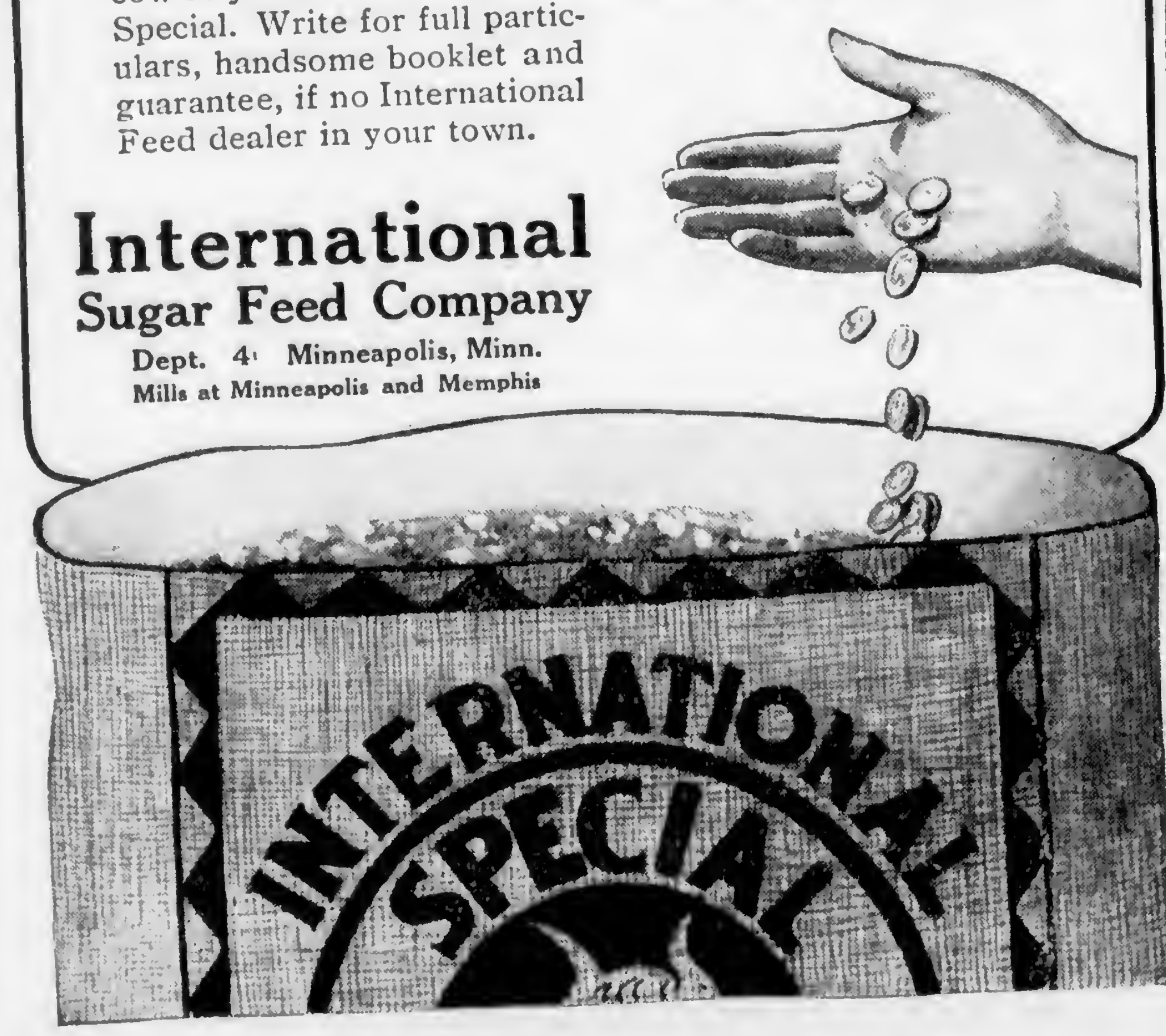

New York State Dairymen's Convention.

The annual meetings of the New York State Dairymen's Association, New York State Breeders' Association and affiliated societies was held in Rochester, December 14 to 17. The convention opened with a joint session addressed by Charles S. Wilson, state commissioner of agriculture, in which he emphasized the large place dairying occupies as a farm industry in New York State. "Important as is our fruit industry," said Mr. Wilson, "it is more or less sectional; and altho New York sales of fruit in 1909, as given in the Federal census, show the splendid sum of $26,446,577 horticulture stands fourth in value among our farm products, being greatly exceeded by dairy products, with a value of $74,939,815."

Grades of Milk.—Referring to a conference of agricultural leaders held recently at Albany to make suggestions for changes in the state's agricultural laws, the commissioner said a resolution was passed unanimously to the effect that some legislation be ennacted compelling the operators of Babcock milk testers in the case of commercial tests, to take out a license. It was argued that no step would do more toward the instruction of dairymen or to give them more confidence in the Babcock milk test than such legislation. At this conference it was urged that the 3 percent fat content standard should be abrogated, and that the milk should be sold on its quality, fat and solid content, grading it in price accordingly. Mr. Wilson said he was opposed to lowering the present standard, but felt that there was a chance for improvement in the milk supply as regards the grades of milk above this standard. These grades are now recognized in certified, grade "A", grade "B" and grade "C", but the standization of our milk on the basis of grades of this kind is not as well recognized as he believed it ought to be. If New York is to hold her place and forge to the front, as she should, in dairy products, it will be thru a recognition of the proper standards and grades. Such a work will take much education, but could be accomplished if all agencies would unite in the effort.

Co-operation.—Commissioner Wilson spoke strongly in favor of the state aiding producers to organize into co-operative groups. "It is apparent to the most casual observer," he said, "that the producers cannot get proper recognition until group by group, in the several localities, they learn to work together for a legitimate and equitable end. It is the duty of the state to encourage legitimate co-operative communities of farmers, because in the long run this means a stablizing of the farming business itself, and will be the greatest help that the trade can have in keeping a sufficient supply of dairy products on the market."

Foreign Demand.—A point of special interest to breeders brought out by the speaker was the possibility for supplying the European countries with stock to replenish their herds and flocks after the war is over. He had been told that the Minister of Agriculture, of France, is in the United States investigating sources from which animals suitable for replenishing the stock of that country can be purchased. He gave figures showing that there had already been a shrinkage during the progress of the war of practically 100,000,000 head of live stock.

Farm Bureau Co-operation. — The value of the Farm Bureau in Developing the Live Stock Industry, was the subject of an address by Floyd L. Barlow, of Otsego county. One effective means of advancing the interests of the industry in his county has been the organization of breeders' associations for each of the leading breeds of cattle. There are four such associations in Otsego county, the movement beginning two years ago with the organization of a county Holstein breeders' association. These associations aid the members thru the joint ownership of bulls, in buying feeds, and in promoting better breeding. There are no rivalries nor jealousies between the local associations, all being affiliated in friendly co-operation for their mutual benefit. It is Mr. Barlow's belief that the local breeders' clubs should be represented at meetings of their state organizations. Every member of these clubs is a publicity promoter, having printed on his letter heads matter calling attention to the superior quality of the purebred cattle in the county, and in many other ways.

A sheep breeders' association has been organized under the direction of the Farm Bureau. Last May this association appointed a committee of three to sell the wool clip of the members. They succeeded in getting five buyers to bid on the wool, with the result that 15,000 pounds of medium wool was sold direct to the manufacturer at 36 cents a pound, while in neighboring counties, wool was bringing from 22 to 25 cents a pound. It was estimated that co-operation in this deal alone was worth $1,000 to the sheep keepers. The speaker said that sheep keepers' associations were being organized in three counties, and these may pool their wool next season. As a means of encouraging dairymen to keep records, Mr. Barlow advocated the keeping of records of grades. A discussion which followed brought out the information that buyers were willing to pay an increased price for grade cows with good records.

Pasteurizing Milk and Whey.—The pasteurizing of skim milk and whey was forcefully advocated by A. L. Brockaway, of Syracuse. The finding of reacting animals among young stock led to investigations to ascertain the source of infection, which was found to be the feeding of whey and skim milk in which were the bacillus of tuberculosis. If skim milk and whey were pasteurized he believed it would be possible to control tubercular infections. Pastuerization is a preventive measure, yet not a burdensome one. Cheese factories were mentioned which were pasteurizing milk at a cost of one-tenth cent a quart. Mr. Brockaway said he believed that if all dairy animals were given a physical test, and only pasteurized whey and skim milk were fed it would be a long step toward getting rid of bovine tuberculosis. At a joint session of the state breeders and dairymen, a resolution was adopted asking the legislature to pass a law making the pasteurization of whey and skim milk compulsary in New York State.

Cheese Making.—The business side of cheese making was discussed from many angles at a round-table meeting. The fact was brought out that the trouble with the cheese making industry is in the grading and selling. Sanitary methods prevail to a greater extent than ever before, and yet it was evident from the remarks of cheese men that the New York State product is not as popular in the market as it should be. Commissioner Wilson expressed his un-

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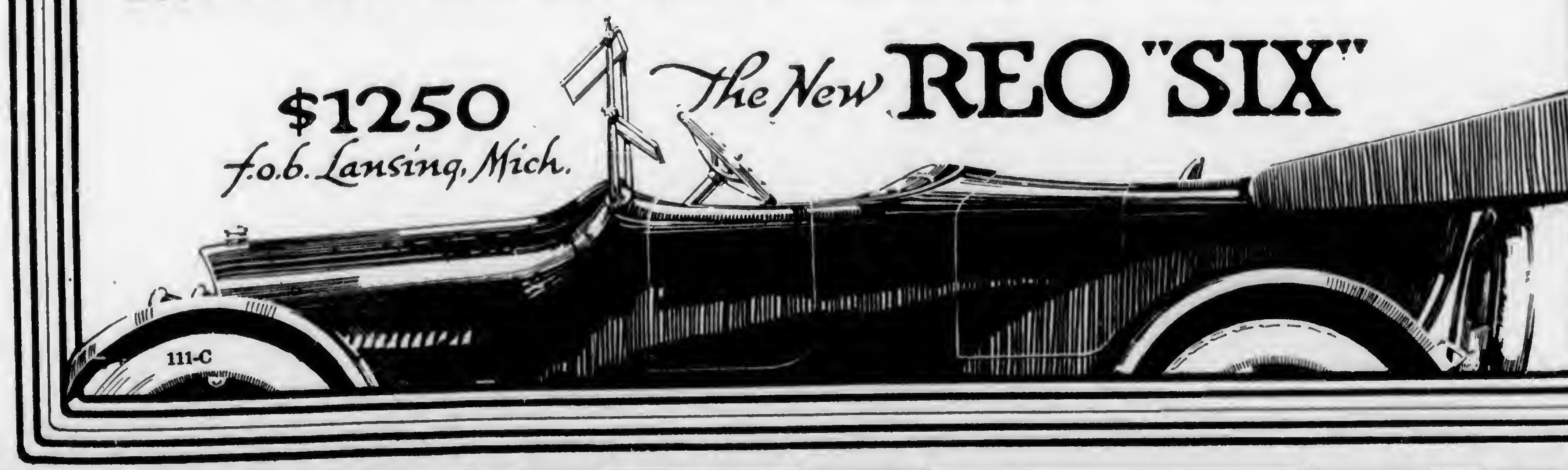

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willingness to see the cheese industry go to the wall in this state.

"If the present laws can be changed to improve the conditions of cheese manufacturing, let's do it immediately," he said. "I don't like to hear that Wisconsin makes a cheese that is preferred in our own markets over that our manufacturers turn out. It does not sound right, and we want to start now to see that it is not so."

"Try the Hood river apple plan," urged A. L. Brockaway. "Out there the farmers form co-operative associations and place definite standards on their shipments. If a member ships fruit that is not up to the standard it is supposed to represent, he is fined or otherwise punished. This kind of co-operation means quality. The market learns that it can depend on brands, and the price of the product is better as a consequence."

Cow-Testing Associations.—A paper on this subject by Edward VanAylstine said: "The fact that I wish to impress is that the practical first-hand way to secure greater profits is by producing at reduced cost thru the agencies of better-bred, more intelligently fed and cared-for cows and a better product." A more complete report of his discussion will be published later.

Forage Crops.—"Do you know of any better forage plant than fresh pasture grass?" asked Professor H. H. Wing in his address on "Forage Crops for New York." There is no single food from which we get a greater efficiency in return than from fresh pasture grass; yet the pastures of New York state are neglected. As a means of improving pasture yields he advised refraining from too close cropping, cutting down thorn bushes and weeds, and a larger use of manures. He believed that dairymen will depend more and more on soiling crops, in order to keep more animals thru the late summer months than the pastures will sustain. He advocated feeding green crops in season and putting the surplus in the silo for fall and winter use.

Producing Market Milk.—Some problems of market milk from the viewpoint of the producer were discussed by Wm. E. Danna, of Livingston county. He emphasized the injustice of sending out inspectors picked up on the streets of New York to tell farmers how to produce milk and score their barns. The essentials of clean milk production are a clean cow, clean milker and clean pail. It doesn't require an elaborate equipment to make clean milk. He advocated pasteurization as a safeguard against contagious diseases, and said the dairymen have ben advancing faster than the consumer in the desire to improve milk products.

Officers Elected.—At the election of officers, Vice President W. E. Dana was chosen successor to President H. C. Elwood, of Buffalo. The other officers elected are: vice president, George E. Hogue, of Arcade; secretary, S. C. Shaver, of Albany; assistant secretary, L. D. Spink, of Rochester; treasurer, R. R. Kirkland, of Philadelphia, N. Y.

The exhibit of dairy machinery and equipment was large, consisting mainly of pasteurizing and bottling machinery, stanchions and separators. The display of cheese and butter was exceptionally fine. The attendance during the three days sessions was large, notwithstanding the snow blockades which delayed trains and prevented many dairymen at a distance from attending.

PROTEIN ECONOMY

What is Protein and What Does It Do?

Practical feeders have long been in the habit of furnishing more than one source of protein. They believed that by furnishing a variety the animal was able to utilize protein more economically. This has since been proved to be a scientific fact.

The term protein is a very comprehensive term and it is scarcely correct in the light of modern knowledge to consider it a unit of feeding stuffs. The one thing that all proteins hold in common is that they are all composed of amino acids. These amino acids are comparatively simple compounds containing the elements carbon, hydrogen, oxygen and nitrogen, put together in a definite order. Most of them are well understood chemically. In the process of digestion all proteins are broken down into their constituent amino acids. These amino acids are absorbed by the blood and built up into body proteins by the cells of the body. These proteins differ in the percentage of the different amino acids from that of the proteins taken in as food, and hence any excess of one amino acid represents so much waste material in body economy and is excreted by the kidneys. Not only is this a waste, but it may even overwork the kidneys if the excess is too great.

There are at least 16 different amino acids in body proteins which at present are believed to be necessary, and must be furnished in the food in order to maintain a healthy metabolism. Some proteins which are used as food do not contain all these amino acids. Thus we have a case where it is absolutely necessary that some other protein be supplemented which supplies the missing acids. Many experiments have been carried on with small animals (rats being most often used) to determin the result of lack of certain amino acids. In every case growth ceases and if the missing amino acids were not supplied the animal ultimately starved to death.

It seems probable that in time it will be possible to work out a new system of feeding standards in their relation to proteins, in which not only the amount of protein required but also the amount of the different amino acids required will be stated. At present this is impossible because of insufficient data. The amounts of the various amino acids in different proteins is hard to determine quantitatively because of their comparative instability and the difficulty in separating them. However chemists are working out methods of analysis, and will doubtless in time have sufficient data at hand to be able to revise our present system of calculating protein food stuffs.

As might be supposed, proteins from animal products have more nearly the correct proportions of the different amino acids in them than proteins from vegetables. No doubt this accounts for the economical use made by animals of milk and egg proteins as well as meat and tankage. But it is obvious that all the protein that is fed cannot come from animal sources.

At present the best guide the practical feeder has is to feed as large a variety of proteins as is economically practical. In this way the deficiencies of one protein are usually partially balanced by an excess in another, making not only a ration subjected to less waste, but also one which furnishes the animal with his protein requirement with a minimum loss of energy in constructing his body proteins.—Earl E. Barnes, Ohio State University.

Western Breeders Buying Cattle Here.—A gentleman who has been in Syracuse, N. Y., for two months and who resides in Sacremento, Cal., says that cattle buyers in California are planning to buy a good many cattle in the east as soon as the quarantine against New York cattle is lifted. This man expects to ship 34 head soon after January 1. Another breeder from the same state will ship there about 40 head and two others will ship about 75 head. They are buying Holsteins mostly.

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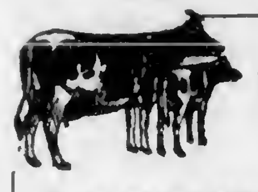

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in and of themselves would warrant your going a long ways to select from them.

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Jersey Calves both sexes. Fine stock, of the most noted pedigrees in the world.
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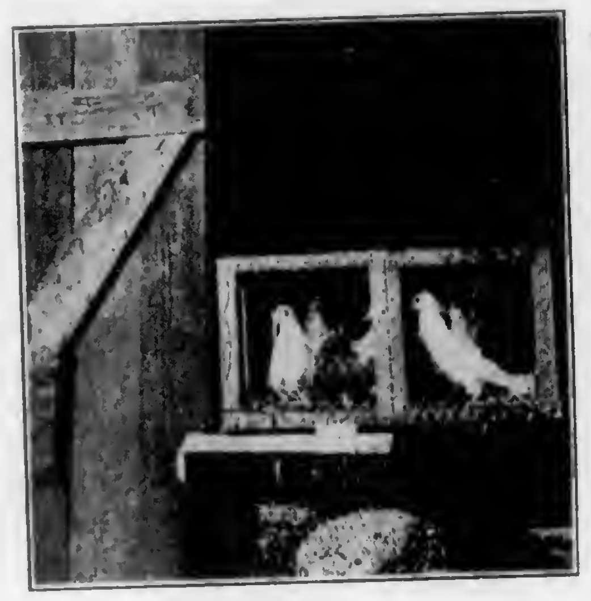
Poultry

SQUAB RAISING

The great scarcity of game all over the country, is responsible for the continuous, gradual increase of the squab business. Squab raising when properly conducted is exceedingly profitable, especially, when close to a good market. Squab raising appears to be well suited to village and city lots, by the number of pigeon lofts that are found. It should however not be inferred from this, that they cannot be profitably grown on the farm.

Squab raising is a business that requires close attention to details. It requires the strictest of sanitary measures. Practically all failures in the squab business are due to "Lack of cleanliness". In this business, a man or woman must be willing to look after the minor details. It is the small things in the squab business that count. Lice and mites cause trouble on the poultry farm; but, infinitely more in the squab industry.


SQUABS.

Houses and Fixtures.—In the construction of these, it is well to bear in mind, that they should be inexpensive, simple, convenient, rat- and mice-proof, and easily cleaned. If the house is built on the ground it should be located on some gravelly knoll, facing the south. The floor can be concrete, and should be dry. Almost as many styles of lofts are used as there are squab raisers. This is something that must be worked out locally. Often some old buildings are remodeled and used for pigeon lofts. As a rule a loft above the poultry house is not to be recommended, because of the trouble from vermin. The house should be constructed as to be as vermin proof as possible. This is very important. The floors, either wood or cement are generally covered with an inch of sand.

It is not advisable to allow the birds to fly all over the country, any more than it is to allow other animals at large. If you wish to raise most of the squabs and be on speaking terms with your neighbors; construct a "fly" in front of the house in which the birds can exercise. These flys are constructed by driving long posts in the ground, fastened together by boards. The whole is covered with one-inch mesh poultry netting. A house 5 by 6 feet to which is attached a fly 6 by 30 feet is large enough for 25 pair of working birds.

Incubation.—There should be twice as many nests as mated pairs, and, if anything a few more, as they will not crowd. The ordinary nest is about 10 by 12 inches and 8 inches high, so constructed as to facilitate cleaning. A convenient arrangement, is to have the bottom of the nest movable and work like a drawer. Watch the nests carefully for lice and mites, and, keep them scrupulously clean at all times.

The period of incubation for pigeons is 18 days. Natural incubation appears to be most satisfactory. The hen and cock take turns in incubating the eggs. Then hen sits on the eggs about 20 hours a day, and the cock about 4 hours, during which time the hen goes in search of food and water.

Feed.—The birds should be fed a variety of pure and wholesome grains. Medium coarse cracked corn is fed in troughs, so that they can not waste any. A mixture of whole wheat, canada peas, kafir, hulled oats and millet should be fed twice a day on the floor, all they will eat up quickly, in addition to the cracked corn in the trough. New corn and wheat is some times considered bad for the birds, because it has a tendency to loosen the bowels and may cause death. Probably the most important factor in the feeding of pigeons, is to guard against feeding musty, heated or spoiled grains. Sour food is very detrimental. This should be supplemented with pigeon sized ground oyster shell, plenty of so-called pigeon salt and charcoal. Grit of the proper size is essential. Salt is more important in the feeding of these birds, than in the feeding of poultry. It is fed to keep them healthy. Keep these in hoppers always before them. Plenty of pure fresh water, in numerous vessels, should be conveniently located.

Feeding Squabs.—This is done entirely by the old birds. A milk forms in the crops of the old birds, during incubation, which is disgorged from the crops of the old birds and thus fed to the squabs. For the first seven or eight days the squabs are fed on the pigeon milk. Then or as soon as they can digest grains, they are fed the same by the old birds similar to the manner the pigeon milk is fed. The grains are eaten by the old birds and then disgorged from the crops and fed to the squabs.

Different Breeds.—Good breeds for squab production are those which are most prolific, producers of good sized squabs, producers of light colored squabs, and those that feed the young well. Do not buy old birds. A much better practice is to buy young birds, place them in a small house, until mated, and then move to their permanent nesting place. It is important that all birds, in the hatching place be well mated. Unmated birds in the loft are apt to make trouble.

Most squab raisers consider the American Antwerps and Homers, as very desirable birds for squab raising. The White German Homer, The Dragoon, The Runt, The Duches and the Belgian Homer are also very good. Some breeders use crosses of some of the above to advantage.

Vermin and Disease.—As has already been stated, lice are a serious menace to the old and young birds. One large squab raiser, provides tobacco stems, which the birds use in building their nests. In addition to this, it is advisable to provide the birds twice a week with a shallow trough full of water. They will bathe in this and thus free themselves of lice. Watchfullness, and tending to these details is the price of success in squab raising.

The house, fly, fixtures and utensils should be disinfected regularly to kill disease germs that may be lurking. One teaspoonful of some good coal tar disinfectant added to a quart of drinking water will help in controling disease.—F. W. Kazmeier.

Poultry Queries

Owing to the number of queries on the different subjects of hatching, rearing, feeding, doctoring, housing, etc., relative to successful poultry keeping, we have decided to run a special department devoted to poultry queries. We have secured the services of a practical successful poultryman to whom all queries will be submitted and the answers will appear in this department as promptly as possible, usually in the second issue after the question is received.

Laying Ration

"Will you answer in your paper what you consider the right amount of grain to feed to 75 White Leghorn pullets? Have been feeding about four quarts twice daily of equal parts of cracked corn, wheat and oats in litter, and have fed all the dry mash they would eat. They have had water all the time. They were laying 25 eggs daily and dropped off half. Started laying September 11. Do you think I am feeding too much grain, or too little? They look very healthy and keep busy. They have had cabbage and alfalfa leaves also."—A. Y. F., Monroe Co., Pa.

The grain mixture is very good and the amount fed should prove sufficient with dry mash before them. The composition of the mash is likely to have more effect on egg production than the amount of grain fed. Where production is low it is a good plan to increase the richness of the mash mixture, especially when the amount fed is sufficient. Increase the amounts of linseed meal and beef-scraps in the dry mash and keep the hoppers open all the time. A good dry mash can be made from the following: 200 pounds wheat bran, 100 pounds corn meal, 100 pounds middlings, 100 pounds linseed meal, 100 pounds ground oats and 150 pounds beef scraps. Both the linseed meal and the beef scraps can be increased 25 percent without causing disorders.

A sudden drop in production is likely to be caused by some sudden change in the weather, or changing of methods of feeding and care. Fowls that have been confined to the house for sometime and then allowed the freedom of the yards will invariably drop off in egg production. It must be admitted that fowls allowed the freedom of the yards, during the fall and winter, are the healthiest, but the egg production will be exceedingly small unless they are confined to the house.

BROODER HOUSE AND RUNWAYS.

VIGOR IN BREEDERS

Vigor in the breeders is the fundamental point to be considered in making up breeding pens. No matter how many points of excellence a hen may possess, or how many eggs she may have laid, if she lacks strength and vigor she will prove a failure in the breeding pen. Many times heavy egg-production has so weakened hens that they are unfit for breeders. When such hens are included in the breeding pen, they will probably transmit to their chicks the tendency to produce well, but this inherited trait will never assert itself if the chicks are also endowed with weak constitutions. Weak hens are physically unable to produce well.

In selecting hens for the breeding pens, those medium in size for the breed should be chosen. Very large hens should be rejected. Large hens are usually poor producers. Hens very much under the average in size should also be rejected, for the reason that they will likely produce chicks that will not grow large. Hens that lay very large eggs should not be used. These hens usually require two days to make one egg, and besides, large eggs do not run high in fertility. Hens that lay very small eggs are also objectionable. The size of a newly-hatched chick is in proportion to the size of the egg, and very small chicks rarely develop into strong birds. In short, the best hens for the breeding pens are of strong constitution, are of medium size and lay medium-sized eggs.

The male bird should be selected with care. If possible, a male bird from a high-producing hen should be chosen. It has been definitely determined that the trait of heavy egg-production is more surely transmitted thru the male than thru the female. The male bird should be large but not awkwardly large. Above all else, he must be strong. The male to choose shows grace in every movement, has a large comb, bright eye and short legs, crows loud and often, is attentive to the hens, and can whip everything else on the place.—T. Z. Richey.

GREEN FEED IN WINTER

Green feeds for poultry contain only a small percentage of actual food nutrients, but are important because of their succulence and bulk, which lighten the grain rations and assist in keeping the birds in good condition. The poultryman should secure a sufficient supply of such feeds to last thru the winter months in sections where growing green feeds can not be obtained. When chickens are fattened without the use of milk, green feed helps to keep them in good condition.

Cabbages, mangel wurzels, clover, alfalfa, and sprouted oats are the green feeds commonly used during the winter. Cabbages do not keep as well in ordinary cellars as mangel wurzels so where both of these feeds are available the

cabbages are fed first. They are often suspended, while the mangel wurzels are split and stuck on a nail on the wall of the pen. Clover and alfalfa may be fed as hay, cut into one-half to 1 inch lengths, or may be bought in the form of meal. Alfalfa meal has a feeding analysis equal to bran, but is not as digestible on account of its larger percentage of fiber. Clover and alfalfa should be cut while slightly immature, if they are to be cured and fed to poultry. The leaves and chaff from such hay are especially adapted for poultry feeding.

Sprouted oats make a very good green feed and are used quite extensively in this country. The oats can be soaked for 12 hours in warm water and then spread out in a layer of from one-half to 1½ inches deep on a floor, or in a tray or tier of flats, which have openings or holes or a three-sixteenths inch mesh wire bottom, so that the water drains freely. They may be stirred daily and sprinkled, or allowed to sprout without stirring, until ready for feeding. They are usually fed when the sprouts are from 1 to 1½ inches long, altho some poultrymen prefer to allow the sprouts to grow to 2 or 3 inches long. Oats need a moist and warm atmosphere in which to sprout quickly, so that it is necessary to furnish heat or to keep them in a warm room during the winter, while they may be sprouted out of doors during the rest of the year. It takes from 6 to 10 days to sprout oats, depending on the temperature of the room.—Dept. News Letter.

SWARMS PERMITTED TO ISSUE AT WILL—NO SURPLUS HONEY.

LETTER FROM A VIRGINIA BEE-KEEPER

Editors Pennsylvania Farmer:

I have been a reader of your paper for some time. You certainly have a fine farm paper. If you will allow me a little space I will give your readers a few hints on bee-keeping on the farm. Every farmer should have a few colonies of Italian bees, and they are valuable little servants for fruit growers especially. Many people believe that bees are destructive to fruit, especially peaches and grapes but such is not the case. Bees do not injure sound fruit but they will feed upon the juices of some fruits when the rind is broken. I have my apiary in my vineyard and have watched the grapes and peaches very closely and find that the bees work only on fruit which has been punctured by birds.

I put a sound bunch of grapes and some peaches in a strong colony of Italian bees this fall and kept watch on them. The bees did not damage it. I then broke the skin on some of the fruit and the bees sucked it dry but did not atempt to injure any more of it.

Bees in southwestern Virginia gathered more nectar last spring from locust and white clover than at any time during the last three years. After July 15 the flow ceased. I have some hives that made 75 pounds of honey, yet I found them on starvation rations in September, because the summer rains prevented further stores. I have been feeding them every day with an inside feeder to prevent robbing.

If the bees are short, I put an empty hive on top of the brood chamber and place a tin bucket of syrup over the bees. Punch holes with a nail in the buncket and put the lid on tight. They will some times use a gallon in a day. When you have fed the bees enough, put a box of peppermint candy on top of the frames and cover the candy with a tow sack; this keeps the bees dry. People who do not feed their bees this fall will loose a great many from starvation in this section.

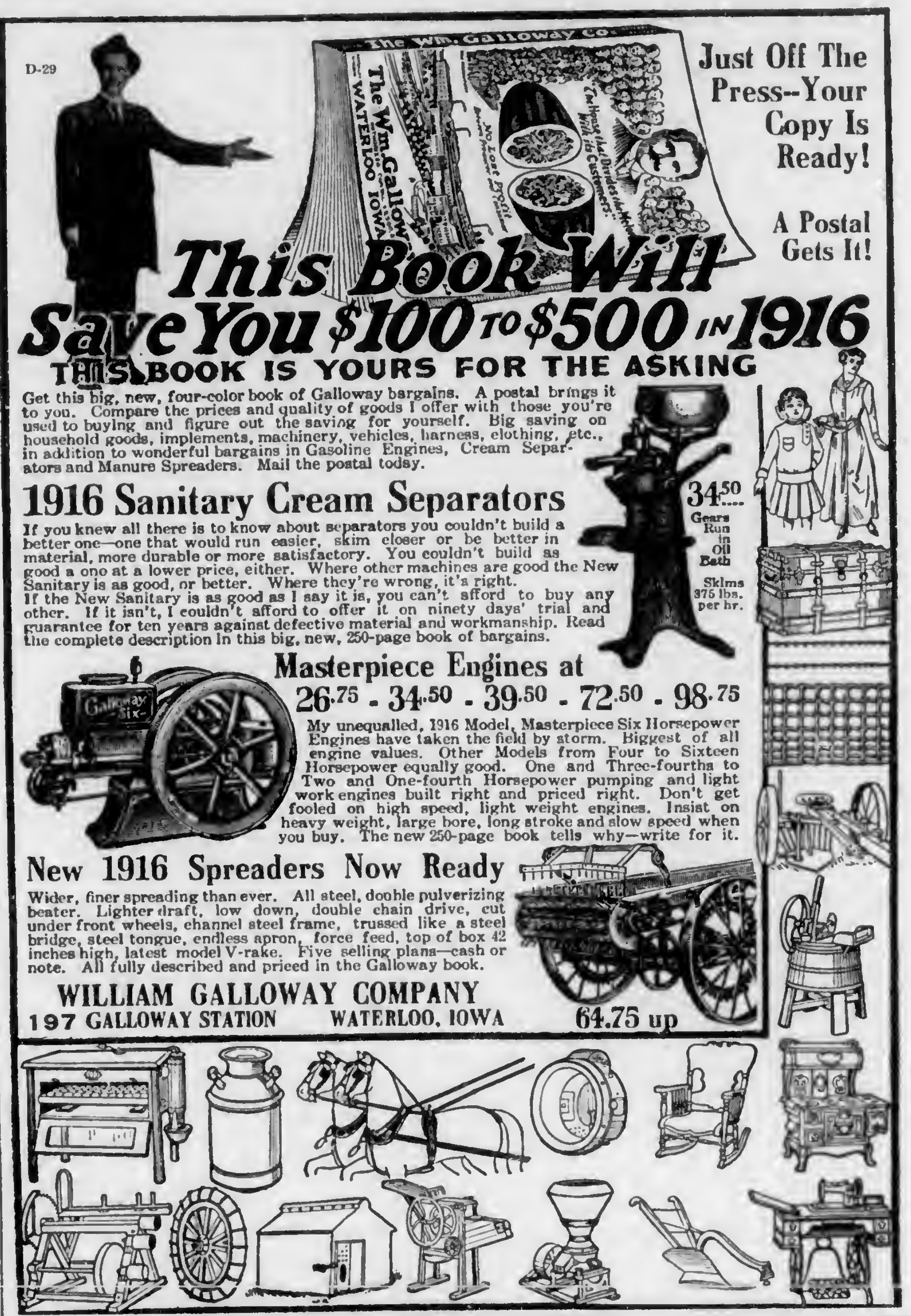
I helped to cut 14 bee trees this fall and did not get my bait back. I think it is murder to kill bees in fall for their honey.—Henry S. Bohn, Va.

CHICKEN ADVICE

Prof. H. R. Lewis of the State Experiment station recently gave a lecture on "The Rearing of Chicks" before the Monmouth County Poultry Association. Prof. Lewis emphasized especially the importance of storng, vigorous stock and the value of constant selection of the breed herd. Some of the common causes of loss among chicks are improper temperature in the brooding causing crowding and smothering if too cold, and weakly hot house chicks if kept too warm. The chicks should be gradually hardened off and not put directly from a warm brooder to a cold colony house.

Where chickens are raised by natural means these conditions are taken care of by the hen. Correct feeding is essential to success and wet, sour feed is sure to cause trouble. Among the points which Prof. Lewis mentioned regarding feed he said that early feeding should be retarded, and no food given 60 hours after the chick has hatched. The first feed should be easily seen and oat meal was suggested as a good source to attract their attention. Grit and shell are also necessary for the digestive system and the frame work of the chick and fresh water is always essential.

It is best to feed dry cracked grain and a mixture of 40 parts corn, 40 parts wheat, 20 parts oats, all cracked fine, is very good. Bran is important because of the tissue building material contained in it. Prof. Lewis advised feeding little and often and avoiding sloppy and wet food. Some animal protein in the form of beef scraps is desirable. It is important to feed some green or succulent material, such as sprouted oats or young grass. Feed early and late, induce exercise, avoid pampering, feed in a cleanly way, keep chicks growing. Some of the factors which affect growth are the inherited characteristics of teh young birds; that is, the growth depends on the ancestral stock.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Preparing for Baby.---I

There is nothing more precious and lovely than a happy, healthy child. Love of children is a thread that binds parents together the world over. It stands out in the sacrifices that men and women make in order to give their children all the advantages possible. As I watch parents with their little families, and realize how deep this love is, I wonder many times why it is that mothers and fathers do not give more attention to the simple laws of health which ought to be followed both before and after baby is born. If we want fine animals we take good care of the animal mothers. If we want fine children why not take the best of care of the human mother, so that when the baby comes it will be strong and well with no defect to hamper its life, and so that the mother will be in fit condition to take the right kind of care of the little one.

Every prospective mother should make it her business to find out how she should take care of herself so that she can bring a fine vigorous child into the world. She should try to find out what clothing she should wear, what kind of food she should eat, how she should manage her work, why she should control her feelings, her emotions. It is a well known fact now that all these things do have a great influence on the child.

The best of all is that the things necessary are within the reach of most mothers, for simplicity is the keynote. Comfortable, loose clothing, good, plain food; proper arrangement of rest and work; as much fresh air and sunshine as possible are the things of prime importance. And the fathers should realize that their duty to the mother is of supreme importance, for her mental contentment has much to do with building vitality for the child.

The clothing should be made with regard to the season; that is, cool in summer and warm in winter. Care should be taken to have every thing made so that the weight comes from the shoulders, and that there is no pressure on or around the waist, or weight dragging down around the hips. Bands on the petticoats and underwear should be made loose, and should have muslin suspenders sewed on to them so that the whole weight may be supported from the shoulders. This arrangement will not only be more healthful but also more comfortable. Some do not use suspenders for each garment, but make two or three pairs of suspenders from strong cotton and then work buttonholes in the suspenders. Buttons are sewed on the bands of the garments that the suspenders may be buttoned on. Still others prefer to attach the suspenders by means of safety pins because they can adjust them better. The detail does not matter, just so the clothing is loose and comfortable and the weight comes on the shoulders.

The outer garments should be comfortable, too, and one should think of personal appearance. Sensible and simple maternity gowns may be made by any one who can sew at all. Patterns that are easly to follow can be bought for ten cents thru this paper, and pretty cotton dress goods suitable for wear while doing work about the house cost very little. For other wear quite good looking serges may be bought for 60 to 75 cents a yard, and these may often be brightened by a bit of lace or silk and has the added advantage of being able to be washed like cotton goods. I remember seeing a pretty dark blue dress made of this material, with collars and cuffs of white linen, with a bit of fancy stitching in blue.

By wearing a maternity gown, the corset may be discarded (as it should be) without making the prospective mother conspicuous. If one can not be comfortable without some kind of a corset, there are good maternity corsets to be had, but the average woman is better off without them. Sometimes for a few weeks before the child is born an abdominal support will be found helpful.

Shoes are important, for no one can be happy when the feet are painful, and they make one nervous as well. There should be comfortable shoes, amply large, and there must be no high heels. These are bad enough at any time, but when carrying a baby they are dangerous; there is not only the danger of falling from turning the ankle but there is too much pressure one the lower part of the abdomen.

Care of Skin and Kidneys

Keeping the skin in good condition is another important thing for the coming mother. If the pores of the skin are clogged, much poisonous waste must remain in the body until it can be carried off thru the lungs, kidneys and bowels. These usually have all they can do. It is much better to have the skin do its part. The best things to help keep the pores open are soap and water and rubbing with a coarse towel. If there is no bath tub at hand, use a wash tub or a wash bowl and take a sponge bath often.

It is most important that the kidneys should act freely during the entire time of pregnancy. There should be three pints of urine every 24 hours. If there is less than this more water must be taken by drinking. But no woman can judge for herself whether her kidneys are all right, for some of the things which might lead to serious consequences do not show except in chemical tests. For this reason every prospective mother should have her physician test her urine at least once a month to see if everything is all right. This test is most important, and is one of the cases where an ounce of prevention is worth much more than a pound of cure.

Food

One often hears that the prospective mother must "eat for two", but physicians have pretty well eliminated that theory by showing that the child gains nine-tenths of its weight and substance after the fifth month, and one-half its weight in the last eight weeks. It is plain, therefore, that for a long time the mother need not eat any more or any different food than that to which she has been accustomed, provided she has had a varied diet. When the time comes to take more food it is better to drink a glass of milk between meals rather than to overload the stomach at any one time. If milk is not relished, a cup of soup, broth or cocoa with a cracker may be taken.

As a rule heavy meals should be avoided all thru the period of preparation. Nausea, from which so many women suffer in the early part of this period, may sometimes be alleviated by eating five or six light meals instead of three hearty ones. A piece of dry toast or a cracker taken the first thing in the morning, chewed thoroly and swallowed without drinking any water or other liquid, sometimes prevents nausea. Good plain food should be the rule for the prospective mother. All highly seasoned and rich foods are hard to digest and should be avoided at a time when the functions of the body are more or less disturbed and when the stomach is easily affected. As for example, overfat meat, greasy vegetables, pies, cakes or puddings and rich candies. If she craves these things let her take them in tastes or teaspoon doses and one dose at a meal.

Breakfast should consist of fruit, cereal and a light body-building dish such as a poached egg, or creamed codfish on toast, with cocoa or hot milk and toast. Whole wheat or graham bread are excellent to use instead of white bread because they help to keep the bowels in good active condition. Cracked wheat, apples and prunes are excellent for the same reason. There should be a variety, and the following foods are all good for breakfasts: Mush and milk, oatmeal, cracked wheat (cooked five or six hours at least—have a fireless cooker for this), wheatena, farina, hominy grits, cream of wheat, stewed prunes, baked or stewed apples, stewed peaches or apricots (dried may be used in winter), creamed dried beef, creamed codfish, codfish cakes; poached, soft boiled or coddled eggs, bacon(fried crisp). Bacon seems to be the one thing that can be fried and be digestible; all other fried foods should be avoided, also coffee and tea usually.

Dinner should offer meat, vegetables, fruit or plain pudding. Lamb is one of the best meats, for it is easily digested. Chicken is good for the same reason. Pork is not so good, which seems too bad, as many who live in the country find it difficult to get other meat. Since pork, particularly fried pork, is indigestible for a prospective mother who is troubled with nausea, an effort should be made to get meat other than pork. The whole family will be the better for the change. Fortunately eggs, milk and chicken offer good substitutes for pork, but lamb and beef should also be part of the meat diet. Soups are easily digested, and some are quite nourishing, such as puree of beans or peas, barley, rice and oatmeal broths.

Vegetables should be freely eaten not only for nourishment but to keep the body functions normal. The more easily digested are asparagus, lettuce, spinach, oysterplant, squash and carrot. Beets, beans, onions, cauliflower, cabbage and turnips are apt to cause flatulence unless properly cooked and well masticated. Raw cabbage is less troublesome on this account than cooked, but it should be thoroly chewed.

Fruits are valuable because they offer a pleasing variety and also for their medicinal properties. Apples, prunes, apricots, peaches, plums and cherries are in many farm cellars, and oranges, grapefruit and lemons are reasonable in price the greater part of the year. Fruit may be eaten as a dessert, either stewed or in a plain pudding. Other good puddings are tapioca, rice, custard, corn starch and gelatin.

Fresh Air

Instead of "eating for two" the wise mother will breathe for two. I wish I could make that statement so emphatic that every one who reads it would heed it. So few women (or men, either) seem to realize how great a thing it is to use the lungs to the fullest capacity. We really get lazy about breathing and use only the upper part of the lungs. Every one needs all the fresh air he can get. The prospective mother needs it more than anyone else. She needs to get as much oxygen as possible to keep her blood stream good and red.

Rest

Another important thing for the mother to remember, both before and after the birth of the child, is to arrange her work so that she can have time to rest. If she can not find more than fifteen minutes at a time to lie down and close her eyes that will help a good deal. She should sit down while doing some of her work, such as paring potatoes, wiping dishes, etc. It is a little bother to get a chair but it pays.

When a woman does all of her own work she can not take a great deal of outdoor exercise, yet she must get fresh air in abundance. It is not enough to sleep with the windows open. Of course, when the weather is extremely cold and windy the windows can not be left wide open in most houses, but by means of screens of muslin fresh air may be admitted. Some times the window in an adjoining room may be opened. Thru the day fresh air should be constantly admitted to the living room or kitchen, and one should wrap up warmly and sit for a few minutes by an open window in an unused room breathing deeply. Fresh air is a good nerve tonic and helps to keep a calm mind. — Mrs. Nevada D. Hitchcock, Philadelphia Co., Pa. (Next article will deal with making baby's clothes. Questions that any mothers may like to ask Mrs. Hitchcock will be welcome.—The Editor.)

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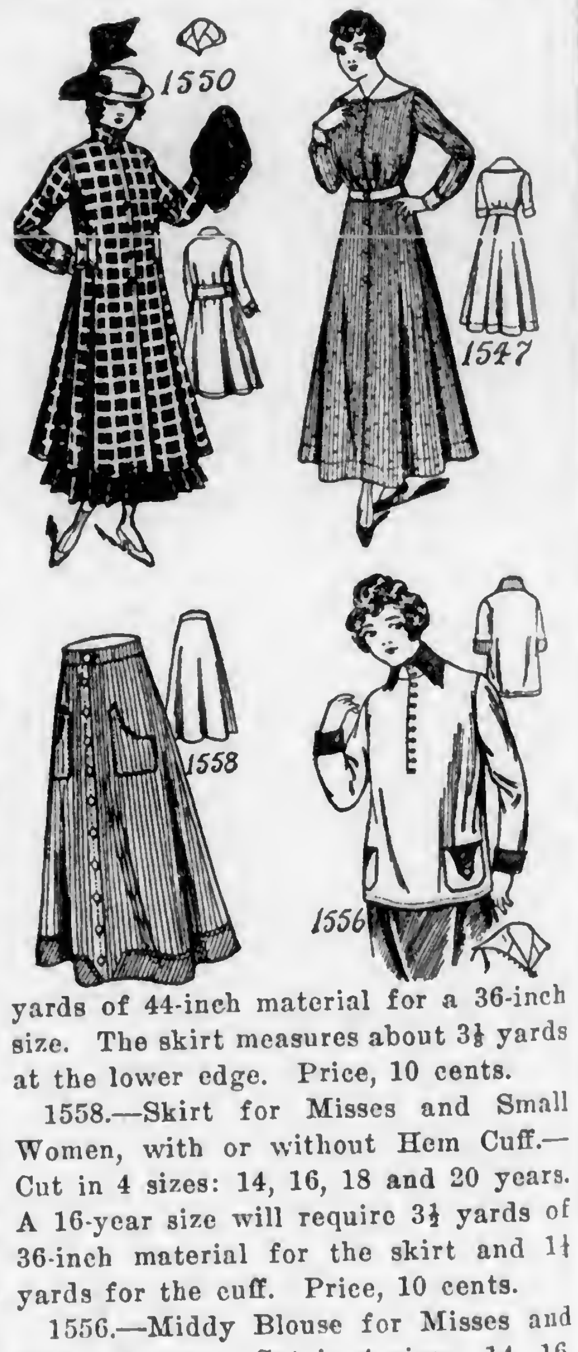

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What is Rural Credits?

Rural credits means money for the farmer. Everyone understands that in a vague, indefinite sort of way. But how is the farmer to get the money he needs—on what terms, what security, what rate of interest and for what length of time? And why does the farmer need any special advantages not already provided under the present banking system? Then what is rural credit?

To begin with, the farmer must wait upon the seasons. He cannot speed the earth upon its axis, or hasten it upon its course around the sun. His returns come when the seasons have run their course. He can borrow money at the bank if he has ample security, but he needs a longer time in which to repay the bank than does the merchant. The storekeeper borrows for sixty or ninety days. He turns his stock of goods in that time and can repay the bank. The farmer needs his loans for a longer period. He needs it when he puts the seed in the ground, but he is not ready to repay until the crop is grown, harvested and marketed.

Do not the banks give him the accommodations he needs? Some banks in some communities do. But most banks find it more to their liking to loan money on short time, 60- or 90-day paper. They are lending the money to their depositors. They must have their loans so arranged as to the time when they fall due and are collectable that the depositor can get his money when he asks for it. Consequently, the banker prefers to loan these funds upon short-time paper. The short-time loan makes easier banking.

This limitation, inherent in present banking methods, makes it necessary to provide for an extension of the banking system. For agriculture is the great fundamental industry, and when the farmer needs money for his seasonal operations the welfare of the entire country requires that he should have it—and have it upon terms which do not lay upon him a greater burden than he can bear. European countries have met just these conditions and have worked them out to the salvation of the farmer and the benefit of all Europe. The banking system of Germany, France and Russia, of Denmark, Holland and Switzerland, of England, Scotland and Ireland, have been extended by the formation of co-operative credit associations. The co-operation societies, pledging the unlimited credit of every member, borrow of the banks and in turn reloan the money to individual farmers, many of whom are too poor and have too little security to enable them to secure even a small loan direct from the bank.

But this is personal credit. The money so provided is used for farm operations. What about the man who wants to buy a farm? Europe has met and solved this problem also. Some states in this country, notably Wisconsin, have made some progress along the same line. In Wisconsin, it is possible to buy a farm and have twenty years or more in which to pay off the mortgage. The ordinary farm mortgage runs from five to ten years. And usually when it falls due, the farmer has to renew the mortgage or permit it to be foreclosed. And renewing a mortgage at a reasonable rate of interest is not any easy task, and often requires the payment of a commission to the agent who finds some one with capital to invest in the mortgage. And this is both expensive and discouraging. —W. W. Powell, Former Secretary of Wisconsin Board of Public Affairs.

UNDERGROWTH STARTS WHEN STOCK IS KEPT FROM WOOD LOT

MR. HILL AND PRODUCTION

To the Editor of Pennsylvania Farmer:

I am glad to note how effectively you jogged Mr. James J. Hill's memory in your issue of December 11th. It is so seldom that anything like it is said in most of the farm papers that you deserve the thanks of the farmer generally for giving our critic as a sporting writer would say—"one on the jaw". I note, too, that occasionally some one protests against so much being done for farmers by both state and National government thru experiment stations state boards of agriculture, farmers' institutes, the U. S. Department, etc.

An overstocked market is often a greater misfortune to the producers than a crop failure.

Mr. Hill is engaged in the transportation business. Large farm crops mean more freight for his railroads. The rate on wheat will be the same when it sells for fifty cents per bushel as when it brings a dollar. A sufficient increase in production will lower it to the first named price. This will largely increase the quantity to be carted and give his employes cheaper food and consequently enable him to hire them for less money. So it looks as if Mr. Hill has a more lively interest in increased production than the farmer. And as it is with him so it is with many others who are actively engaged in spuring his output regardless of profit.—S. Warbasse, N. J.

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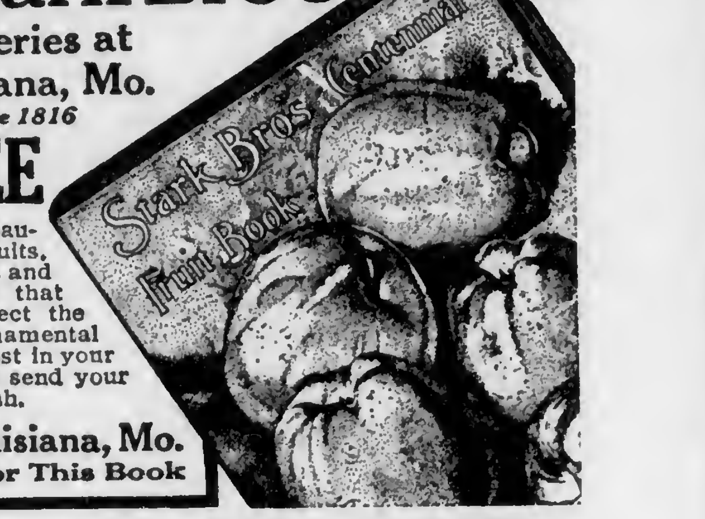
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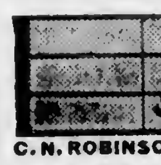

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Grange

Among the Granges

Montgomery Co., Pa. — The regular meeting of Montgomery County Pomona Grange No. 8, was held in the Council Chamber of the City Hall at Norristown, Pa., Thursday, December 2, 1915, connection with the annual Corn and Fruit Show. The show lasted three days, a special program was given each day. Thursday the 2nd was Grange Day, Friday the 3rd, Horticultural Day and Saturday, the 4th, Club Work and Farm Bureau Day.

Pomona Grange was called to order at ten o'clock, by Worthy Master E. A. Nelson. The reports of the subordinate granges were very encouraging, several thousand dollars worth of business having been transacted. Officers to serve during the years of 1916 and 1917 were elected, the printed ballots were used and proved to be very satisfactory.

The afternoon session was open to the Public. Burgess J. Elmer Saul gave the Address of Welcome and a veteran of our order, Past Master Seth T. Walton, the Response. A memorial on the death of Bro. James R. Weikel, a pioneer granger and well known citizen of our county, was read by Bro. Walton. Reuben P. Kester, Past Lecturer of Penna. State Grange, and Associate Editor of Pennsylvania Farmer, gave the principal address of the afternoon and it was very much enjoyed and appreciated by all present. Readings and music both instrumental and vocal, interspersed the program. The next meeting will be held Thursday, March 2, 1916 with Keystone Grange No. 2, in the Grange Hall at Trappe, Pa.—I. G. C.,

Wayne County, Pa.—Pomona No. 41 met with Beech Grove, 1089, Thursday, December 9, with Worthy Master Saunders in the chair. Reports were read from sixteen granges and the Pomona banner was awarded to Beech Grove for the most new members. The afternoon session was opened with the corn and apple show, there being forty-eight plates of apples and five exhibits of corn. Prof. Weaver of State College was present and gave a talk on farm bureau work also on judging corn.

Election of officers followed and Resolutions adopted.

The evening session was opened in the fifth degree and three initiated. The officers were installed by deputy F. S. Keene. A very interesting program was given. Pomona 41 has 380 members, and Wayne county is forging to the front.

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Delaware Valley grange has purchased a historical grist mill and nine acres of ground and are making a fine home.

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Hickory Grange has a new home leased for 99 years.

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Prof. Champion of the Honesdale High School is a patron who is doing his utmost to secure a farm bureau for our county.—F. S. Keene.

Tioga County, Pa. — The December session of Tioga County Pomona No. 30 met in their hall on the Pomona grounds in Wellsboro, Pa., December 9 and 10, with all officers present except Steward. Secretary David Rose reported nearly 550 Pomona members in the county. All the sessions were well attended and the various topics well discussed. The one pertaining to the changes in the Rural Mail Delivery Routes brought out severe censure of the present Post Office Management, as Tioga County has been hard hit by the changes. Some patrons being cut off entirely, others obliged to go one-half to three-quarters of a mile to the new location f their boxes. The general opinion was that economy had been made in the R.F.D.'s while the cities and the high salaried Post Office Officials had not been affected.

A resolution was adapted commending the establishment of a Farm Bureau for Tioga County and pledging the support of the Grange in the coming meeting to be held for that purpose December 17. This Bureau has 525 signers pledged for two years and the meeting will be a big one. Governor Brumbaugh, Secretary of Agriculture Patton, and Mr. McDowell of State College will be present.

At the evening session the Wanwoo Grange gave a very pleasing drama entitled "Among the Breakers." Bro. James Merritt of Canton, Pa., gave a talk on Co-operation, making a strong plea for the farmers to unite in buying especially in feeds and farm implements.

Each subordinate Grange reported increases in both membership and interest. The June meeting of Pomona will be held with the wide-awake Middle Ridge Grange.—J. K. C.

A MONTGOMERY GRIST MILL BUILT IN 1818 AND STILL IN OPERATION·

Center County, Pa. — The Center County Pomona Grange is always alert to the general interest of the agriculturists, and has organized several corn clubs thruout the county, and the scheme is now bearing its first fruits.

In the Grange hall at Spring Mills on Monday night was held a meeting for the purpose of awarding the prizes to those who had the best score in the Spring Mills Corn Club. An appropriate program had been prepared for the occasion. The meeting was conducted by S. G. Walker, the Overseer-elect of the County Grange.

The first address of the evening was delivered by C. W. Clemmer, a member of the Pennsylvania State College Faculty, whose subject was Agricultural Club work in the state. He called attention to the development of the club work in the rural districts among the boys and girls. The object of this work is three-fold: First, to interest young people in farm life; second, to produce better farmers and farm women for the future; third, to improve the character and value of the farm products. This work is carried on by canning clubs. The purpose of using the club method of instruction is that it makes the work thoroly enjoyable.

John S. Dale, a county deputy and a representative of the County Grange in the corn clubs, the next speaker on the program, took as his subject Club Work of the Pomone Grange of Centre County. He traced the history of the corn club movement in this county, stating that there were four clubs organized as follows: Port Matilda, Oak Hall, Pine Hall, and Spring Mills. The membership of the local club was fine. Three local prizes and three county prizes will be awarded. Later he announced the prize winners as follows: First prize, John R. Goodhart; second, J. Russell Condo; third Clarence W. Musser. The prizes were $4 $3 and $2 resepectively and were equally donated by the two banks of Millheim, the Farmers' National Bank and the Millhein Banking Company. Two special prizes were awarded to the other two competitors in the form of two sacks of phosphate to one and one to the other.

For the next year T. M. Gramley offered a special prize of $5 to the winner provided that not less than ten members are in the contest in the Spring Mills Club. He was later in the session elected local director of the Corn Club. After this part of the meeting was completed Mr. Clemmer gave short talks on corn judging and the testing of seed corn.

Each of the winners of the money prizes was compelled by the ovation which he received to deliver a short talk on how he was able to raise his crop. The award was based on the following schedule; first, yield per acre, 40 percent; second, show of profit, 30 percent; third, exhibit of ten ears, 20 percent; and last, essay, How I Grew my Crop, 10 percent.

The highest yield was 121 bushels; the cheapest cost was 15 cents per bushel.

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Washington Grange, near State College, is a close second to Progress Grange, at Centre Hall, in activity, and especially in the matter of numerical growth. Located near Pennsylvania State College, Washington Grange awoke to the opportunity of disseminating Grange spirit thruout the State and Nation by coming into close contact with the several hundred students in the School of Agriculture, a prized Department of the Keystone state's great institution. As a result a large number of these students become active members of that Grange, and upon graduation go back home carrying with them the spirit of the agricultural college and the grange. The training of these young men in grange work has been the means of reviving dormant granges and the organization of new ones, and added many valuable members to granges already organized.

Altho Washington grange did big things before its work on the night of the 10th instant, has probabyl never been exceeded within the state, for at that time seventy-five members were given the initial degrees of the order. —S. W. S.

Harford County, Md.—The Harford County, Md., Pomona Grange was organized at Forest Hill, Md., with the following officers: D. G. Harry, Master; A. C. Ensor, Overseer; C. C. Coale, Secretary; N. O. Stokes, Treasurer; A. A. Cairnes, Steward; Dr. Hoops, Assistant Steward; Rev. S. L. Irvine, Chaplain, and Mrs. H. James, Lecturer. The Pomona Grange was made possible, by the recent organizing of three new granges in Harford Co. Forest Hill with a charter membership of 105; Churchville, with 50 and Upper Cross Roads, with about 35. These three, with Highland and Jarrettesville Granges, which have been organized for eight years, make up the Pomona Grange. Highland Grange is the largest of these five granges, having a membeship of 176 and great interest is shown by the members.

Annual fairs and picnics are held, exhibits are made each year at the Maryland Week Show held in Baltimore. Several prizes were carried off this year by members, including first on corn, single ear, ten ears, and fifty ear exhibits, and sweepstakes for all corn, Mr. James R. Galbreath has won this prize two years in succession. Other members of this grange won first on, milk, apples, wheat, soy beans and cow peas.

The Pomona Grange will hold its next meeting at Forest Hill, January 8, and will be the guests of the Forest Hill Grange.—D. G. H.

DOINGS OF THE LATE NATIONAL GRANGE

Approval of equal suffrage for women, by national constitutional amendment.

National prohibition unanimously indorsed and rum traffic strongly denounced.

Pay-as-you-go road policy reiterated and Grange road position of last year reaffirmed.

Preparation for peace, not for war, declared to be the position of the National Grange.

Clear-cut rural credit policy adopted and instructions to work hard for its enactment.

Condemned reducing rural mail efficiency by lengthening carriers' routes and other forms of "economy in the service."

Importance of home economics emphasized by discussions and votes.

National conservation of natural resources again emphasized.

Approved government ownership of all electrical means of communication.

Pullman company monopoly methods strongly condemned.

A non-partisan tariff commission unanimously favored.

Free seed distribution by government sternly denounced.

Vigorous assistance pledged in coming margarine fight in Congress.

Reaffirmed Grange position on Federal aid for highways.

Strong action on the denatured alcohol situation.

Repeal of mixed flour law demanded thru national legislation.

"Uplifters" and "faddists" given some bad knocks.

Greetings exchanged with American Federation of Labor convention.

Much prominence for Juvenile Granges and uniform charters ordered issued.

Liberal appropriations for aid of weak Granges.

Issue of new Grange literature authorized.—National Grange Monthly.

THREE GOOD SPECIAL MEETINGS IN ONE WEEK

The first week in December was a busy and interesting one in special institute work in Northwestern Pennsylvania. The first meeting of the week was the annual institute meeting of the Warren Co. Farmers' and Breeders' Association. This meeting was held at Lauder, Pa., with our good friends Frank Kline, of Chester Co. and J. Aldus Herr, of Lancaster Co., as instructors. The men both "made good", and they were listened to attentively by a good sized audience. The first day the principal of the township high school closed his school and with his pupils attended in a body. The subjects discussed were poultry, dairying and the schools.

The Farmers' and Breeders' Association has held institutes for the past fifteen years and have secured their own speakers and paid their own bill. Speakers have been secured during this time from Ohio, New York and Pennsylvania, and the effect of this continued, persorving work is showing in the communities where the work has been done. The association this year held an exhibition of poultry and potatoes, and gave small premiums for the best of each exhibit.

The second meeting was the annual meeting of the Brookville (Jefferson Co.,) Dairy and Creamery Association, held at Brookville, on Friday, December 10. The morning was taken up with the business of the association, and election of the directors for the coming year. This was the closing of the first year's work of this association and it was gratifying to see so much harmony and co-operation among the stockholders, altho they have had some disappointing experiences. They were full of grit and determination so re-elected the old board of directors thinking that the experience and knowledge gained by this body would be of use to them in the second year's work. At the close of the business, the stock holders and their wives adjourned to the American House where all sat down to a fine dinner at the company's expense. After dinner the writter addressed them on the subject of "Dairy Improvement." He was followed closely for over and hour and many questions were asked. Many members expressed a desire to increase their herds and improve their feeding practices, which would mean more milk or cream for their factory and more money for them.

From this meeting we hurried back to Sugar Grove, for Saturday afternoon, where County Agent H. N. Reist had scheduled a meeting, with Prof. M. M. Borland of State College as instructor. Prof. Borland took up the subject of Feeds and Feeding and was listened to very attentively by 50 dairy farmers and their wives. Prof. Borland gave as clear and practical an exposa of scientific feeding principles as I have ever listened to, and coming at this time, was very helpful to our dairymen. Mr. Reist, the county agent, is to be congratulated upon being able to have with him such a man.—R. J. Weld, Warren Co., Pa.

ADAMS CO. FRUIT GROWERS MEET

The 11th annual Fruit Growers' Convention of Adams County was opened in Fruit Growers' Hall at Bendersville, on Wednesday, December 22. There was a discussion of the right of Fruit Growers to protect their trees against wild animals by John D. Keith, Esq. of Gettysburg. C. Arthur Griest, Pres. gave a review of the year's work.

An unusually large number of persons were present on Thursday. In the morning there was a lecture by Dr. M. B. Waite of Washington on fire blight, and one by Prof. R. L. Watts, Dean of the School of Agriculture at State College on the Life and Operations of the students at State College. In the afternoon there was a lecture by Dr. L. L. Morrell, President of New York Fruit Growers' Association on the New York Grading and Packing Law. For many years I have been attending such meetings and hearing preachments about honest packing, and yet, the little apples still continue to get into the middle of the barrel. The right word does not yet seem to have been said on this matter.

Thursday evening Dr. M. T. Sherman Culp delivered his lecture, "Uncrowned Kings." The large audience showed its appreciation.

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The regular farmers' institute was held in New Oxford on Friday and Saturday, December 17 and 18. The speakers were Sheldon W. Funk, Paul I. Wrigley, Chas. G. McLain, and E. L. Phillips. Owing to unfavorable weather and other causes the attendance was not large. In this part of Pennsylvania many people consider Farmers' Institutes have become a back number. Farmers themselves have lost interest, and the wisdom of continuing them might properly be discussed.—D. P. Forney, York Co., Pa.

NATIONAL GRANGE AFTERMATH

The recent session of the National Grange was the most expensive one in respect to mileage and per diem of delegates that was ever held. The total number of miles traveled by the delegates was 272,930 or an average of about 4,790 miles, and the mileage bill was $8,187. Beside this is added the mileage of those officers who were not delegates and their per diem and we have the total expense of the delegates of $13,903.

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There are some obstacles to the organization of granges in the far west and one of them is accessibility of location. State master Gunson of Wyoming stated that there is a grange at Green River just off the Union Pacific railroad a distance of 82 miles. I should have said that the station was Green River but the grange is just back in the country a little as the figures indicate. It is reached only by stage with a relay of horses every 20 miles and takes two days of continuous traveling to cover the distance. Mr. Gunson also said that there is a community now clamoring for a grange which is located 115 miles "from anywhere," that is from any railroad to get "anywhere". Some of our people in the east worry about traveling two miles over a state road to attend grange meetings.

The country people of Belgium, Poland, Serbia, Armenia, are fine workers. Most of them are expert agriculturists. The best way now to help these unfortunates is this: Let congress temporarily suspend the contract labor law so as to legalize the offering of these people jobs on our farms or in our rural homes, also to assist their migration to this country by paying their passage. At once a great movement hitherward will follow, especially of the women and younger people—just the sort needed in rural America.

HOW CAN YOU AID THE RURAL MAIL SERVICE

There are many ways in which patrons on Rural Free Delivery Mail Routes can aid the service with no additional expense to themselves. Much of the waste of time, the inability to deliver mail of all classes, and especially packages, is due the thoughtlessness of the customers of Uncle Sam's great mail service.

The purpose of this department of the Reporter is to bring to the attention of the Rural Free Delivery Mail Route patrons the benefits derived, first to the patrons themselves, and second to the general Post Office Department, from observing more scrupulously the rules and regulations as laid down by the Post Office Department.

No one can guess how often the common custom of placing pennies in the Rural Mail Box for postage has caused the carrier to get his destination too late for the outgoing mail. It is permissable to put money in Rural Mail boxes, (Section 782, Postal Laws and Regulation), provided it is wrapped or placed in a coin-holding receptacle. To avoid the least loss of time, patrons should buy postage stamps and keep them on hand so that when a letter is to be mailed it can be properly stamped.

In the Name of Creation Why Don't YOU Clean and Grade Your Seed Grain!

There's Big Money in It

No matter where you live, no matter what crops you grow, no matter what size your farm, YOU ARE LOSING AT LEAST $100 PER SEASON, unless you are scientifically cleaning and grading your Seed Grain and Grass Seed! The chances are, you are losing even more — $200, $300, $400, $500 or $1000 per year. Thousands upon thousands of farmers in your home state have proven this important fact to their satisfaction and delight.

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My sensational Crop Book, "A HARVEST OF GOLD," tells the entrancing story of multiplied Wheat Yields; extra bumper Corn Crops; bountiful Oat yields; record-breaking Harvests of Barley, Flax, Timothy, Clover, Alfalfa, etc.—all results from sowing CLEANED and GRADED Seed Grain! A large part of the story is told by farmers themselves—in their own exact words. It is a handsome, illustrated Book and is fully protected under U. S. Copyright Laws. Worth $100 to any farmer, but yours for the asking.

CHATHAM Grader and Cleaner

will remove the foul Weed Seed from your Seed Grain and Grass Seed. Will get rid of the small, sickly, weazened, imperfect grains. Then you can plant only big, plump healthy fellows. And great will be your reward at harvest.

This double-shake 1915 model machine, with its scientifically constructed screens and riddles, will clean, grade and automatically bag any and all kinds of small Grain and Grass Seed. Works amazingly fast, and is so perfectly made it almost turns itself. Over 400,000 now in active use.

The price is surprisingly low and terms most liberal (30 days trial with cash or Fall payment terms), and for the next 30 days, instead of charging for the Corn grading equipment, I furnish it Free with the Chatham Mill.

Heed this warning: All Seed Grain (due to the wet weather last summer) is fearfully foul this year. Clean and grade yours, thereby adding a big Sum to your crop profits.

Write now! Merely say, "I want your Book." It will come by return mail.

Manson Campbell Co., Dept. P-1 Be sure to put "Dept. P-1" on your letter or postal.
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Wheat and Rye Separates chaffs, blasts out oats, chess, etc. Keeps screenings free of cockle and all black seeds. Uses the new principle wild oat separator. Grades all varieties of wheat perfectly.

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Barley Cleans, grades, separates all weed seeds and foreign grain including oats and wild oats.

Beans & Peas Removes splits, pods, shrunken beans. Makes an eight pound picker a good sample. Handles cow peas, soy beans, however threshed.

Corn Blasts cobs, chaff, silks. Removes broken grains, shoe pegs, tips, butts and uneven kernels; grades flat, even grains for 98% perfect crop.

Clover Removes buckhorn & 62 other weeds. Saves and separates alsike and timothy.

Timothy Removes plantain, pepper grass and 33 other weeds. saves volunteer timothy from oats and wheat.

Alfalfa & Flax Removes dodder and foxtail; beads, stems, fibres, wild oats, mustard, barnyard grass, false flax, broken wheat. Blasts out shrunken, frozen or droughted seed.

Ask how to separate Rye and Vetch absolutely

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If you cannot devote all of your time to the work request our local agent's terms. We have among our local representatives: Farmers, Bank Clerks, School Teachers, Store Keepers, Creamery Managers, men interested in various commercial lines and many others. Sample copies and all other necessary supplies furnished free of charge. Send reference with first letter.

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261-63 South 3rd Street, Philadelphia, Pa.

Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., Dec. 27, 1915.

The produce markets enjoyed a large share of the trading which made this Christmas one of record sales in all lines of business. Receipts of apples were heavier than in any time during the past two months and prices declined slightly under the heavy supply. Potatoes and cabbage were in light receipts and received but little attention.

Poultry attracted the buyers thruout the week and the very irregular and light supply furnished a peculiar market. On Tuesday fancy dry-picked turkeys sold at 26 cents and on the following day 28 cents was secured for the best grade. Thursday's sales ran principally at 30 cents and on Friday fancy turkeys were not to be had on the wholesale market. Thirty cents was secured on Friday for common stock, which on Tuesday would not have sold above 23 cents. This steady advance of two cents each day was due to an unusually light supply for this season and fancy turkeys were scarce after Wednesday.

Chickens maintained a fairly steady price; some young and fancy stock bringing a premium of two cents above the general quotations. Fowls averaging from 4 to 5 pounds met with ready sale at 17½ and 18 cents. Fresh killed broilers from near-by sold at 24 and 26 cents. The high price and scarcity of fancy turkeys late in the week helped the sales of ducks and geese. Fancy spring ducks sold at 18 to 20 cents, geese at 16 to 18 cents.

Live poultry of all kinds was in good demand with only fair supply. Turkeys sold at 20 to 22 cents, fowl 13 to 15 cents, spring chickens, 13 to 15 cents, ducks and geese, 14 to 16 cents. Receipts of near-by eggs were small and sold readily at top prices, at wholesale the fresh near-by stock brought 37 to 39 cents per dozen. Fancy selected stock jobbed at 42 to 44 cents per dozen.

Potatoes maintained a steady price with lighter receipts. In the past week there were from 65 to 78 cars on the tracks daily, including shipments from all sections. Western potatoes were offered at 88 to 90 cents and the few cars of Main stock was held at $1 per bushel. Pennsylvania potatoes were preferred by the large majority of buyers at 95 to 98 cents.

Cabbage was also in light supply and Danish sold at $8 to $10, Domestic, $5 to $6 per ton. Onions of poor quality continue to be in fair supply with good stock scarce and in demand at $1.75 to $1.90 per 100-pound bag.

Pennsylvania celery was in heavy supply for the Holiday trade and sold at 9 and 10 cents a bunch. New York state celery sold at former quotations of 25 to 40 cents for the first grades.

New York growers are shipping tomatoes in quantities which sell at 30 and 35 cents per pound. Brussell Sprouts are at the high point of 12 and 14 cents per quart.

Jersey and Virginia continue to supply sweet potatoes in large quantities, the Jersey stock selling at 40 to 50 cents per basket and the Virginias at $1.50 to $1.75 per barrel. Norfolk spinach struck a sudden slump and is moving at $1 to $1.25 per barrel. Kale is selling at 60 to 75 cents per barrel.

Florida vegetables are meeting with good prices for this season, peas are selling at $2.50 to $4 per basket, beans. $2 to $3.50, peppers at $2 to $2.50 per carrier, eggplant $2.25 to $2.75 per crate.

Christmas greens were in far greater supply than was anticipated. Holly dragged on the market at $2.50 and $2.75 per box. Good wreathes were sold at 8 and 10 cents. Laurel was in light supply and entirely off the jobbing market by Thursday morning at $2.50 to $3 per hundred yards.

Cranberries were plentiful and maintained good prices. Jersey stock is selling for $2.50 to $3 per crate, Cape Cod at $9 to $10 per barrel.

Quotations on practically all varieties of apples are off a shade from last week's prices due to a heavy supply. Fancy Jonathans are selling principally at $3 to $3.50 per barrel, Grimes Golden, $2.50 to $3, Smokehouse, $2.75 to $3.75, Black Twig and Winesap, $2.75 to $3.25, York Imperials, $2.50 to $3. Ben Davis, $2 to $2.50. New York Greenings are selling at $2.50 to $3.25. Kings, $3.25 to $3.75, Baldwins, $2.50@3.25, Spys, $2.75 to $3.25, Hubbardston, $2.25 to $2.75, Twenty Ounce, $2.50 to $3. Bulk stock is in light supply and selling at $1 to 1.40 per one hundred pounds.

Eggs.—Nearby extras, 39c per dozen, firsts, $10.80 case; current, $10.20. Receipts are somewhat more liberal and prices have declined about 30 cents per case. Fancy selected were jobbing at 41@43c per dozen.

—Selmarad.

NEW YORK PRODUCE

New York City, Dec. 27, 1915.

Available supply of butter larger and prices lower than last week. Tone of cheese market firm but little trading. Supply of fresh eggs fairly liberal, market unsettled. In poultry, the market is uncertain with prices remaining about steady. Fresh offerings of potatoes light and holders asking slightly higher prices. Market generally quiet. Onions in good demand.

Butter. — Creamery extra, (92 score) per pound, 34@34½c; higher score, 35@35½c; thirds to firsts, 24@33c; state dairy, 27@32c; packing stock, 18@21c.

Cheese. — Whole milk specials, 17¼c; Daisies, 17½c; skims, fresh choice, 15c.

Eggs. — Fresh gathered, extra, 37@38c; firsts, 35@36c; thirds, 24@27c; dirties, 22@23c; nearby whites, fine to fancy, 50@54 cents dozen; ordinary to good, 38@48c; browns, 33@42c.

Dressed Poultry. — Chickens, 28@30c; fancy roasters, 25c. Fowls, 16@18c. Old roosters, 12½c; squabs, $2.25@4.75 dozen. Spring ducks, per lb. 17@18c. Turkeys, dry picked, 24 @ 28c. Rabbits, cottontails, prime, 40c per pair.

Apples.—These prices show the range from "B" to "A". Jonathan, bbl., $2@4.25; York Imperial, bbl., $1.75@3.25; Winesap, bbl., $2@4.50, Twenty Ounce, bbl., $1.50@2.50; Greening, bbl., $2@3.50; King, bbl., $1.75@3.25; Northern Spy, $1.75@4; Baldwin, bbl., $1.75@3.25; Hubbardson, bbl., $1.75@3; Ben Davis and Gano, bbl., $1.75@2.50; Common, bbl., $1.50@3.

Vegetables.—Beets, per bbl., $1.25@1.50; carrots, bbl. $1 @ $1.25. Cabbage, near-by per ton, $5@7. Danish, $7@10. Cauliflower, bbl., $1@5.50. Celery, choice, crate, $2@3.50. Turnips, bbl., $1. Onions, white, $1.50@4 bas.; do., yellows, 60c@$1 bas. Squash Hubbard and Marrow, $1.50@2.25 barrel. Potatoes Jersey, $2.50@2.75 bag. Long Island, $2.75@3 bag. Sweets, $1.75@2.25 barrel.

Country Dressed Calves.—

Choice, per lb.	@15
Prime, per lb.	13½@14
Fair to good, per lb.	12½@13
Coarse, heavy, per lb.	12 @13
Common, per lb.	11½@12
Buttermilks, per lb.	9½@10½
Grassers, per lb.	8½@ 9½

BALTIMORE PRODUCE

Baltimore, Md., Dec. 27, 1915.

Butter. — Creamery fancy, 36@36½c; choice 34@35c; Maryland and Pennsylvania rolls, 20c; dairy prints, 19@20c.

Eggs. — Nearby firsts, 32c dozen; Westerns, 33c; Southerns, 31c.

Live Poultry.—Prices, per pound: Chickens, large, 16c; small, 13c; old hens, 15c; do., light, 13c; old roosters, 9c; ducks, spring, 14c; White Pekins young, 14c. Pigeons, per pair, 15@20c. Guinea fowls, each, 45@50c; turkeys, young, 25@26c; do., old 22c, Dressed turkeys, 19@22c; chickens, 12@14c.

Vegetables and Green Fruit. — Potatoes, Pennsylvania per bu. 80@90c; nearby, 75@80c bushel. Sweets, 75c@$1.25. Apples per barrel, $1@1.50. Pennsylvania, $1.75@2.50. New York, $2@3.50. Cabbage, per ton, $8@10; Danish, $12@15. Celery, per bunch, 20@50c. Onions, 65@75c bushel. Pears, 15@20c basket. Turnips, per bu., 15@20c.

Wheat. — Native, $1@1.25; No. 2 red western, **$1.34.**

Corn.—Prime yellow, 77c; Ear corn, $3.45 barrel.

Oats.—No. 3 white, (new) 46@46½c.

Rye.—No. 2 rye, $1.01. No. 3, 96@97c; bag lots, 90@98c as to quality and condition.

Mill Feed.—Prices per ton in 100-lb. sacks. —Spring bran, $24@24.50; white middlings, $30@33; winter bran, $24.50@25.

Hay.—No. 1 timothy, $20.50; do., No. 2 $18@18.50; No. 3, $15@17; light clover mixed, $18@18.50. Choice clover, $17@17.50. No. 1 $15@17. Sample hay, $10@13.

Straw.—No. 1 straight rye, $13; No. 2 $12; No. 1 tangled rye, $11@11.50. No. 1 wheat straw, $8@8.50; do., No. 2 $7@7.50; No. 1 oat straw, $10@10.50; No. 2 do., $9@9.50.

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., Dec. 27, 1915.

Cattle.—The supply on sale Monday was 70 loads compared with 105 loads the week before. The market ruled higher on the choice tidy fat cattle and the good heavy grades, while the other grades were slow at about steady prices. Heifers sold steady on choice while the medium grades were slow. Cows sold higher on all grades from bolognas to choice. Bulls steady on all grades. Best fresh cows steady; medium grades slow and springers very draggy. There were 55 loads of cattle received today; market ruled fairly active.

Good to choice	$8.50@8.80
Good, 1300 to 1400 lb.	8.15@8.25
Medium to good, 1200 to 1300 lb.	7.40@8.10
Tidy, 1050 to 1150 lb.	7.40@8.00
Fair to medium, 1000 to 1150 lb.	6.50@7.00
Fair 900 to 1000 lb.	6.00@6.50
Common, 700 to 900 lb	4.75@5.50
Rough, half-fat, 1000 to 1300 lb.	6.00@7.00
Common to good fat oxen	4.00@6.25
Common to good fat cows	4.50@6.00
Common to good fat bulls	4.75@6.75
Heifers, 700 to 1100 lb.	4.75@7.50
Bologna cows	3.25@4.25
Fresh cows and springers	$40@85

Calves. — Calves in liberal receipt and market closed 50c per cwt. lower. There were 200 head of calves received today, market higher.

Veal calves	$9.00@11.00
Heavy and thin calves	4.50@ 7.50

Hogs. — The supply of hogs during the week has been liberal and with lower prices at other markets our market had quite a decline, closing 25 to 35c per cwt. below Monday's prices. Receipts of hogs today numbered 40 double-deck loads; market higher on all grades than last week's closing prices.

Prime heavy	$6.90@
Heavy mixed	6.85@
Prime medium weights	6.80@
Best heavy Yorkers	6.75@
Light Yorkers	6.50@
Good pigs	6.00@6.25
Common to good roughs	5.50@5.75
Stags	4.75@5.00

Sheep and Lambs.—The supply of sheep and lambs has been fair, and with only a fair demand the market closed 10c per cwt. lower on sheep and 20c per cwt. lower on the handyweight lambs. The receipts of sheep and lambs totaled 6 doubledeck loads today; demand good and market active and higher on all grades.

Prime wethers	$6.80@7.00
Good mixed	6.00@6.25
Fair mixed ewes and wethers	5.25@5.85
Culls and common	3.00@4.75
Spring lambs	7.00@10.50

BUFFALO LIVE STOCK

Buffalo, N. Y., Dec. 27, 1915.

Cattle.—The week opened with a fairly active demand for good quality cattle at 15 to 25c higher basis. Receipts were light and quality only fair generally. Export and shipping steers were in light supply, active demand and higher. Stockers and feeders were in light supply, active demand and 10@15c higher. Milk cows and springers were in light supply, very active demand and stronger. The week closed with a light general demand, with mostly local buyers on the market. Receipts of cattle today totaled 2,250 head; market steady. Prime steers, $8.50@9; butchers, $7.00@7.50; fat cows, $4.50@6.50; heifers, $5@7; bulls, $4@6.75.

Calves.—Receipts were light for the opening of the week, and the demand good. The order trade, was large but the general basis was no higher. Choice veals sold at $10@11. On the close the trade was light and the offerings moderate. The receipts of calves today were 450 head; best veals sold at $11.75@12.

Sheep and Lambs.—The supply was liberal for the opening and with an active demand the trade ruled higher by 35c for lambs. Good lambs sold at $10@10.15. Yearlings were in light supply, good demand and half a dollar higher. Sheep sold active and firm with light supply. The demand was light on the close, lambs of choice quality selling steady. Good quality of sheep sold better. Sheep and lamb receipts today numbered 6,600; market strong. Best lambs, $10.40@10.50; yearlings, $8@9; wethers, $6.75@7; ewes, $6@6.50.

Hogs. — Receipts were liberal and the week opened with a good demand at 10@15c higher. There was a general all around demand at firm prices. Yorkers sold at $6.40@6.75; pigs, $6@6.25, or a nickel higher. On the close the trade was somewhat slow and the basis lower, being the close of holiday week. Prospects fair for Monday. There were 14,400 head of hogs received on the market today. Medium and heavy, $6.80@6.85; Yorkers, $6.75; pigs, $6.25; roughs, $5.85@6; stags, $4.50@5.

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., Dec. 27, 1915.

Hay.—Receipts, 187 tons of hay and no cars of straw. There was a fair demand for hay and the market ruled steady under moderate offerings. Straw was quiet, but steady. Timothy hay, No. 1, large bales, $21@21.50; No. 1 medium bales, $20.50@21; No. 2 do., $19@19.50; No. 3 do., $15.50@17.50; no grades, $10@15; clover mixed hay, light mixed $18.50@19; No. 1 do., $18@18.50; No. 2 do., $15.

Straw.—No. 1 straight rye, $13.50@14; No. 2 do., $12.50@13; No. 1 tangled rye, $11.50@12; No. 2 do., $10.50@11; No. 1 wheat straw, $9.50@10; No. 2 do., $8.50@9; No. 1 oat straw, $9.50@10; No. 2 do., $8.50@9.

Feed.—The market ruled steady under moderate offerings and a fair demand. City mills, winter bran, in 100-lb. sacks per ton, $25; spring bran, in 100-lb. sacks, per ton, $23.50@24.

Wheat.—In round lots, No. 2 red, $1.26@1.28. No. 3 red, $1.23@1.25. Rejected A, $1.20@1.22. Rejected B, $1.19@1.21.

Corn.—No. 2 yellow, 81½@82½c; steamer yellow, 80½@81½c; No. 3 yellow, 79@80c. New ear corn, 69@70c per 70 lbs.

Oats.—No. 2 white, 49@50c bu.; No. 3 do., 46½@47½c; sample, 43@44c; standard white, 47½@49c.

Flour.—Car lots, winter clear, $5.15@5.40; patent, $5.80@6.10. Favorite brands, $6.10@6.20. City mills, choice, $6.50@6.80; do., regular, $5.15@5.40. Rye flour, $5.25@5.50 as to quality.

NEW YORK HAY AND GRAIN

New York City, Dec. 27, 1915.

Hay and Straw.—The receipts over the holidays were not excessive at the 33rd street shed, and prices there are holding steady; but at other harbor points the situation still favors buyers and reported sales of like qualities are still at widely varying prices.

Grains.—The wheat market reached new high levels yesterday, with May selling at $1.29 during the forenoon, but the strength did not last long, and a decline set in which carried May down to $1.26⅞, at which it closed, in comparison with 1.28⅛ asked on Friday. The market showed nervousness thruout the session, and there was some selling because the foreign markets were closed, and export business in consequence light. Cables from private sources indicated a strong position of the market, but export sales amounted to only 200,000 bushels.

Corn was very firm and closed at ⅝c to ¾c advance. Some of the strength was borrowed from wheat at the outset, and on reports of unsettled weather. Country offerings continued small, and if the movement continues as light as it has so far this season a material improvement in the cash demand is looked for, which leads many traders to anticipate higher prices for the options.

Oats followed the other markets and closed ¼ cent to ⅝ cent higher. A moderate export demand was reported, but no actual sales were announced. It is said that Canadian oats are being offered in the domestic markets, but this feature has little influence upon values. Country offerings continue light.

Hay,—Large bales—No. 1 $24@25; No. 2, $21.50@23; No. 3 $19@20.50; fancy clover, $22@24; No. 1 $20@21; No grade, $14@18.

Straw.—Per ton, No. 1 rye, $14.

Wheat.—No. 1 Northern, $1.42; No. 2, $1.38; No. 3 $1.34.

Corn.—No. 2 yellow, 85½c.

Oats.—No. 3 white, 48@49c; No. 4, 47@48c.

Rye.—$1.05@1.06.

Mill Feed.—Coarse Western spring one hundred-pound sacks to arrive, $22.85@23. Standard middlings, $22.85@23; flour, do., $26.80 to arrive. Red dog, to arrive, 140-lb sacks, $28.75. Oil meal, $39@39.50. City feed, bulk bran, $22.60; 100 lbs. $24. Heavy feed in bulk, $22.60; 100-lb. sacks, $24, Red dog, $32. Flour middlings, $31.50. Middlings, $22.60@31.50.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., Dec. 27, 1915.

Hay.—Receipts continue heavy, especially of clover and clover mixed hay while the annual holiday dullness is beginning to be felt; buyers holding off until after New Year. Market looks like if it might be lower between now and January 1. Look for a strong market immediately after New Year. No. 1 timothy, $18.50@19; No. 2 timothy, $15.50@16.50; No. 3 timothy, $12@13; No. 1 light mixed, $16@16.50; No. 1 clover mixed, $15@15.50; No. 2 clover mixed, $12@14; No. 1 clover, $14@14.50; No. 2 clover, $9@12.

Straw.—Demand for straw has increased within the last few days while there is a noticeable scarcity in the arrivals; market much better. No. 1 oat, $8.25@8.50; No. 2 oat, $7.50@7.75; No. 1 wheat, $8.25@8.50; No. 2 wheat, $7.50@7.75; No. 1 rye, $9.75@10.25; No. 2 rye, $8.25@8.75.

Ear Corn.—Receipts of ear corn have been exceedingly heavy lately while the demand has eased up; market lower. New, No. 2 yellow, 69@70c; No. 3 yellow, 66@68c; High mixed, No. 2, 67½@68½c; No. 2 mixed, 66@67c.

Oats.—Oats arriving in sufficient quantities to supply the somewhat limited demand; market quiet. No. 2 white, 46@46½c; Standard, 45@45½c; No. 3 white, 44@44½c; No. 4 white, 42½@43½c; Rejected, 37@40c.

NEW YORK MILK MARKET

New York City, Dec. 27, 1915.

The Christmas trade was unexpectedly good. It was thought that, as usual the demand would fall off and the shortage be made up. There is still a little shortage. The market value is approximately 4¼ cents a quart for Grade B in the so-called 26-cent zone.

The receipts of milk and cream in 40-quart cans for the week ending December 25, were as follows:

Railroad	Milk	Cream
Erie	42,131	1,848
Susquehanna	9,603	58
West Shore	15,535	733
Lackawanna	53,975	1,010
N. Y. Central (long haul)	87,891	960
N. Y. Central (short haul)	20,890	29
Ontario	43,430	1,782
Lehigh Valley	39,630	845
Homer Ramsdell Line	3,460	29
New Haven	7,720	40
Pennsylvania	6,257	195
Other sources	1,130	18
Totals	331,652	7,547
Same week last year	318,488	8,072

CHICAGO HORSE MARKET

Chicago, Ill., Dec. 27, 1915.

Horses were marketed last week in much smaller numbers than usual, as Christmas week is always a dull time, and the light supply prevented a decline in prices. There was a good demand for horses and mules for the French army, and chunks were wanted for the Italian army. Thin horses of inferior quality sold down to $25@75, with drivers at $80@200, while drafters were quoted at $200@285, altho few sold as high as $250.

GRASS SEED MARKET

Toledo, O., Dec. 27, 1915.

Cloverseed.—Prime cash and December, $12.25; February, $12.35; March, $12.10. Alsike.—Prime cash and December, $10.25; February, $10.40; March, $10.55. Timothy. —Prime cash and December, $3.90; February, $3.95; March, $4.

PHILADELPHIA BUTTER MARKET

Philadelphia, Pa., Dec. 27, 1915.

Butter.—As a result of the recent decline at other points, prices were one cent lower on solid-packed creamery. At revised quotations demand was sufficient to absorb the limited arrivals of strictly fancy goods, but offerings were mostly of more or less defective qualities which were hard to move, except on buyers' terms. Ladles were quiet and unchanged. Prints were one cent lower, but fine goods sold fairly at revised figures. Western, fresh, solid-packed creamery, fancy specials, 38c; extras, 36c; extra firsts, 33@35c; firsts, 30@32c; seconds, 26@29c; ladle-packed, 21@22c; nearby prints, fancy, 39c; do., average, extras, 36@38c; do., firsts, 30@35c; do., seconds, 26@29c; special fancy brands of prints jobbing at 42@45c.

Cheese.—Demand was fairly active and the market ruled firm with supplies well under control. New York, full cream, fancy, new, 17½@17¾c; specials higher; do., fair to good, new, 16½@17c; do., part skims, 9@14c.

TOBACCO MARKET

It has been found that during the recent active selling movement some growers, for lack of the necessary information as to values, sold considerably below the market price, an instance being noted in which $7.50 and 2 was received for a really good crop, whereas it was probably worth $11 and 3 or even more. This should impress all with the importance of keeping in touch with the situation from time to time. Practically the entire crop has now been sold and stripping is the order of the day. Growers would hardly spare the customary holidays, so anxious were they to get their product ready for delivery. The period following the holiday season will be one of unusual activity. Already there is much being said in regard to the 1916 crop and with the existing interest the acreage will be considerably increased. Some hold to the theory of a small acreage as a means of maintaining prices, but the idea is not popular with the average grower.

The situation in other localities was quite satisfactory—decidedly more so than at the corresponding time last year. In the general market too, there was unusual interest and a period of unusual activity is expected immediately after the holidays. This will be a contrast as compared with the unusual dull season of the early months of the year. Much chagrin was expressed at the action of Congress renewing for another year the special war revenue tax on tobacco and tobacco products. This tax, however, does not extend to growers, but of course, militates against them in the long run.—H. E. Tweed, December 27, 1915.

TRADE COMMENTS

Stocks of No. 2 red contract wheat in New York are only 2,000 bushels. Last year they were 197,000 bushels. It is impossible, therefore, to quote cash prices for this grade.

⁂

The visible supply showed an increase of 4,263,000 bushels in domestic wheat supplies, making stocks now 61,478,000 bushels against 73,746,000 bushels last year. There was a decrease of 5,817,000 bus. in bonded wheat.

⁂

Owing to a shortage of wheat the Spanish Government now permits the entry, without duty or transportation tax, of two hundred thousand tons of wheat, agreeing to advance money to Spanish millers in payment of transportation charges.

⁂

Walla Walla this month reports that both flour to St. Louis and wheat from the Inland Empire are moving east to Minneapolis and some to Philadelphia, routed thru Minneapolis. From the Northwest close to 500,000 bushels, it is estimated, will be sent.

⁂

That the country is extremely bullish on corn is evidenced not only in the light offerings of the cash corn so far, but also by the fact that there is a big long interest in the futures for country account. There appears to be no selling pressure of moment in the market.

⁂

A special cable to The Journal of Commerce from London stated that the Prime Minister of South Australia announces the sale of 8,000,000 bushels of wheat to Great Britain and France at 63s 3d per quarter, London terms. This is equal to $1.89¾ per bushel. An Associated Press cable from Melbourne announces a deal in wheat between the Australian Government and the British and French governments involving about £3,000,000, and the price was quoted at 5s a bushel, or about $1.20. Another sale was reported made for Italy; a cargo for South Africa was also bought at the record price of 5s 5d.

Hepsey Burke

By Frank N. Westcott

SYNOPSIS OF PRECEDING CHAPTERS

Donald Maxwell, a young minister, has spent several months in his first ministerial charge at the little town of Durford, at a salary of $600 per year. Hepsey Burke, a widowed member of his flock, has proved his most faithful and efficient helper. The Senior Warden, Sylvester Bascom, is an important, if not the most loved, factor in dictating the affairs of the church. Miss Virginia Bascom is a busy, but not always the wisest, worker with an unusual interest in the young minister. Interest in unmarried ministers is a habit with Virginia and she showered attentions on Mr. Maxwell as long as he remained single. When he brought his young wife, Mrs. Betty, to Durford, there was a decided change in Miss Virginia's sentiments as well as her activity in the church. While all of Durford accepted Mrs. Betty as a welcome addition to the community life, Miss Bascom sought every opportunity to snub her. Jonathan Jackson, the Junior Warden, becomes Mrs. Betty's faithful supporter, and she in turn advises him for his own good on the subject of matrimony. She has just startled him with the suggestion that he propose to Mrs. Burke.

CHAPTER XII (Concluded)

Jonathan grinned as he retorted:

"Well, no man would waste any time if all the girls were like you. They'd all be comin' early to avoid the rush. Is Mrs. Burke employin' your services as a matrimonial agent? Maybe you won't mind tellin' me what you're to get if the deal pulls off. Is there a rake-off anywheres?"

Betty laughed, and Jonathan was silent for a while, squinting at the scythe-edge, first from one angle, then from another, and tentatively raising the hone as if to start sharpening.

"Well, Mrs. Betty," he said presently, "seein' I can't possibly marry you, I don't mind tellin' you that I think the next best thing would be to marry Hepsey Burke. She's been a mighty good friend and neighbor ever since my wife died; but she wouldn't look at the likes of me. 'Twouldn't be the least use of proposin' to her."

"How do you know it wouldn't? You are not afraid of proposing, are you?"

"No, of course not; but I can't run over and propose, as I would ask her to lend me some clothesline. That'd be too sudden; and courtin' takes a lot of time and trouble. I guess I 'most forgot how by this time; and then, to tell you the truth, I always was a bit shy. It took me near onto five years to work myself up to the sticking point when I proposed to my first wife."

"Well, now that's easy enough; Mrs. Burke usually sits on the side porch after supper with her knitting. Why don't you drop over occasionally, and approach the matter gradually? It wouldn't take long to work up to the point."

"But how shall I begin? I guess you will have to give me lessons."

"Oh, make her think you are very lonely. Pity is akin to love, you know."

"But she knows well enough I'm mighty lonely at times. That won't do."

"Then make her think that you are a regular dare-devil, and are going to the bad. Maybe she'll marry you to save you."

"Me, goin' to the bad at my age, and the Junior Warden of the church, too. What are you thinkin' of?"

"It is never too late to mend, you know. You might try being a little frisky, and see what happens."

"Oh, I know what would happen all right. She'd be over here in two jerks of a lamb's tail, and read the riot act, and scare me out of a year's growth. Hepsey's not a little thing to be playin' with."

"Well, you just make a start. Anything to make a start, and the rest will come easy."

"Talk is cheap; and besides, in a quiet place like this it's a positive duty to afford your neighbors some diversion; you ought to be thankful. You'll become a public benefactor. Now will you go ahead?"

"Mrs. Betty, worry's bad for the nerve, and's apt to produce insomny and neurastheny. But I'll think it over—yes, I will—I'll think it over."

Whereupon he suddenly began to whet his scythe with such vim as positively startled Betty.

CHAPTER XIII

The Circus

The Maxwells were, in fact, effectively stirring up the ambitions of their flock, routing the older members out of a too easy-going acceptance of things-as-they-are, and giving to the younger ones vistas of a life imbued with more color and variety than had hitherto entered their consciousness. And yet it happened at Durford, on occasion, that this awakening of new talents and individuality produced unlooked for complications.

"Oh yes," Hepsey remarked one day to Mrs. Betty, when the subject of conversation had turned to Mrs. Burke's son and heir, "Nickey means to be a good boy, but he's as restless as a kitten on a hot Johnny-cake. He isn't a bit vicious, but he do run his heels down at the corners, and he's awful wearin' on his pants-bottom and keeps me patchin' and mendin' most of the time—'contribution t o the end in view,' as Abraham Lincoln said. But, woman-like, I guess he finds the warmest spot in my heart when I'm doin' some sort of repairin' on him or his clothes. It would be easier if his intentions wasn't so good, 'cause I could spank him with a clear conscience if he was vicious. But after all, Nickey seems to have a winnin' way about him. He knows every farmer within three miles; he'll stop any team he meets, climb into the wagon seat, take the reins, and enjoy himself to his heart's content. All the men seem to like him and give in to him; more's the pity! And he seems to just naturally lead the other kids in their games and mischief."

"Oh well, I wouldn't give a cent for a boy who didn't get into mischief sometimes," consoled Mrs. Betty.

At which valuation Nickey was then in process of putting himself and his friends at a premium. For, about this time, in their efforts to amuse themselves, Nickey and some of his friends constructed a circus ring back of the barn. After organizing a stock company and conducting several rehearsals, the rest of the boys in the neighborhood were invited to form an audience, and take seats which had been reserved for them on an adjoining lumber pile without extra charge. Besides the regular artists there were a number of specialists or "freaks," who added much to the interest and excitement of the show.

For example, Sam Cooley, attired in one of Mrs. Burke's discarded undershirts, filched from the rag-bag, with some dried cornstalk gummed on his face, impersonated the famous Bearded Lady from Hoboken.

Billy Burns, wearing a very hot and stuffy pillow buttoned under his coat and thrust down into his trousers, represented the world-renowned Fat Man from Spoonville. His was rather a difficult role to fill gracefully, because the squashy pillow would persist in bulging out between his trousers and his coat in a most indecent manner; and it kept him busy most of the time tucking it in.

Dimple Perkins took the part of the Snake Charmer from Brooklyn, and at intervals wrestled fearlessly with a short piece of garden hose which was labeled on the bills as an "Anna Condy." This he wound around his neck in the most reckless manner possible; it was quite enough to make one's blood run cold to watch him.

The King of the Cannibal Islands was draped in a buffalo robe, with a gilt paper crown adorning his head, and a very suggestive mutton-bone in his hand.

Poor little Herman Amdursky was selected for the Living Skeleton, because of the spindle-like character of his nethermost limbs. He had to remove his trousers and his coat, and submit to having his ribs wound with yards of torn sheeting, in order that what little flesh he had might be compressed to the smallest possible compass. The result was astonishingly satisfactory.

The Wild Man from Borneo wore his clothes wrong side out, as it is well known wild men from Borneo always do; and he ate grass with avidity. Wry-mouthed and squit-eyed, he was the incarnation of the cubist ideal.

When all this splendid array of talent marched triumphantly around the ring, it was indeed a proud moment in the annals of Durford, and the applause from the lumber pile could be heard at least two blocks.

After the procession, the entertainment proper consisted of some high and lofty tumbling, the various "turns" of the respective stars, and then, last of all, as a grand finale, Charley, the old raw-boned farm horse who had been retired on a pension for at least a year, was led triumphantly into the ring, with Nickey Burke standing on his back!

Charley, whose melancholy aspect was a trifle more abject than usual, and steps more halting, meekly followed the procession of actors around the ring, led by Dimple, the Snake Charmer. Nickey's entree created a most profound sensation, and was greeted with tumultuous applause—a tribute both to his equestrian feat and to his costume.

Nickey had once attended a circus at which he had been greatly impressed by the artistic decorations on the skin of a tattooed man, and by the skill of the bareback rider who had turned somersaults while the horse was in motion. It occurred to him that perhaps he might present somewhat of both these attractions, in one character.

Maxwell had innocently stimulated this taste by lending him a book illustrated with lurid color-plates of Indians in full war paint, according to tribe.

So Nickey removed his clothes, attired himself in abbreviated red swimming trunks, and submitted to the artistic efforts of Dimple, who painted most intricate, elaborate, and beautiful designs on Nickey's person, with a stick of indigo purloined from the laundry.

Nickey's breast was adorned with a picture of a ship under full sail. On his back was a large heart pierced with two arrows. A vine of full blown roses twined around each arm, while his legs were powdered with stars, periods, dashes and exclamation points in rich profusion. A triangle was painted on each cheek, and dabs of indigo were added to the end of his nose and to the lobe of each ear by way of finishing touches.

When the work was complete, Nickey surveyed himself in a piece of broken mirror in the dressing-room, and to tell the truth, was somewhat appalled at his appearance; but Dimple Perkins hastened to assure him, saying that a dip in the river would easily remove the indigo; and that he was the living spirit and image of a tattooed man, and that his appearance, posed on the back of Charley, would certainly bring the house down.

Dimple proved to be quite justified in his statement so far as the effect on the audience was concerned; for, as Nickey entered the ring, after one moment of breathless astonishment, the entire crowd arose as one man and cheered itself hoarse, in a frenzy of frantic delight. Now whether Charley was enthused by the applause, or whether the situation reminded him of some festive horseplay of his youth, one cannot tell. At any rate, what little life was left in Charley's blood asserted itself. Quickly jerking the rope of the halter from the astonished hand of Dimple Perkins, Charley turned briskly round, and trotted out of the yard into into the road, while Nickey, who had found himself suddenly astride Charley's back, made frantic efforts to stop him.

As Charley emerged from the gate, the freaks, the regular artists, the gymnasts, and the entire audience followed, trailing along behind the mounted tatooed man, and shouting themselves hoarse with encouragement or derision.

As Charley rose to the occasion and quickened his pace, the heat of the sun, the violent exercise of riding bareback, and the nervous excitement produced by the horror of the situation, threw Nickey into a profuse sweat. The bluing began to run. The decorations on his forehead trickled down into his eyes; and as he tried to rub off the moisture with the back of his hand the indigo was smeared liberally over his face. His personal identity was hopelessly obscured in the indigo smudge; and the most vivid imagination could not conjecture what had happened to the boy. It was by no means an easy feat to retain his seat on Charley's back; it would have been still more difficult to dismount, at his steed's brisk pace; and Nickey was most painfully conscious of his attire, as Charley turned up the road which led straight to the village. At each corner the procession was reinforced by a number of village boys who added their quota to the general uproar and varied the monotony of the proceeding by occasionlly throwing a tin can at the rider on the white horse. When Charley passed the rectory, and the green, and turned into Church Street, Nickey felt that he had struck rock bottom of shameful humiliation.

For many years it had been Charley's habit to take Mrs. Burke down to church on Wednesday afternoons for the five o'clock service; and altho he had been out of commission and docked for repairs for some time, his sublimal self must have got in its work, and the old habit asserted itself: to the church he went, attended at a respectful distance by the Bearded Lady, the Fat Man, the Snake Charmer, the King of the Cannibal Islands, the Living Skeleton, and the Wild Man from Borneo, to say nothing of a large and effective chorus of roaring villagers bringing up the rear.

It really was quite clever of Charley to recall this being Wednesday, it was the day to visit the church,—as clever as it was disturbing to Nickey when he, too, recalled that it was about time for the service to be over, and that his mother must be somewhere on the premises, to say nothing of the assembled mothers of the entire stock company—and the rector, and the rector's wife.

Mrs. Burke, poor woman, with quite unconscious of what awaited her, as she emerged from the service with the rest of the congregation. It was an amazed parent that caught sight of her son and heir scrambling off the back of his steed onto the horse block in front of the church, clad is short swimming trunks and much bluing. The freaks, the regular artists, the gymnasts, and the circus audience generally shrieked and howled and fought each other, in frantic effort to succeed to Nickey's place on Charley's back—for Charley now stood undismayed and immovable with a gentle, pious look in his soft old eyes.

For one instant, Mrs. Burke and her friends stood paralyzed with horror; and then like the good mothers in Israel that they were, each jumped to the rescue of her own particular darling—that is, as soon as she could identify him. Consternation reigned supreme. Mrs. Cooley caught the Bearder Lady by the arm and shook him fiercely, just as he was about to land an uppercut on the jaw of the King of the Cannibal Islands. Mrs. Burns found her offspring, the Fat Man, lying dispossessed on his back in the gutter, while Sime Wilkins, the Man Who Ate Glass, sat comfortably on his stomach. Sime immediately apologized to Mrs. Burns and disappeared. Next, Mrs. Perkins took the Snake Charmer by his collar and rapped him soundly with the piece of garden hose which she captured as he was using it to chastise the predatory Wild Man from Borneo. Other members of the company received equally unlooked-for censure of their dramatic efforts.

Nickey, meantime, had fled to the pump behind the church, where he made his ablutions as best he could; then, seeing the vestry room door ajar, he, in his extremity, bolted for the quiet seclusion of the sanctuary.

To his surprise and horror, he found Maxwell seated at a table looking over the parish records; and when Nickey appeared, still rather blue, attired in short red trunks, otherwise unadorned, Donald gazed at him in mute astonishment. For one moment there was silence as they eyed each other; and then Maxwell burst into roars of uncontrollable laughter, which were not quite subdued as Nickey gave a rather incoherent account of the misfortune which had brought him to such a predicament.

''So you were the Tattooed Man, were you! Well, I suppose you know that it's not generally customary to appear in church in red tights; but as you couldn't help it, I shall have to see what can be done for you, to get you home clothed and in your right mind. I'll tell you! You can put on one of the choir boy's cassocks, and skip home the back way. If anybody stops you tell them you were practicing for the choir, and it will be all right. But really, Nickey, if I were in your place, the next time I posed as a mounted Tattooed Man, I'd be careful to choose some old quadruped that couldn't run away with you!''

''Then you aren't mad at me!''

''Certainly not. I'll leave that to my betters! You just get home as fast as you can.''

''Gee! but you're white all right—you know it didn't say nothing in the book, about what kind of paint to use!'

Maxwell's eyes opened. ''What book are you talking about, Nickey?'' he asked.

''The one you let me take, with the Indians in it.''

Maxwell had to laugh again. ''So that's where the idea for this 'Carnival of Wild West Sports' originated, eh?''

''Yes, sir,'' Nickey nodded. ''Everybody wanted to be the tattooed man, but seeing as I had the book, and old Charley was my horse, I couldn't see any good reason why I shouldn't get tattooed. Gee! I'll bet ma will be mad!''

After being properly vested in a cassock two sizes too large for him, Nickey started on a dead run for home, and, having reached the barn, dressed himself in his customary attire. When he appeared at supper Mrs. Burke did not say anything; but after the dishes were washed she took him apart and listened to his version of the affair.

''Nicholas Burke,'' she said, ''if this thing occurs again I shall punish you in a way you won't like.''

''Well, I'm awfully sorry,'' said Nickey, ''but it didn't seem to feaze Mr. Maxwell a little bit. He just sat and roared as if he'd split his sides. I guess I ain't goin' to be put out of church just yet, anyway.''

Mrs. Burke looked a bit annoyed.

''Never mind about Mr. Maxwell. You won't laugh if anything like this occurs again, I can tell you,'' she replied.

''Now, ma,'' soothed Nickey, ''don't you worry about it occurrin' again. You don't suppose I did it on purpose, do you? Gosh no! I wouldn't get onto Charley's back again, with my clothes off, any more than I'd sit on a hornet's nest. How'd you like to ride thru the town with nothin' on but your swimmin' trunks and drippin' with bluin' water, I'd like to know?''

Mrs. Burke did not care to prolong the interview any further, so she said in her severest tones:

''Nicholas Burke, you go to bed instantly. I've heard enough of you for one day.''

Nickey went.

CHAPTER XIV

On The Side Porch

In the evening, after his work was done, a day or two after his talk with Mrs. Maxwell, Jonathan went into the house and took a long look at himself in the glass, with the satisfactory conclusion that he didn't look so old after all. Why shouldn't he take Mrs. Betty's advice and marry? To be sure there no fool like an old fool, but no man could be called a fool who was discriminating enough, and resourceful enough to win the hand of Hepsey Burke. To his certain knowledge she had had plenty of eligible suitors since her husband's death. She was the acknowledged pastmaster of doughnuts; and her pickled cucumbers done in salad oil were dreams of delight. What more could a man want?

So he found that the question was deciding itself apparently without any volition whatever on his part. His fate was sealed; he had lost his heart and his appetite to his neighbor. Having come to this conclusion, it was wonderful how the thought excited him. He took a bath and changed his clothes, and then proceeded to town and bought himself a white neck-tie and a scarf-pin that cost seventy-five cents He was going to do the thing in the proper way if he did it at all.

After supper he mustered sufficient courage to present himself at the side porch where Mrs. Burke was knitting on a scarlet sweater for Nickey.

''Good evenin' Hepsey,'' he began. ''How are you feelin' tonight?''

''Oh, not so frisky as I might, Jonathan; I'd be all right if it weren't for my rheumatiz.''

''Well, we all have our troubles, Hepsey; and if it isn't one thing it's most generally another. You mustn't rebel against rheumatiz. It's one of those things sent to make us better, and we must bear up against it, you know.''

Hepsey did not respond to this philosophy, and Jonathan felt that it was high time that he got down to business. So he began again:

''It seems to me as if we might have rain before long if the wind don't change.''

''Shouldn't be surprised, Jonathan. One—two—three—four—'' Mrs. Burke replied, her attention divided between her visitor and her sweater. ''Got your hay all in?''

''Yes, most of it. 'Twon't be long before the long fall evenin's will be comin' on, and I kinder dread 'em. They're awful lonesome, Hepsey.''

''Purl two, knit two, an inch and a half—'' Mrs. Burke muttered to herself as she read the printed directions which lay in her lap, and then she added encouragingly:

''So you get lonesome, do you, Jonathan, durin' the long evenin's, when it gets dark early?''

''Oh, awful lonesome,'' Jonathan responded. ''Don't you ever get lonesome yourself, Hepsey?''

''I can't say as it kept me awake nights. 'Tisn't bein' alone that makes you lonesome. The most awful lonesomeness in the world is bein' in a crowd that's not your kind.''

''That's so, Hepsey. But two isn't a crowd. Don't you think you'd like to get married, if you had a right good chance, now?''

Hepsey gave her visitor a quick, sharp glance, and inquired:

''What would you consider a right good chance, Jonathan?''

''Oh, suppose that some respectable widower with a tidy sum in the bank should ask you to marry him; what would you say, Hepsey?''

''Can't say until I'd seen the widower, to say nothin' of the bank book—one, two, three, four, five, six—''

Jonathan felt that the crisis was now approaching; so, moving his chair a little nearer, he resumed excitedly:

''You've seen him, Hepsey; you've seen him lots of times, and he don't live a thousand miles away, neither.''

''Hm! Must be he lives in Martin's Junction. Is he good lookin', Jonatha?''

''Oh, fair to middlin.' That is—of course—I well—I—I should think he was; but tastes differ.''

''Well, you know I'm right particular, Jonathan. Is he real smart and ciever?''

''I don't know as—I ought to—to—say, Hepsey; but I rather guess he knows enough to go in when it rains.''

''That's good as far it goes. The next time you see him, you tell him to call around and let me look him over. Maybe I could give him a job on the farm, even if I didn't want to marry him.''

''But he doesn't want any job on the farm, Hepsey. He just wants you, that's all.''

''How do know he does? Did he ever tell you?''

''Hepsey Burke, don't you know who I'm alludin' at? Haven't you ever suspected nothin'?''

''Yes, I've suspected lots of things. Now there's Jack Dempsey. I've suspected him waterin' the milk for some time. Haven't you ever suspected anythin' yourself, Jonathan?''

''Well, I guess I'm suspectin' that you're tryin' to make a fool of me, all right.''

''Oh no! Fools come ready-made, and there's a glut in the market just now; seven—eight—nine—ten; no use makin' more until the supply's exhausted. But what made you think you wanted to marry? This is so powerful sudden.''

Now that the point was reached, Jonathan got a little nervous: ''To—to tell you the truth, Hepsey,'' he stuttered, ''I was in doubt about it myself for some time; but bein' as I am a Christian man I turned to the Bible for light on my path.''

''Hm! And how did the light shine?''

''Well, I just shut my eyes and opened my Bible at random, and put my finger on a text. Then I opened my eyes and read what was written.''

''Yes! What did you find?''

''I read somethin' about 'not a man of them escaped save six hundred that rode away on camels.' ''

''Did that clear up all your difficulties?''

''No, can't say as it did. But those words about 'no man escapin'' seemed to point towards matrimony as far as they went. Then I tried a second time.''

''Oh, did you? I should think that six hundred camels would be enough for one round-up. What luck did you have the second time?''

''Well, I read, 'Moab is my wash pot, over Edom will I cast out my shoe.' You've seen 'em cast shoes at the carriages of brides and grooms, haven't you, Hepsey? Just for luck, you know. So it seemed to point towards matrimony again.''

''Say, Jonathan, you certainly have a wonderful gift for interpretin' Scripture.''

''Well, Scripture or no Scripture, I want you, Hepsey.''

''Am I to understand that you're just fadin' and pinin' away for love of me? You don't look thin.''

''Oh, we ain't neither of us as young as we once was, Hepsey. Of course I can't be expected to pine real hard.''

''I'm afraid it's not the real thing, Jonathan, unless you pine. Don't it keep you awake nights, or take away your appetite, or make you want to play the banjo, or nothin'?''

''No, Hepsey; to tell you the plain truth, it don't. But I feel awful lonesome, and I like you a whole lot, and I —I love you as much as anyone, I guess.''

''So you are in love Jonathan. Then let me give you some good advice. When you're in love, don't believe all you think, or half you feel, or anything at all you are perfectly sure of. It's that you are askin' me because it makes you think that you are young and giddy, like the rest of the village boys, to be proposin' to a shy young thing like me.''

''No, Hepsey; you aren't no shy young thing, and you haven't been for nigh on forty years. I wouldn't be proposin' to you if you were.''

(To be continued.)

Pieces to Speak

We shall be glad to procure and publish poems in this Department on request if possible. We believe that the old time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by collecting and publishing suitable pieces.

THE GYPSY'S WARNING

Do not trust him, gentle lady,
Tho his voice be low and sweet;
Heed not him who kneels before thee,
Gently pleading at thy feet.
Now thy life is in its morning
Cloud not this, thy happy lot;
Listen to the gypsy's warning,
Gentle lady, trust him not!

Do not turn so coldly from me,
I would only guard thy youth
From his stern and withering power,
I would only tell the truth.
I would shield thee from all danger,
Save thee from the tempter's snare;
Lady, shun that dark-eyed stranger,
I have warned thee—now beware!

Lady, once there lived a maiden,
Pure and bright, and like thee, fair,
But he wooed and wooed and won her,
Filled her gentle heart with care;
Then he heeded not her weeping,
Nor cared he her life to save;
Soon she perished, now she's sleeping
In the cold and silent grave.

Keep thy gold, I do not wish it!
Lady, I have prayed for this.
For the hour when I might foil him,
Rob him of expected bliss;
Gentle lady, do not wonder,
At my words so cold and wild,
Lady in that green grave yonder
Lies the gypsy's only child.

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Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Kidney Disease.—I have a four-year-old colt that has kidney trouble several times a week. These spells last about one day; he perspires freely and I believe it is on account of his suffering pain. What had I better give him? E. V., Camden, N. J.—I am inclined to believe that the sick spells you speak of are attacks of acute indigestion and, of course, the kidneys are always inactive while pain lasts. Mix together equal parts acetate of potash, ground ginger, gentian and charcoal, give a tablespoonful at a dose in feed two or three times a day.

Hernia.—Have a two-month-old filly that has a breach about the size of a small hen egg which I noticed only a few days ago. I have applied a bandage and will continue using it until I hear from you. B. N., Hokes, Pa.—Unless the rupture causes pain you had better leave the filly alone until autumn, then have her operated on by a skilled veterinarian and she will get well. Bandaging and using a pad is proper treatment; however, if the hernia is not extensive, it is perhaps unnecessary.

Weakness.—We have a 12-year-old horse that was brought from Ohio early last spring, which appears to be weak and often stops, acting as tho he wanted to urinate. A. M., Jenkintown, Pa.—Give him 1 dr. of ground nux vomica, ½ oz. of ground gentian and 2 drs. of acetate of potash at a dose twice a day.

Chronic Cough.—My horses had distemper last spring; since then they are inclined to cough when exerted. L. M. S., Lansdale, Pa.—Mix together equal parts of powdered licorice, ginger, gentian and charcoal, and give a tablespoonful at a dose two or three times a day.

Fistula.—We have a colt ten weeks old that has had a running sore on side of head between eye and ear since it was a week old. Some days it discharges very little, other days not so much. B. V. D., Freeport, Pa.—Perhaps the diseased bone should be curetted, then apply one part carbolic acid and 19 parts water, or apply one part iodoform and seven parts powdered alum daily.

Ulcerated Cornea.—We are having trouble in our herd of cattle in the form of a growth in the eye which starts with a small pimple on the eye ball and gradually forms pus. Whatever it is, it usually produces blindness as it covers the entire eyeball. F. S., Lancaster, Pa.—If there is any pus on eye, apply one part peroxide of hydrogen and four parts water to clean eye ball, then blow on some calomel once or twice a day; this should clear the eye ball. Another very good lotion is made by dissolving 80 grs. of borate of soda, 80 grs. of boracic acid in half a pint of water and applying this to the eye two or three times a day.

Congestion of Udder.—I have a cow that has been fresh twice and is soon to come fresh again. Both times her udder has been caked very bad and I thought perhaps you could tell me what I had better do. F. M., McKean, Pa.—It is possible that your cow should be partially milked twice a day before she freshens; however, this is only justifiable if the udder is congested and inclined to be inflamed. Apply one part fluid extract phytolacca, one part fluid extract belladonna and four parts olive oil once or twice a day. Feed her nothing but grass, and if possible prevent her from bruising udder.

Indigestion.—I have a two-year-old heifer that has belched up food occasionally for the past 30 days, but she appears to be well. V. E., Levering, N. Y.—Give her 1 oz. doses of hyposulphite of soda with her feed three times a day, or dissolve it in a quart of water and give it as a drench. In a week or ten days, if she shows improvement, gradually reduce dose of medicine.

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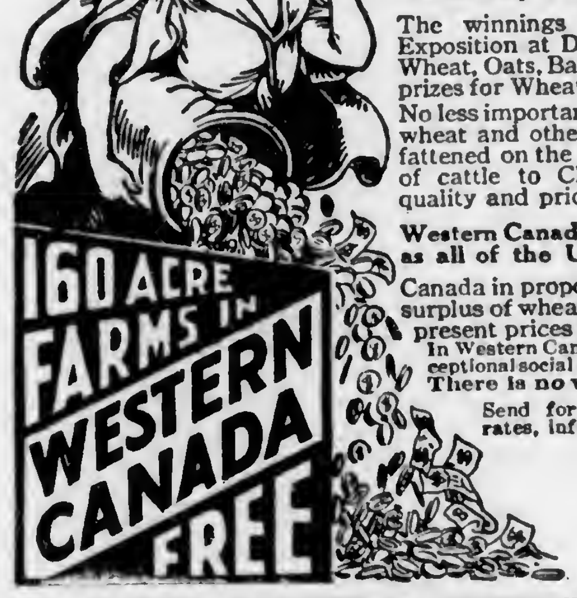
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The Melotte — the wonderful Melotte — the Great Belgian Cream Separator—the prize winner all over Europe—now to be shipped anywhere in the U. S. —and on the most sweeping introductory offer. The **best** of all separators in Europe or America—**yours** on this **Rock-Bottom** free trial offer. The Melotte introduced a year ago swept the country even with the duty on. Those who knew cream separator values were glad to pay it. Now you pay the same price you would pay in Belgium, plus only $1.75 for water freight.

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The high tariff has been cut right off—the great Melotte comes in absolutely free of duty! **You win! The American farmer can now get the world's best—the grand prize-winner of all Europe—at a price $15.25 lower than ever before.**

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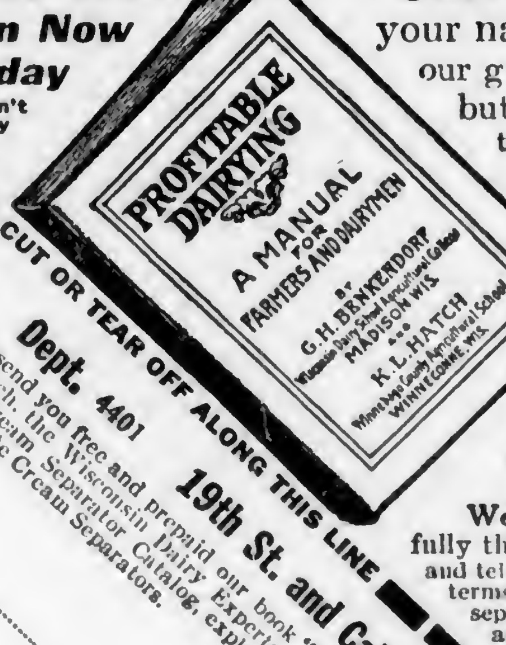
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Headlee Dr T J Rutgers College *815

Artificial Incubation on the Farm

By J. Raymond Kessler
Chester Co., Pa.

On the average farm the hatching of the new flock of poultry is a job strung out thru the entire spring and summer in little bunches of from four or five chicks up to perhaps fifteen. Each hen requires the same attention no matter how many she brings out, and even if it be a very good hatch, no great number is had. If it is desired to hatch, say, one hundred chicks, it will be necessary, in most cases, to set a dozen hens and perhaps at the time the eggs are on hand the hens are not ready. How much quicker and better in every way an incubator can accomplish the farm hatching can only be proved by giving the incubator a fair trial.

Undoubtedly, considerable work and worry could be avoided if the flock of chicks raised each year were hatched and reared in one lot; if those notional broody hens were done away with; if the eggs were set early in the spring so as to have early chicks instead of waiting for the hens to become broody. The results would be one or two large flocks requiring no more work than one or two hens, and accomplishing in two spring months what has heretofore taken all summer.

Today, the hen's place is to lay the eggs, not to hatch and rear the chicks, because incubators and brooders can do such work so much better in every way. No incubator will excel the hen who steals her nest for excellence of hatch or vitality of chicks, but that is nature allowed her own way. The incubator will, however, hatch chicks equally as strong as any hen can hatch and in much larger quantities.

As to the percentage of hatch, a fair test of the hen and the incubator will in the majority of cases give the incubator a good margin in its favor. The usual competition of one good hen with fifteen eggs against an incubator with perhaps one hundred and fifty eggs is not a fair test. Give one hundred and fifty eggs to ten hens and place the same number in the incubator, then after you have reckoned with the poor setters, the fights over the nests with consequent broken eggs, the lousy chicks when hatched, etc., see if the incubator hasn't quite a percentage in its favor, not to mention the very desirable part of having chicks all the same age.

The novice is often chary of attempting artificial incubation because of the idea that it requires a great deal of knowledge and constant attention to operate one. This idea is entirely wrong, for any person who can read the manufacturer's few simple instructions and make just a little effort to carry them out, can successfully operate an incubator. As to the amount of attention required, usually a few minutes morning and evening for the necessary care of the eggs and lamp, with perhaps a glance at the temperature once or twice during the day, will suffice. A hundred and fifty egg machine shouldn't require over fifteen minutes a day at the most, and on large poultry farms that number of eggs would most likely be attended to in less than five minutes per day.

AN EXCELLENT TYPE OF SMALL INCUBATOR CELLAR.

Types of Incubators

There are numerous types of incubators on the market, each claimed by their maker to be superior on account of some particular point of difference from other makes. There are the hot-water and hot-air heated, both of these types being found in the moisture, and non-moisture machines. The type of heating and the use or not of moisture has proven, in our experience, to be not nearly so important a question as some persons would have you believe. We have tried numerous makes of machines with various forms of heating, both moisture and non-moisture, and have found the great majority of them capable of giving very good results, when intelligently handled. The real reason for failure with the incubator will be found in a great many cases to be with the operator or the eggs and usually the latter.

Moisture

As to the moisture question, it might be well to say that moisture machines do not give good results when the moisture is not supplied, nor are non-moisture machines improved by the supplying of moisture.

Results are never very satisfactory where the incubator is housed in some building above ground, because as a usual thing the temperature in buildings above ground will vary greatly in twenty-four hours. If housed in such quarters, constant regulation will be found necessary and even then it will be almost impossible to maintain the desired temperature.

A cellar is the only satisfactory place to run an incubator. A cellar for such a purpose should be clean and dry and have some windows to give light and ventilation. If the cellar of a dwelling is used, it is best to partition off a room for the incubator so that drafts of air or the heat of the furnace, if there is one, will not affect the machine.

The temperature of a good cellar should not vary over five degrees in twenty-four hours and should at all times be above freezing. In such quarters little trouble will be had in maintaining the desired temperature.

Eggs

Eggs intended for incubation should be of good shape and average weight—about twenty-five ounces to the dozen. It is desirable to keep the eggs for a day or two before setting as the results seem to be better, but too long storage is decidedly detrimental to a good hatch. There is very little use incubating an egg that is over two weeks old, for the results both in number of chicks and vitality are likely to be disappointing.

Eggs stored for hatching purposes should be laid on their sides preferably in regular incubator trays. They should be kept at a temperature of about fifty degrees and in a place free from dust and dampness. During the period of storage they should be turned at least once in two days by rolling with the hands.

FREE RANGE COLONY SYSTEM OF RAISING YOUNG STOCK. BY THIS SYSTEM THE COOPS CAN BE MOVED TO THE FIELDS AFTER THE CROPS HAVE BEEN HARVESTED.

Operating

The incubator should be run for at least twenty-four hours before placing the eggs in it, so as to have it thoroly heated up and all regulations made to secure the proper temperature. If this is not done a great deal of trouble will be experienced

(Concluded on page 4.)

Mr. Sweigart's Third Annual Report.

(The previous annual statements of Mr. Sweigart's poultry business have been so full of information, and have elicited so much interest and favorable comment that we herewith present his third yearly report. We feel that such accounts, coming from a practical, successful poultryman are worth much more than the ordinary theoretical essays so often passed out as poultry lore.—The Editors.)

In giving the readers of the Pennsylvania Farmer this our third annual report of our season's work with poultry, I wish to say that owing to building during the rush season we had to abandon the accounting of the different departments, especially the division of feeds, etc. We can, for this season, give only total amounts of costs and profits. However, as the total figures correspond so nearly with the previous two years' records, I think it safe to repeat last year's averages of the different departments.

The year started November 1, 1914, with 585 pullets which were housed early in October, in flocks of 60 to 165 pullets each. The birds, after entering their laying quarters, are never allowed free range, or even yard exercise, but are closely confined in good well ventilated houses until their laying season comes to a close, which is usually about the following September. However, they were not disturbed until November 1, this past season. The next season's breeders are selected at that time and the balance of the flock is sold to make room for the pullets for next season's layers.

As soon as the pullets enter their laying house and are fully matured they are gradually weaned from their growing feeds to our regular laying ration, as follows: Starting in the morning, at sunrise, their drinking vessels are washed and filled for the day (unless it be extreme weather when they are also watered in the evenings). At about 11 A. M., they are fed green food, usually dwarf essex rape or sprouted oats. At 3.30 P. M., they are fed a mixture of grains in deep litter. This grain is largely wheat and cracked corn, with a change of some dainties such as sunflower or kaffir corn, etc., which are always mixed with the wheat and cracked corn. The quantity is about 8 quarts to each 100 layers. The heavier the hens lay the more food they consume.

The reader will no doubt see why no feeding is done in the morning, as the pullets only pick the very best of the grain and of course cover the balance in their endeavor to get the dainties. Next morning they are on the floor before sunup, hungry and hustling for what was covered the evening before. This will keep them busy until time for their first feed of the day, which is their green food at 11 A. M. Hoppers containing oyster shell and a good white grit, also their dry mash, are before the layers at all times.

LAYING HOUSE FOR 400 PULLETS.

You will note that the dry mash is kept in hoppers before the layers at all times. This as you no doubt recollect is quite a change from my former system of feeding, a wet mash once each day. We found after experimenting that we could get as good results with dry mash and at the same time reduce our labor considerably.

The birds really consume more dry mash during the day than they could possibly store away from one feed of wet mash daily. At the same time their hunger is never entirely satisfied and they come up hungry for their green feed at the close of each day and go to their roosts with full crops. We are now using a mash composed of 200 pounds wheat bran, 100 pounds each of corn meal, gluten feed, ground oats, and middlings, 35 pounds fish scraps and the same of beef scraps with 8 pounds charcoal added and about 8 pounds of salt.

Altho our pullets were housed early and had good attention they were not inclined to a heavy egg yield until after the first of the year. All pullets hatched prior to May 10th took on an entire new coat of feathers. However, when they did start to lay heavy it was a continuous performance until late in October when they were sold.

Our average egg yield for season of 10 months was slightly over 120 eggs per bird or a return of $2.70 per bird while for the full year they average $2.90 each. (We use 10 months to compare with former year's averages.) Our records for the last three years show an annual average egg yield of a trifle better than 120 eggs each for the ten months' work. Of course, the income per bird is increased by a heavy winter yield when high prices prevail, showing an income for 10 months of this season of $2.70 against $2.91 for 1914 and $2.66 for 1913.

PART OF SWEIGART POULTRY PLANT.

The year 1914 shows a heavy winter egg yield with an average net price of 29 cents per dozen against 28 cents for the year 1915. The cost of feed and labor for 1914 amounted to $1.50 per bird, while in 1913 it cost but $1.25 per bird with an income of $2.91 for 1914, and $2.66 for 1913. The profit for the two years was practically the same or $1.41 per bird.

While we are all striving for a heavy winter egg yield, it is no reason to become discouraged if our layers refuse to lay. I have not in the last four years seen it miss but what a heavy winter egg yield showed a short laying season, hens molting early in July, while a fair winter yield means a steady production thruout the summer months when prices are on the increase, last fall running well into October before any decided drop in production took place. This no doubt was due to the late molt during the last months of 1914 of all early hatched pullets. In fact, some May hatched pullets took on a molt. However, it is safe to count on pullets hatched after April 10th escaping a molt the first season. Weather conditions govern these molts largely so that I believe feed and attention has little to do with them generally. However, too heavy feeding of beef scraps after birds are fully matured is quite often the cause of a second molt.

Breeders

The yearlings for breeding purposes were selected from the general flock in early September and given free range on a strictly grain diet. They are not forced for egg production until near the first of the new year, when they are given the same general care as the layers. Great care is given to their having plenty of green food daily, during the breeding season especially. They are mated about two weeks before eggs are needed for setting, one cockerel used for each 25 hens.

Eggs can be saved for setting 7 days after mating. No eggs should be held more than 10 days before placing in the incubator. Two 250-egg machines are used, one of which is set every eleven days from January until July.

Chicks

The chicks, when strong, are moved from the incubators to the hot water brooding system where 5 hovers take care of from 60 to 70 chicks each, until they are an average age of 7 weeks and 2 days. Then the cockerels are separated and go to the fattening pen, while the pullets of each lot are moved to colony houses on free range, where they mature into the future layer.

The chicks, from the time they enter the brooder house, are fed five times daily on a ration of cracked crumbs and rolled oats with 12 percent meat meal and 6 percent bone meal added. This is slightly moistened with sour milk. After they are a week old they are gradually changed to a mash of one part each of bran, corn meal, middlings, and beef meal, with one-third part of bone meal. Chicks are fed every alternate feed on grain in litter, with a mixture of 3 parts cracked wheat, 2 parts cracked corn, and 1 part pin head oats.

As the chicks grow larger, grains can be fed of the same proportions and not so often. Care must be taken that grit, shell and charcoal are provided in proper quantities and that the proper heat is maintained under the hovers.

A temperature of 100 degrees is maintained for the newly hatched chicks, which is gradually decreased as the chicks develop and as the weather or outside temperatures vary.

Broilers

The cockerels, when seven weks old, usually weigh from 12 to 16 ounces, and are then moved to the fattening pens, where a ration of corn meal, light middlings, and beef scraps are hopper fed, with another hopper of cracked corn handy. Nothing but sour milk is given to drink. In about two weeks, or at nine weeks of age, the broilers are shipped to New York at about one pound dressed weight. They usually sell at from $1.10 per pair down, as the season advances. We have found that a Leghorn cockerel can be grown faster and in better condition to this age than any other breed we have tried, which has been all the American breeds. However, after this nine weeks, the American breeds gradually increase their weights over those of the Leghorns, so that it is most profitable to sell the Leghorns at about one pound each and the American breeds at two pounds and over.

Pullets

The pullets when leaving the brooder house at about seven weeks old are placed in colony houses on free range. They are in lots of about 80 pullets to a house 8x10 feet. Some of our new houses are 6x8 feet, which we like better. After entering these houses they are hopper fed entirely, on a dry meal mixture of equal parts of bran, middlings, corn meal and beef scraps, with one-third part of ground bone added. A grain mixture of equal parts of cracked corn and wheat is before them at all times, with plenty of fresh water always available. The colony houses are usually in the orchard or near a corn field, which makes an ideal summer run with plenty of shade.

NOTE WINDOW ARRANGEMENT, SWEIGART'S LAYING HOUSE.

The pullets are left on range until almost ready to lay, when they are transferred to their laying quarters and expected to go to work. Green foods in the shape of dwarf essex rape, alfalfa and sprouted oats are available at all times.

Hatching

During the season, 3,500 eggs were set of which 68 percent hatched. Of the 2,378 chicks placed in the brooding system, 85 percent were raised to 8 weeks of age, whereas in 1914, 71 percent of the eggs hatched and 1913 showed a hatching record of 70.2 percent. The percent of chicks raised in 1915

was 85 percent; 1914 showed 82 percent raised, while 1913 had 75 percent to live to 8 weeks of age.

The total cost of chicks when hatched in 1914 was three and one-third cents against four cents in 1913 and about three and six-tenth cents for 1915. The average cost for chicks at seven weeks and two days of age for 1914 was twelve and one-third cents against thirteen and two-thirds cents in 1913. The average cost of broiler at market age for 1914 was fifteen and one-half cents against fifteen and three-fifth cents for 1915. The average cost of pullets on November 1, or at about 5½ months of age for 1914 was 36 cents, against 32 cents for 1913.

The statement of the business for the year 1915 is as follows:

November 1, 1914. Stock of S. C. Leghorns on hand:

	585	Pullets for layers	$ 585.00
	90	Yearlings for breeders	90.00
	100	Late hatched pullets	80.00
		Total feeds for 1915	1240.78
		Total labor for 1915	260.00
		Total cost	$2255.78

Receipts for year:

	83,692	Eggs for year	$1959.11
January	60	Late pullets sold	60.00
October	525	Yearlings	430.00
	862	Broilers sold during season	242.62
Oct. 30	1,000	Pullets on hand	1000.00
	100	Yearlings on hand	100.00
		Total receipts	$3791.73
		Less total cost	2255.78
		Net profit for year	$1535.95

In looking over the above statement and averages you will find no remarkable records; in fact, you most likely own a small pen of chickens that show a much larger egg yield and profits greater by far than the above statements show.

These records are entirely accurate regarding costs, yields, and profits given and we know they can be increased but realizing the small amount of labor and attention the layers have received we believe it to be the safest and surest sources of profit on the farm.

Altho our original layers for 1915 fell behind a trifle in egg profits for the year, our March and April hatched pullets helped to keep up the egg supply during the months of August, September and October, when they started to take on a light molt. Therefore we start the new year with 1000 pullets and 100 yearling Leghorns for breeders. The pullets are for the production of market eggs entirely. As in previous years no account has been taken of interest on investment, etc., as the value of manures more than offset these details such as litter, cost of removing manures, interest on investment, etc.

Owing to our not being the owner of a dog this past season our loss on range from varmints has been greater than usual, even stray dogs have carried away birds from range.

All labor was charged at actual time required for each department, but no labor was charged for cleaning houses other than the brooder house.

Pullets hatched from May 1 to July were the greatest profit producers during 1915. One hundred pullets hatched June 23 produced from January 1 to October 30, inclusive, an average for the 10 months of 113 eggs each and at the same time it cost less to produce pullets hatched late in June than it does the early March or April hatched bird. We are keeping accurate account of all expenses for the different departments for 1916 and will try and give a detailed report next season for the 1100 S. C. White Leghorns we are carrying over this season.—Chas. H. G. Sweigart, Chester Co., Pa.

Note.—The success of Mr. Sweigart's work is due to his purpose to know what he is doing all the time. How can any one make progress unless such records are kept as will give a knowledge of the facts? Many a business could be started on the road to success if more facts were known.—The Editors.

Breeding for Egg Production

Careful breeding is a good foundation upon which to build successful egg production. The poultry department at Purdue University has been keeping careful records of their Single Comb White Leghorns during the past five years, and by using pedigrees in selecting the breeders, some good layers have been produced.

In the first four years of work at the Experiment Station, only two Leghorns produced 200 or more eggs in one year. In 1915 a dozen pullets have exceeded the 200-egg mark by October 1st. This good production is thought to be due to careful mating. Many people fear the term "inbreeding" believing that the breeding of close relationship will surely prove detrimental to the flock. Line breeding commonly known as careful inbreeding, has been the source of much good results in breeding. Only by it can blood lines be concentrated or the characteristics of the parent exist in the offspring in percentage greater than one-half.

The trap nest is the only sure means of measuring a hen's egg production. Continued trapnesting for more than one year will often bring surprises. Pedigree breeding with poultry is as practical as with cattle and is the only sure means of breeding up high egg production.—G. I. Christie, Ind. Exp. Sta.

1000 From 150-Egg Machine

The foundation for success with little chicks is to have good healthy, two-year old hens which have not been forced during the winter. Give them free range and collect the eggs often during the cold weather.

POULTRY HOUSE 20x20 FT. HOLDS ABOUT 150 HENS. COST $50 FOR MATERIAL AND $15 FOR LABOR.

By hatching entirely by hens it is almost impossible to have many early chicks. The same thing is true of the small incubator. But, combine the two methods and wonderful results are obtained. I set the 150-egg capacity (it really holds 140 of the large brown eggs) incubator about the first of March. About six days later we had 12 of the winter laying pullets become broody. We removed them to the setting pen and placed them in freshly white-washed nests and placed china eggs under each. After they set two nights and we found they meant business each hen was given fifteen eggs.

Experiences has taught us that pullets mash a large number of little chicks before they are ready to be taken from the nest. Therefore, as soon as the first hatch was out of the incubator, the fertile eggs were taken from under the hens and placed in the incubator. The hens were dusted with insect powder, four were given the chicks from incubator, the remainder with four new setters, were given freshly white-washed nests and reset. Thus, I have reset hens three times and still they were in fine condition. My aim is to set 12 hens about eight days apart but at present I am having two hatches per week with good results. By this method the incubator is always full of fertile eggs.

I have ninety-four chicks all feathered now, from the first hatch. The last hatch from 12 hens came off May 13 only one has died until the seventeenth. The hatch numbered 130 strong chicks. Previously I have never been able to average more than eight chicks to a hen. In this manner I expect to hatch a thousand chicks in a little incubator during April and May, with practically no outlay of money except the eggs which otherwise I could have sold at eighteen or twenty cents per dozen. I have had the incubator three years and it has already paid for itself.

When the little chicks leave the incubator they are put in small houses 8 feet long, 6 feet wide and 6 feet high at the peak, fitted with glass windows for cold weather and wire netting for later, also concrete floors scattered with coarse sand and finely chopped hay. About one hundred chicks with four hens occupy one house. Crates 40 inch long, 16 inches and 14 inches high with a partition in the middle are used to keep the hens from crowding in one corner.

When the weather becomes settled a brooder is placed in the house and hens not used. I have tried other methods of securing baby chicks but find I secure stronger chicks at far less cost by the above method than any other.—N. B. S. Mount, N. J.

Meat Scraps and Skim Milk

Their Value For Poultry.

There are some interesting and suggestive results recorded in bulletin 182, published by the Agricultural Experiment Station, Lafayette, Ind., concerning their experiments in feeding beef scraps, fish scraps, and skim milk to different pens of laying hens. These experiments extended over a period of four years and the results show the necessity of furnishing hens some kind of animal food.

Each pen had a yard 130x150 feet set to fruit trees and an 8-foot strip of sod ran around the edges. The grain food consisted of corn, wheat, oats, bran, and shorts. To this was added 10 percent by weight of meat scrap or fish scrap, in the case of the meat-fed hens. Those receiving milk instead of meat were given 62 pounds of milk to 35 pounds of grain feed. Check pens were fed which, while fed the same kind of grain ration, were given neither meat nor milk.

Those fed meat and the ones which received milk laid practically the same average number, 135 eggs. The average number of eggs laid by those receiving neither meat nor milk was 32½.

The following statements are taken from the summary:

When fed skim milk, pulllets laid slightly better in December and January.

It may pay to feed skim milk to poultry instead of to the hogs on the farm.

Leghorns consume an average of 93 pounds of skim milk per year.

It cost about $1 to feed a Leghorn pullet a year.

It cost less to feed a pullet when not fed meat scrap but it cost more than three times as much to produce a dozen eggs.

Birds which were fed neither meat nor milk were kept at a loss.

At 30 cents per hundred pounds, skim milk is slightly more costly than beef scrap at $2.50 per hundred.

Note.—It should be born in mind by those using meat scrap that the scraps should be made of sound, healthy material. Fertilizer material is not fit for use and the feeder runs great risk of destroying his flock. Not only is it dangerous, but when scraps are tainted the odor will be imparted to the eggs and meat and make them undesirable as food. A number of manufacturers put out specially prepared meat scraps that are safe and palatable, and even tho they cost little more than others are worth the difference in the price.

ARTICFICIAL INCUBATION FOR THE FARMER

(Concluded from page 1.)

in securing proper regulation after the eggs are placed in the machine. After the eggs are placed in the trays the machine should be closed and not again disturbed, except to see that the heat is right, for twenty-four hours. The eggs, being cold when placed in the machine, will require at least twelve hours time before they become sufficiently heated to allow the thermometer to register.

Good results have been obtained by keeping the heat at one hundred and three degrees thruout the period of incubation. However, the best results are obtained where a gradually increasing heat is maintained—one hundred and two and a half degrees the first week, one hundred and three the second week and one hundred and three and a half the third week. During the last few days it is well to allow the heat to run up to one hundred and four.

As is well known, all chicken eggs should hatch in twenty-one days, therelater than this indicate too much or too little heat. Too low a temperature will cause delayed hatches and too high a temperature will cause the chicks to come out ahead of time. Of the two extremes, the latter is the least harmful to the vitality of the chick. Chicks can be forced out in nineteen days by excessive heat, but it is exceedingly harmful to the vitality of the chick to do so.

In all hatches there will be a few chicks hatch as much as a day ahead of the main hatch; this does not indicate too much heat. The reason for this is probably eggs from a parent of strong vitality. Fresh eggs placed with old eggs is also a cause, since old eggs require slightly more heat than fresh eggs to make them hatch at the same time.

After the first day, the eggs should be turned twice a day, morning and night. Rolling with the hands is one of the best methods of turning the eggs. To do this place the palms of both hands on the eggs and push them along gently, allowing the eggs to roll under the hand. In turning bring the eggs in the center of the tray to the edge and those along the edge to the center. When replacing the tray in the machine reverse it end for end. This reversing of the tray and moving of the eggs from the center to the outside is done so as to give all the eggs like temperature conditions should there be any variation in different parts of the machine.

In turning it is not necessary that the eggs be turned entirely over, all that is needful is that they be moved somewhat so as to change the position of the germ in the egg. Lack of turning is the cause of germs growing fast to the shell. Turning should begin the second day and continue up to and including the eighteenth day, after which the machine should be closed until the completion of the hatch.

Cooling

Cooling the eggs is considered beneficial by experienced poultrymen and will be found helpful in securing chicks of strong vitality, but like all good things is exceedingly harmful when done to excess. During the first week of incubation sufficient cooling is received in turning the eggs, during the second week five minutes may be allowed, and during the last week ten to fifteen minutes is not too much, once a day. This is for a cellar temperature of sixty. At a lower temperature less cooling should be given and at a higher one, more.

Cooling should also be regulated according to the temperature of the eggs during the past twenty-four hours; if the temperature has been high more cooling may be given and if low, less or perhaps none at all should be given. Cooling should be discontinued after the eighteenth day. Many poultry raisers cool the eggs until they feel cool to the touch, but this method requires some experience and practice. Excessive cooling, like low temperatures, will cause delayed hatches.

Testing

Testing the eggs to remove the unfertile ones is necessary to give the strong eggs the best conditions. Unfertile eggs, unlike fertile ones, develop no heat thus are cold and tend to chill the live eggs. The greatest reason for removing the unfertile eggs is their effect on the thermometer. Should the thermometer come in contact with an unfertile egg the temperature indication will be several degrees lower than that of the live egg, thus the heat is advanced to secure the proper temperature indication, which overheats the fertile eggs. Most so called unfertile eggs have sufficient germ life to start, and if left in the machine, decay and foul the air of the incubator compartment.

Testing is easily done about the seventh day by using an electric light or a small flash light under the tray. This will enable the operator to detect the clear eggs much quicker and with a great deal less labor than the old method of candling each individual egg.

Fresh eggs should never be placed in the tray with the partly incubated eggs, because the former, being cold, will chill the latter, also the chicks from the older eggs, when hatched, will smear up the fresh eggs by climbing over them and this will be found very detrimental to their hatching.

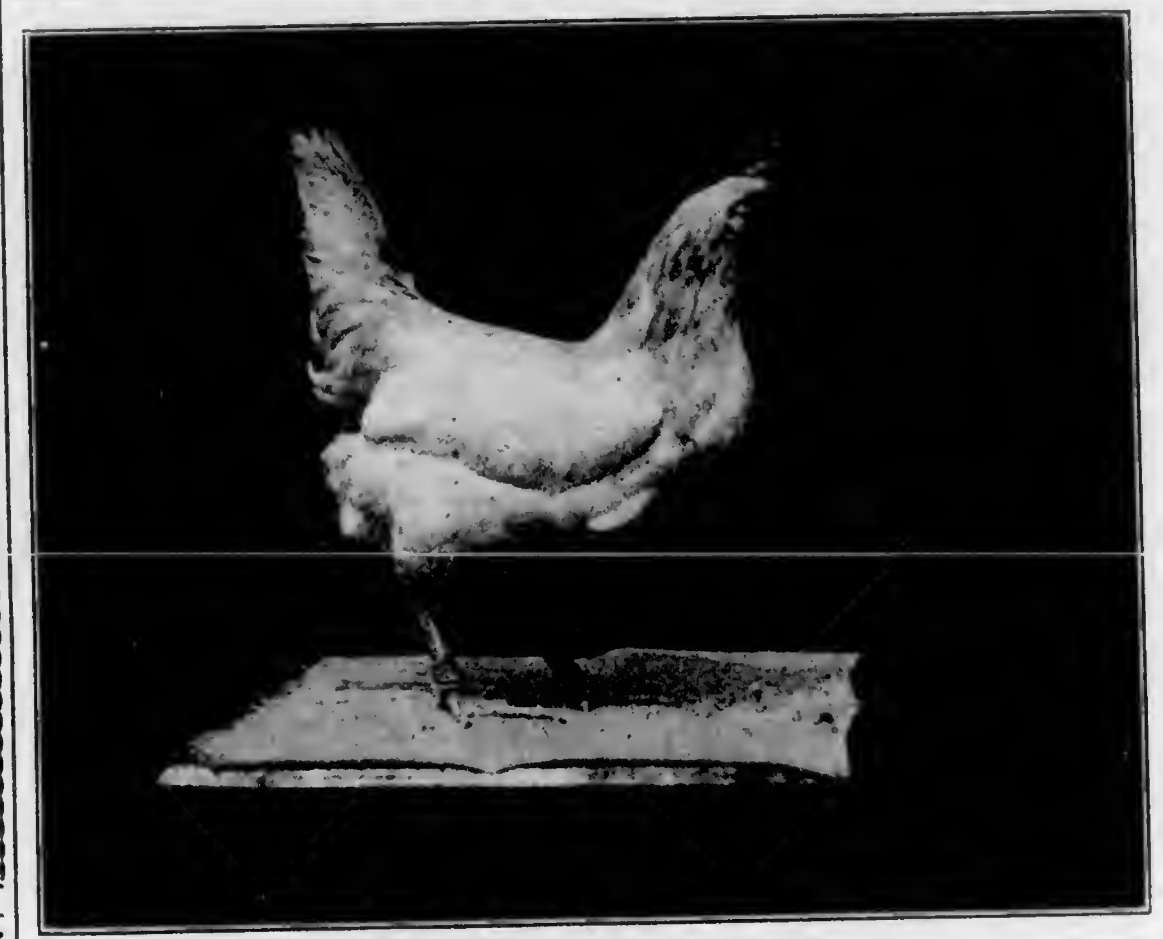
The Hatching

Most incubators are provided with nursery trays into which the chicks may be allowed to drop by removing a strip after hatching begins. Many poultrymen do not use the nursery trays on account of the danger of chilling the chicks. The heat of the nursery is usually from five to ten degrees lower than that of the egg tray from which the chicks drop. This low temperature combined with the sudden change, while the chicks are partly wet, from perhaps one hundred and four degrees to ninety five degrees, is likely to prove harmful. When the nursery trays are not used it is usually necessary to remove the dry chicks when the hatch is partly over so as to give the chicks yet to hatch sufficient space.

None of the chicks should be removed from the machine until thoroly dry and then great care should be taken not to chill them. Boxes, five inches deep, thirty inches long and fourteen inches wide, lined with cotton-flannel, will be found a good size. Such a box will hold one hundred chicks. The top of the box should be covered with two or three thicknesses of the flannel tacked to a frame that will close down tight over the box as a lid.

Helping partly hatched chicks out of the shell is rarely advisable. Such chicks are usually weaklings or cripples. After the dry chicks have been removed from the incubator, the eggs remaining in the tray may be sprinkled with hot water to assist any chicks that may be stuck in the shell. Where the hatch is overdue, the chicks have great difficulty in breaking thru the skin inside of the shell, frequently becoming glued fast. In such cases the sprinkling with warm water will soften the skin and thus allow the chick to help itself.

After the hatch is over all bad eggs and shells should be removed and the interior of the machine thoroly cleaned. The trays should be scrubbed with hot water containing some good disinfectant and the interior of the machine sprayed with same material.



LADY EGLANTINE, WORLD'S CHAMPION.

The center of attraction at the recent Palace Poultry Show at New York, as well as at the Philadelphia Show was Lady Eglantine, the world's record hen. In the fourth International Egg-Laying Contest, conducted at the Experiment Station, Newark, Del., she made the unprecedented record of laying 314 eggs in 365 days. While she was acknowledged queen of the poultry shows, there is irony in the fact that there was no class in the whole show list in which she could be entered! Why is not exceptional utility worthy of a prize? Lady Eglantine's sisters proved themselves to be worthy members of the family since the pen of five, including Lady Eglantine, laid an average of 242 eggs each in the year.

The champion suffered at no time from the exceptional laying. She weighed three and four-fifth pounds in the midst of the period and weighs only a trifle more now. For a number of years the owners have been trap-nesting with a view to producing high-yieiding hens.

ABOUT SPROUTING OATS

Hens must have green food at all times. I think sprouted oats excel all other green food, if grown perfectly clean, and free from mould, and decay. I should like to hear of the experience and success of others. I have spent one year, studying and experimenting, and think I have mastered the art. We must follow the laws of Nature to succeed. I use cold water, good ventilation in rooms, plenty of light, and not over 65 degrees of heat.—W. W. Wylie, N. J.

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STILL MORE conveniences
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The same POWERFUL motor
And the SAME sterling quality in every detail
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Horticulture

DANGER IN SOME FORMS OF PEACH SPRAYING

All growers of peaches should be warned not to combine any kind of arsenical with any form of "soluble sulphur", involving soda or potash, and attempt to use it as a spray material for peaches during the growing season. As shown in our experiments of 1910 and 1911, any such combination as this is wholly unusuable on peaches and in fact is very dangerous on any kind of fruit. We have given numerous warnings on this subject before, but still great damage is now being done by the attempt to use this combination in protecting the exceptional crop of the current year.

Similar damage may result from applications of any kind of bordeaux and arsenical combination on peaches, or from some kinds of lead arsenate alone. In the last case the danger can generally be avoided by adding freshly slaked lime at the rate of about 3 pounds to 50 gallons of spray material.

The standard spraying schedule for peaches during the growing season may well be repeated here as follows:

(1) Lead arsenate, at the rate of 2 pounds of the paste, or 1 pound of the powder, plus 3 pounds of slaked lime, to 50 gallons of water.

This is intended primarily to control the curculio, hence it is usually applied about when the caylces or "shucks" are being shed. It may well be applied earlier, however, if the curculio should begin attacking the fruit before this to any important extent.

(2) Self-boiled lime-sulphur (8-8-50), plus lead arsenate at the same rate as above, a month after No. 1.

This is directed against both the brown rot and curculio. The above lime-sulphur is made by placing 8 pounds of good unslaked lime and 8 pounds of powdered sulphur together in a barrel or tub and adding enough water to slake the lime properly. The mixture is stirred during the slaking and allowed to stand until the reddish lime-sulphur compounds begin appearing around the edges, whereupon cool water is added to bring the total up to 50 gallons, the arsenate is put in, and the material is ready for spraying.

Under most conditions these are all the applications that are needed for stone fruits. With some of the later varieties of peaches or those especially susceptible to brown rot, however, a third application may be needed about 3 or 4 weeks before the fruit ripens. For this application a good lime-sulphur concentrate, diluted at the rate of 1 to 100 or so as to obtain a density of 1.003, without any arsenical, may be used for this, or the self-boiled lime-sulphur just described may be used. The former is preferable, on account of its non-staining qualities, unless the varieties are specially susceptible to spray injury.—J. P. Stewart, State College, Pa.

FORCING RHUBARB

The methods which I have used for forcing rhubarb are as follows; remove the large clumps of roots, generally three-year old roots from the soil in late fall after the leaves have died, place the roots in a pile outside and cover with an inch or two of soil, and then a little hay, say four to six inches, allowing the roots to freeze and remain in the pile until sometime in January. When ready to start forcing, the roots are removed to the cellar, care being given to thaw them gradually. Two inches of sandy loam is placed on the bottom of the cellar floor; the root clumps are then placed in this soil very close together. Any spaces between should be filled with sandy loam. The loam should cover the top leaving only the tip of the buds of the rhubarb exposed. A temperature of 40 to 45 degrees should now be given and applications of warm water from time to time should be supplied as well. The cellar should be kept in total darkness.

The leafstalks develop soon. In five or six weeks the crop should be in marketable condition, sometimes quicker, much depending on the temperature of the cellar. A high degree means less time but generally poorer stalks, a low degree means slow development and shorter heavier stalks. Keep the temperature as even as possible at 45 degrees Fahrenheit. The first shoots that develop should be strong, robust stalks with very little leaf surface, later on as the life of the roots becomes exhausted very small stalks will be obtained. I have found where older roots are used that the stalks will generally be small, also that younger roots if large will give excellent results, even roots produced in just one year from transplanted root cuttings being very satisfactory if well grown. I have also found where root clumps are taken from plants which have not developed correctly thru their growth outside thru lack of food or care, especially where they have been robbed of their healthy development by stripping the leaves and stalks for sale during that particular year, that they do not generally result in producing stalks of large size. As soon as the roots are exhausted, they are removed and thrown away.

PLANTED ONE YEAR.

Another method of forcing is that of building a frame of boards around the plants located in the garden, placing 3x6 sash over the top of the frame. The front part of the frame should be at least 12 inches tall and the rear part 18 inches tall. The top of the end boards should slope accordingly. Pack fresh stable manure one foot wide around the frame having it reach the top. Heat is obtained by the sun shining thru the glass sash, and being retained under the sash hastens the growth of the plants. In very cold weather, it will be necessary to use mats to cover the sash. Applications of medium hot water should be given to the growing rhubarb. The rhubarb stalks are not like the cellar forced stalks but have more color, large leaf development and generally are of larger size. By using this method the rhubarb season can be advanced from one to three weeks or even more.—A. E. Wilkinson.

PLANNING ROTATIONS IN THE GARDEN

In order to save time when actual gardening work begins it is a good idea to plan down to minute details, the plantings that are to be made. When one has the actual dimensions of the garden, and knows just what vegetables are desired, one can plan a layout, that will tell not only how much of each vegetable to plant, but will give the gardener accurate knowledge that will be useful in following years in planning rotations. Rotations in the garden are as essential as rotations in general farming operations, but unless one has a record or plan of previous years' plantings, a systematic rotation in the garden will be hard to practice.

The first thing to be done is to draw a plan of the garden. This should be marked to scale, allowing one-eighth or one-quarter inch to each foot, depending on the size of the garden and the plan. Vegetables that belong to the same family group or those that demand the same soil requirements should be grouped. Thus, in planning, the different varieties of beans and peas should be grouped. Vegetables of the melon family should always be planted together. Another group should be made of lettuce cabbage, celery, etc., vegetables that feed heavily on the nitrogen in the soil. Still another group could be made of potatoes, turnips, onions, beets, tomatoes, etc. If one divides the vegetables into four groups as indicated, and the plots of ground devoted to each do not differ greatly in area, a four-year rotation could be practiced. In my own garden work, I try to do this. I always plant beans and peas in the soil that carried cabbage and celery the previous year. Beans and peas are leguminous in character and partly restore to the soil the nitrogen extracted by the rank feeders. The beans and peas are followed by the tubers, and these in turn, by vegetables of the melon family.

In some gardens it may be necessary to plan in accordance with the nature of the soil. Thus, if the garden carries a low, wet spot, it certainly would be advisable to plant celery, late cabbage or other vegetables that are affected by drouth in this place. Or if a certain portion of the garden possesses a sandy soil that warms up early in the spring it certainly would be advisable to plant early vegetables in this soil. In general, however, the practice of planting the same vegetables in the same soil year after year is not advisable. Even if manure is heavily spread each year, continuous cropping of same plant will result in an "unbalanced" fertility.

Rotation in the garden also keeps down insect pests. Each particular garden pest is partial to certain vegetables, and if the same soil carries the same crop season after season, the soil becomes a veritable breeding place for the pests.—T. Z. Richey.

ROADSIDE MARKETING

A few of the Anne Arundel farmers living along the boulevard have partly solved the problem of how to sell direct to the consumer. This was a great season for peaches, canteloupes, watermelons, apples, etc. The city markets were over stocked and so the tempting fruits were allowed to decay in the field. One bright farmer put stands along the roadway and sold luscious berries and fruits. At first the hundreds of tourists passing did not take an active interest; only a few purchased, but in a short time the road merchant was busy supplying the automobilists. Other farmers put up stands and a thriving business was done by the wayside merchant-farmers — all vegetables and fruits from their farms being on display and sold at reasonable prices. In this way much farm produce was disposed of that would have been wasted. The farmers have done much better in prices than if they had sent their products to commission merchants in the city.—Marylander.

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Philadelphia, Pa., January 8, 1916.

A POULTRY ISSUE

More than the usual amount of space is given to poultry subjects in this issue. We have hesitated in putting out special issues, or issues devoted to single subjects. We have preferred to keep every department of each issue up to a high standard of timeliness and filled with such practical and workable suggestions that each would be a poultry as well as horticultural, dairy and agricultural special. But preliminary steps in preparing for the poultry work of the year are so important just at this time that special consideration of this phase of farm work seems warranted. Every reader, whether he calls himself a poultryman or not, should read the articles on incubation and brooding of chicks, value of meat scraps and skim milk in feeding chicks and Mr. Sweigart's annual statement. These are not written for the man who specializes in poultry work, but for the farm poultry raiser, for the ordinary farmer with the small farm flock and an ambition to make largest possible returns from such a flock with the least expense for time, labor and feed. Keep this paper on file. It will help you solve many of the problems of the poultry yard as they come up during the year.

A FOOD TRUST (?) If the statement recently made by a man high up in the affairs of the nation that he has positive knowledge that there is a food trust forming, of what avail will a greatly increased production be? Such a trust, if possible to form, would not only have the power to cripple agriculture financially, but it would quite literally as well as figuratively have the nation by the throat. It would seem that intimation of such organization should receive early attention of those who are making so much ado about increasing the supply and cheapening the cost of what the people eat. So far, it would appear that all the agencies engaged in this line of work are restrained from interesting themselves in any way with questions concerning buying, selling and distribution, the most vital elements in the whole proposition.

EASTERN BEEF A daily paper, taking up the suggestion which Dean Watts made during Farmers' Week that Pennsylvania might profitably raise more beef, goes on to show how the farmers of this state are neglecting a golden opportunity to make cheaper living for the consumer. It states that there is little cost in raising beef, that poor, neglected land may be used as all that is needed is green feed to eat. Here again is some more "butting in" by the uninformed, handing out definite advice to practical, hard-headed business men. The advice of Dean Watts is good and timely. There is an opportunity in the east to raise more beef animals, but the city paper misses the point if it expects that such development of the industry in the east can possibly lower the present price to the grower and leave him any profit. The long winters and more expensive feeds preclude the possibility of going back to the days when the beef supply was secured by raising cattle on free land and 15-cent corn. Good cattle are today selling for from 6 to 9 cents per pound, while meat retails at 20 to 35 cents. City agricultural advisors invariably jump at the conclusion that the farmer is the man to blame when food prices seem extortionate. Subsidized newspapers raise a howl at once when anything is done or proposed which tends to control or regulate "big business," yet any possible reduction in farmers' prices are desirable and legitimate. Any further reduction in the price of beef cattle is impossible and leave any margin of profit to the grower. It is true that an increasing proportion of our beef supply will be produced in the eastern states, but the cities must look to some other part of the process of producing its Porter-house and sirloin steaks than the raising of the animal.

STATESMEN NEEDED It seems to a layman that the present session of Congress would find its hands full in preparing to meet the coming period of world reconstruction—something that will have to be done at the close of the war, and in which the United States should be prepared to take a helpful, constructive part. Instead of this, it looks now as if the time and attention of Congress would be occupied mainly with the questions of politics and "preparedness," —mostly politics. The work ahead of the world will need the guiding hand of great statesmen. We need them, not only to assist in the general reconstruction, but to shape the affairs of our own country so that we will be able to meet the trying times ahead of us. We need, as we have seldom needed, men who are big enough to be called statesmen—men with a vision who can see future needs and opportunities and prepare for them. So far they have not appeared above the horizon. Party politicians and partisan newspapers seem only to be interested in policies of expediency that will give their party a temporary advantage. What about immigration, revenues, internal improvements, foreign trade, banking laws, credit systems, governmental control and ownership of public necessities and a score of things that are before the public mind, and which will make for stability or panicy times in the near future? It is an opportune time to study the geography of the world in reference to future trade relations and to foster the development of such understandings as will open new fields as well as retain those of the past. It must not be assumed for a moment that the present inflated export trade will continue after the war stops, for a large part will cease immediately at the close of the war unless new avenues are opened. Taking 1913 as a normal year, the exports for eleven months of this year exceeded those of 1913 by 42 percent, or about one billion dollars and the imports fell off considerably. The future development of America can not safely be left to chance; it must have wise direction. We should not be in a position in which we are entirely victims of circumstance and there is now a splendid chance to test the kind of metal of which our "statesmen" are made.

KEEP FARM RECORDS The third annual statement of the Sweigart poultry farm, Chester County, Pa., is given in this issue. Mr. Sweigart is farming on twenty acres of land. Most of our readers will regard that as a small farm. Perhaps many would question the advisability of attempting to develop a farm business on so small an acreage. Let them compare their total receipts and their net profits per year with those shown from the small 20-acre farm, and then judge the comparative proportions of the business. But Mr. Sweigart does not claim exceptional records. He is doing well on his small holding; much better than the average man is doing. But the important point is that his returns are made possible by careful study of his business and attention to details. The most important aid in control of details is his system of accounts. He keeps books on his business. He does not have to guess at the success or failure of his methods. He knows, because his records tell him in figures of dollars and cents. Many poultrymen can learn lessons in poultry work from Mr. Sweigart, and every farmer who is not keeping books on his business can learn this most important lesson of the value of accurate and well kept accounts from these annual statements. The dairymen are learning the value of keeping books on their business thru the cow-testing associations. Many have felt that they could not afford to keep such records for themselves. They have joined testing associations and are hiring a tester to keep records for them, and they are finding that it pays. It pays so well that they are not only continuing to pay from $20 up per year, depending upon the number of cows they keep, but many are now keeping their own records, applying them to every department of their work. What such records are doing for the dairymen and for Mr. Sweigart and others who have perfected and are maintaining a system of accounts, they will do for every farmer. The year is just opening. There is no better time for making a start than right now. Make an inventory of your goods and know what you are starting the year with. Keep your records thruout the year. Learn just what your operations are bringing you, and learn what lines of your work are bringing you a profit and which ones are carried on at a loss. The exact system employed is not important. Start your own system and develop it as needed.

THE FERTILIZER OUTLOOK Farmers need not be surprised if they are required to pay considerably more for their fertilizers this year than last, especially towards the latter part of the season. The war conditions—the same cause that put potash out of sight—will, if it continues, send the price of some carriers of nitrogen and phosphoric acid skyward. In 1913 when conditions were normal the farmers of the United States paid $125,280,000 for fertilizers divided among the three ingredients as follows: For nitrogenous material, $48,830,000; phosphates $56,000,000; for potash salts, $20,450,000. Practically all the potash salts were imported from Germany and all the nitrate of soda came from Chile. The sources of nitrogen used in the manufacture of fertilizers are: Nitrate of soda, ammonium sulphate, cottonseed meal, dried blood, tankage and fish scraps. Phosphoric acid is derived from phosphate rock, bone, slag and bone black. Potash from muriate of potash, sulphate of potash, kainit and manure salts. The Department of Agriculture takes up a discussion of the situation in a circular letter from which the following information is gathered.

Potash.—There is practically no potash in this country at this time for fertilizer use. The small quantities which have been held over are now priced at from 8 to 12 times their normal value. Investigations have shown the possibility of producing from American sources an ample supply of potash salts. The giant kelp (a coarse sea weed) along the shores of the Pacific Ocean offers a field for development. The weeds are easily harvested by fitting barges with mowing attachments, as they grow in the open water. It can then be dried and ground and is in good condition to mix with other ingredients. When the pure potassium chloride is desired it is necessary to separate the juices from the organic material. There are some difficulties yet in the way, as there is in drying the wet kelp but the indications are that the problems will be solved. Three large concerns have begun operations for the manufacture of potash from kelp. The prices that now exist will divert all that these concerns can put out into the manufacturing trade, as potash is used in making matches, glass, liquid soap, and munitions. To produce the quantity needed by agriculture would require ninety or more plants, each costing $50,000 and having an operating capital of $25,000 each.

Phosphoric Acid.—Acid phosphate is the basis of nearly all the mixed fertilizers. We have almost unlimited supplies of phosphate rock. Great quantities are found in Florida, South Carolina and Tennessee. The phosphorus is made readily soluble by treating the ground rock with sulphuric acid. It is then known as acid phosphate. About one ton of the acid is used to one ton of ground rock. The demand for sulphuric acid is so great at present and the price tends upward to such an extent that the effect will be to greatly increase the cost of acid phosphate. It is also difficult to secure a sufficient supply of pyrites which is the chief source of sulphur. There are ample sources of sulphuric acid in this country to supply double the amount used but the erection of factories is a slow and costly work. The Bureau of Soils is endeavoring to develop a commercial method of manufacturing phosphoric acid by use of the electric furnace. This method is only feasible where phosphate rock, coal, and cheap water power are available.

The Nitrogen Situation.—The price of nitrate of soda advanced about $1.10 per hundred pounds prior to November 1. Only a small percentage of the nitrates imported from Chile goes into general farm fertilizers, being mainly used in special brands for green houses and trucking. The chief sources for agricultural fertilizers are: Cottonseed meal, dried blood, tankage, and ammonium sulphate. This latter is a by-product in the process of coke making. The nitrogen in the coal is evolved as ammonia and is caught and neutralized with sulphuric acid. If all coke ovens were equipped to save the ammonia, five times as much as is now saved could be produced. Another source of nitrogen is found in garbage. Investigations indicate that if all cities in the country of over 30,000 population were equipped with garbage tankage systems, a product worth $3,500,000 could be secured.

HARRISBURG NOTES

The State's Crop Reports. — Systematic reporting of the State's crops and the prospects for yields, prices and quality, which has been developed by the bureau of statistics of the State Department of Agriculture is to be still further advanced and there will be statements issued as justified instead of waiting for a stated period each month. The bureau now has in the neighborhood of 900 reporters, many of prominence in their home communities and who have given freely of their services. Opportunity for further development is to be afforded under the act of 1915 which requires assessors to furnish information on the cattle, poultry and vehicles owned. This data will be handled thru county authorities and will be a means of furnishing facts which will interest everyone. The state has been getting some such data thru the Department of Internal Affairs but it never appears in printed form in time to be of service.

The Oleo Rush.—Demands for licenses for the sale of oleomargarine kept the dairy and food commissioners office busy. The total number of licenses issued for 1915 ran about 2,850 and three-fourths of this number applied for 1916 licenses before noon of January 1. Notice that more had mailed applications with checks was received and it is believed that 3,000 may be the total for the new year. The agents of the Department have received word from headquarters to prosecute any person found selling oleo without a 1916 license.

Preparing Lime Inspection.—Work is being pushed on a series of rulings to be issued within a short time for the state inspection of agricultural lime, which was authorized to start on January 1. As in the case of the paint inspection it was found that there were many questions which had to be settled and the result has been that Secretary Patton and men who have made studies of the subject have been trying to get a basis on which to start things. The inspection work is not hard to start, but there are questions which the act did not cover. The new act is expected to be as beneficial in control of the lime, after it gets working, as the fertilizer and feeding stuffs control has been in forcing proper branding.

To Talk Rural Credits.—The State Commission of Agriculture at its recent meeting talked over rural credits and the members are making some investigations which will be supplemented by talks on the subject by men of national prominence at the winter meeting of the State Board of Agriculture late this month.

Will Help Small Districts. — State educational authorities have adopted a plan, which as yet will be experimental, of aiding poor school districts to give their youngsters the educational advantages which the law directs. For the last two years studies have been made of the districts where it was reported that the taxes could not meet expenses and the scheme will be tried of advancing a share of the teacher's salary. In others, assistance toward enabling pupils to reach schools will be extended. The results will be used to call the attention of the next legislature to conditions in rural school districts, when the time comes to making appropriations.

How Compensation Works. — The State Workmen's Compensation Board has made a ruling in regard to employers' liability, which will interest farmers. The compensation act exempted from compensation laws farm labor and domestic service. It is now held that domestic service does not include hotels and such establishments, and that persons, firms or corporations engaged in fruit raising, flower and seed raising, stock raising, nursery work and poultry raising, as such, and not merely as part of general farming, must come under the law. The compensation system will be found to cover a lot that people did not expect before they have been under it many weeks. The State Insurance Fund, by the way, seems to have started off well. It has over 2,000 policyholders and will reinsure its big risks so that a great disaster will not bankrupt the fund. The general belief is that stock and mutual companies, however, will get the bulk of the liability insurance. Most of the big railroads, steel, coal and similar companies, as well as cities and school districts, have been given right to carry their own insurance.

Wheat Looking Well.—A compilation of reports to the Department of Agriculture shows the wheat is in good condition for January 1 when late sowing and the ravages of the fly are considered. Reports also show much sowing of rye. Farm labor is needed in possibly a third of the counties of the State for the start of spring work and it is commanding fair wages. Female house hold help is reported as getting an average of $4.50 in Delaware Co., while in Franklin the average runs $2.25. Farm help by the day with board is commanding higher prices in northern counties, being as high as $1.45. It is also high in Allegheny where there is a demand for men in industries. Perry and Pike pay only $1 as an average.

Fruit Tree Damages.—Judging from what has been reported at the Capitol the sleet storm of last week did an immense amount of damage to the fruit and shade trees of the state, especially in the eastern section.

Alfalfa Worth While.—Alfalfa appears to be a crop worth while in some of the eastern counties. On small Philadelphia farms it produced an average of 4 tons to the acre, while in Lancaster it showed 3.8. In central counties from 3 to 3.5 tons per acre was not uncommon.—Hamilton, Harrisburg, Pa., January 3.

NEW JERSEY FARM NOTES

Monmouth Exchange Record.—Those who thought the last year a poor season for farmers will have to revise their opinions in light of the figures presented in the eighth annual report of O. J. Walker, general manager of the Monmouth County Farmers' Exchange. It shows that the season recently ended has broken all crop, shipping and income records in the territory covered by the organization, the year's business aggregating $1,254,613.49. White potatoes led all other farm crops, with a big increase in production over all previous years. Owing to weather conditions, tuber rot and competition, prices were low during the summer, but continued to rise, and the highest prices were obtained after October 1. The exchange handled 541,435 sacks and 236,892 barrels of potatoes in bulk, or 4,136 car loads, an increase of 413 cars over last year. Other goods handled by the exchange included 2,334 barrels and 7,134 baskets of apples, 1,367 bags of wheat, 28,034 barrels of seed potatoes, 90,905 bags of fertilizer, 44,775 hampers of fruit, 12,742 and 869 bags of grass seed, 16,300 bags of lime, 39 barrels of lime sulphur and 3,768 miscellaneous packages. Because the exchange was far-sighted enough to purchase all the procurable potash last spring, it will be able to put 2 percent of potash in its fertilizers for next year. This is a reduction of 3 percent but commercial manufacturers are marketing fertilizer without any potash. The exchange will build additions to its fertilizer plants at Freehold and Marlboro to handle its increasing business. The membership of the exchange is now 1,355, an increase of 41 during the last year. Its business of the recent season extended into 26 states and 200 cities.

Dairying in South Jersey. — South Jersey farmers are showing markedly increased interest in dairying, resulting in the establishing of a number of large dairy farms and additions of more stock to the herds of cattle in Gloucester, Salem and Cumberland counties during the coming year. After the setback it received from the ravages of the hoof and mouth disease, the dairying industry is rapidly recovering in that end of the state. The epidemic was at least beneficial in one way, as it has turned the interest of the farmers more toward registered stock instead of the grade cows. In spite of the fact that the price of beef alive as well as dressed has taken a big jump in the last few months, farmers are continuing to buy more cattle. For a herd of registered stock sold at public sale in Salem county recently, the average price paid for cows was from $150 to 200. At other cattle sales now under way thruout that region, the most ordinary cows bring not less than $60 for beef.—L.

NEW YORK LETTER

New York Ahead.—According to a report recently issued by the state college of agriculture there is about the same quantity of apples in cold storage at the beginning of the cold storage season as last year. New York reports 349,313 boxes and 1,327,231 barrels. At the rate of three boxes to the barrel this would make 1,410,345 barrels. No other state has half as many, the nearest being Illinois, Missouri and California. All of the far western states report apples only in boxes.

Apple Prices. — If every person in Greater New York would eat an apple a day there would be a daily market for about 100 carloads of apples. So says commissioner Dillon of the Department of Foods and Markets. Since September 1 the department has disposed of four or five carloads of apples a day, three times in a week and the price to the retailer has been about one-third less than usual while the grower has received from 75 cents to $1.50 more per barrel than when dealing with individuals. The department induced several large retailers to handle apples shipped to the department on a profit basis of 20 percent and the consumer who purchased of these dealers got his fruit below regular market price. The commissioner predicts that unless apples come out of the refrigerators they will be likely to spoil badly because of the moisture in them.

Organize Vegetable Association. — The Vegetable Growers' Association, of Cayuga County, was launched at a meeting of growers at Auburn on Dec. 30. The officers will be chosen at a later meetings but a constitution was adopted. H. A. Martin, manager of the Farm Bureau was the moving spirit in the formation of the association. Meetings will be held on the first Monday evening of each month.

New Appointments in Agricultural Department.—Commissioner Wilson has appointed Walter Green of Rochester as secretary of the department to succeed T. Boynton Peck, and Millard Frink, of Altamont, as cashier to succeed R. W. Woodburn formerly of Buffalo.—D.

DEATH OF GEORGE D. LEAVENS

George D. Leavens, president of The Coe-Mortimer Company, New York City, died December 21, 1915. Many of our readers are customers of the company which Mr. Leavens directed, but few, perhaps, were privileged to come in direct contact with the man and learn to know his many estimable qualities. Mr. Leavens was a fertilizer authority with a national reputation. He was a farm boy who worked his way to the top of his profession. He was born in Providence, R. I., July 5, 1875. He graduated from the Massachusetts Agricultural College in 1901 and took a position in the department of soils and fertilizers of the Massachusetts Experiment Station. He later bought a farm and devoted himself to practical farming. His success in farming and his results in the study of practical uses of commercial fertilizers attracted the attention of the fertilizer industry and he was offered a position with the firm of Edmund Mortimer & Co., where he gave all of his time to the fertilizer trade. When the Coe-Mortimer Company was formed, Mr. Leavens was made one of the vice presidents, and in a comparatively short time he was advanced to the office of president of the company. Mr. Leavens was a big man in every sense of the word. His life was an inspiration to all who came in contact with him. His death is a distinct loss to the fertilizer industry and to a wide circle of business and personal friends.

PENNSYLVANIA FARMERS' INSTITUTES

First Section. — Franklin County, Dry Run, January 10, 11; Fannettsburg, January 12, 13; Marion, January 14; Scotland, January 15. Speakers, Sheldon W. Funk, E. L. Phillips and H. M. Anderson.

Second Section. — Somerset County, Berlin, January 10, 11. Bedford County, Cessna, January 12, 13; Loysburg, January 14, 15. Speakers, D. H. Watts, M. H. McCallum and R. O. Umboltz.

Third Section. — Mercer County, Greenville, January 10, 11; Mercer, January 12, 13; London, January 14, 15. Speakers, E. B. Dorsett, Geo. S. Bulkley, C. M. Barnitz, F. H. Fassett and Fred W. Card. (Prof. Tomhave at Mercer also.)

Fourth Section. — Wayne County, Orson, January, 10; Pleasant Mount, January 11, 12; Aldenville, January 13; Honesdale, January 14, 15. Speakers, Wm. M. Patton, H. M. Gooderham and Leon Otice VanNoy.

Fifth Section.—Northampton County, Nazareth, January 10, 11; Mount Bethel, January, 12, 13; Cherryville, January 14, 15. Speakers, J. T. Campbell, John D. Herr, Franklin Menges and W. H. Darst.

FARM MEETING CALENDAR

Peninsula Hort. Society, Easton, Md.	Jan.11-14
Chenango Poultry Show, Oxford, New York,	Jan.11-14
Boston Poultry Show, Boston, Mass.	Jan.11-15
Ayrshire Breeders' Association, Philadelphia, Pa.	Jan.13
N. Y. Agri. Society, Albany, N. Y.	Jan.19
N. Y. Assn. of Co. Agricultural Societies, Albany N. Y.	Jan.20
Liverpool Sale and Pedigree Co. Sale, Syracuse, N. Y.	Jan.17-18
Liverpool Sale and Pedigree Co. Sale, Earlville, N. Y.	Jan.19-20
Penna. Hort. Society, Reading, Pa.	Jan.18-20
Penna. Vegetable Growers' Assn., Reading, Pa.,	Jan.18-20
Steuben-Alleghany Poultry Show, Hornell, N. Y.,	Jan.17-21
Delhi Farmers 'Week, Delhi, N. Y.	Jan.24-27
Newark Poultry Show, Newark, N. J.	Jan.24-29
National Poland-China Record Association, Dayton, O.,	Jan.26
Western N. Y. Hort. Society, Rochester, N. Y.	Jan.26-28
Penna. Board of Agri. Harrisburg, Pa.	Jan.26-28
N. Y. Tobacco Growers' Association, Baldwinsville, N. Y.	Jan.29
N. Y. State Grange, Jamestown, N. Y.	Feb. 1- 4
N. J. Board of Agri.. Trenton, N. J.	Feb. 2- 4
N. Y. Farmers' Week, Ithaca, N. Y.	Feb. 7-12
N. Y. Vegetable Growers, Ithaca, N. Y.	Feb. 8-12
Alfred University Farmers' Week, Alfred, N. Y.,	Feb.22-25
N. Y. Holstein-Friesian Club, Syracuse, N. Y.,	Mar. 1
American Jersey Cattle Club, New York City,	May 3

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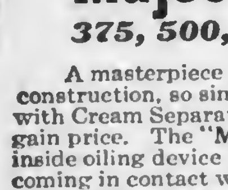

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Increasing Milk Production to Increase Net Returns

Paul B. Bennetch, Sussex Co., N. J., Farm Bureau

The fact that high producing cows are, as a rule, the most economical producers is now recognized by many dairymen. If one cow will produce 12,000 pounds of milk, she will, as a rule, return more than twice as much profit as would be made by two cows each producing 6,000 pounds in a year. This is explained partly by the fact that the actual cost of maintenance is about the same for all cows of the same weight and partly by the fact that the heavy milkers are usually more economical producers.

Some evidence which will throw some light on this phase of the milk production problem is taken from cow testing association records of the grade Holstein herd belonging to Edward Ackerson, Sussex County, N. J., which has completed two years in the Sussex County Cow Testing Association. This herd has gone thru the two years with 26 cows each year. The record of average production and cost per cow for the two years is as follows:

Year	Ave. lbs. milk	Ave. feed cost	Feed cost per cwt. milk
1913-14	8,085	$60.64	$0.75
1914-15	9,750	$66.30	$0.68

It will be noted that there was an average increase in production of 1,665 pounds of milk and an average increase in feed cost of $5.66 per cow the second year over the first, making a total increase of 43,290 pounds of milk and $147.16 in cost for the herd. But the value of the increased amount of milk at $1.70 per cwt., was $28.30 per cow, or a total of $735.80 for the total herd of 26 head. Subtracting the increased cost of feed, $147.16 from the total received for increased amount of milk, $735.80 there was left an increased profit due to increased milk production of $588.64. By increasing the herd yield, feeding but little more feed, using but little extra labor, the milk yield was increased, more profit was produced by the same number of cows the second year as were milked the first year.

The five highest producers in Mr. Ackerson's herd in comparison with the five lowest producers will illustrate the same point.

	Lbs. milk	Cost of feed	Profit over feed
Av. 5 best ..	12,630	$73.56	$132.19
Av. 5 lowest .	7,501	58.68	68.22
	5,129	$14.88	$63.97
Difference ...	68%	25%	93%

To produce 68 percent more milk required only 25 percent more feed, practically no more labor, and produced 93 percent more profit. These percentages may in a certain degree overemphasize the importance of high production, but nevertheless economy in the cost of production to meet low milk prices very often can be best accomplished by striving for high yields.

The men who are selling milk cannot control, except within very narrow limits, the price which is received for milk. A closer study must be made of the problem right at home,—how to cheapen production, and the solution to this, other than the feeding of the best and cheapest sources of protein, lies in an accurate knowledge of individual production and the raising of the average.

How is this best done? This first step towards an accurate knowledge of production is the consistent and continued use of a set of milk scales, and, if milk is sold on the fat basis, of the Babcock test. No man, even if he does milk his cows 365 days in a year, can guess their production within one thousand pounds without ever weighing their milk. First find out what kind of cows you are keeping, and that is what cow testing or record associations are doing; then raise your standard. If the herd averages 8,000 pounds of milk for Holsteins, set the standard at 9,000 pounds.

A RECORD GRADE COW AND HER PROUD MILKER.
Leading Grade Cow in Sussex Co., N. J. Cow-testing Asso. Owned by Edw. Ackerman.

The first step in the raising of the average may be the elimination of the low producers from the herd. Other cows may be substituted for those removed, provided you are fairly confident that they will produce more than the cows removed. Dependence on purchased cows in these days of high priced cows is unsatisfactory, and if the herd is to be kept up to a high standard of average production and this standard raised, the most certain way to do it is to raise heifers sired by a sire of merit.

Shall the man with grade cows go into purebreds? This is a worthy ambition for any farmer provided he proceeds according to his means. Certainly he has a purebred sire and the acquisition of good purebred females as his means will allow is very commendable, but in most herds there is a good opportunity to raise the production by judicious breeding of the best grade cows. Grade cows with large milk and fat records are hardly sports or accidents of breeding, altho of course it is more difficult to breed for large production with grades than with purebreds.

The herd mentioned is a grade herd, and a profitable herd. The consistent use of purebred sires has had much to do with the development of the herd. In the same herd is a grade cow, Sucker, which produced in twelve months 15,303 pounds milk, 495.1 pounds fat, and a profit over feed cost of $181.33, with milk selling at prices ranging from $1.15 to $2.00 per hundred pounds. The record of this cow is worthy of note. It should also be said that her record was made from September 11, 1914, to September 10, 1915, and that she freshened October 1, 1914, and again November 8, 1915, less than a month after making her year's record.

There is an economical limit in feeding for milk production with individual cows beyond which it does not pay to increase production, but in some herds this is never reached. If every farmer would keep records of the milk produced by each cow in the herd, and a similar record of the feed consumed, the returns from the herd could soon be increased. We must know our cows, increase their average production and thereby increase our profits.

The argument for high production does not infer that the farmer is securing enough for his milk. He is not, as a rule. There are not enough cows producing 10,000 or 15,000 pounds per year. What we need is not more cows, but fewer cows, less work and more money left at the end of the year which did not go to the feed dealer. Raising the average production means increasing profits and lessening labor on the dairy farm.

A NOTED SIRE

The accompanying photograph shows the Jersey bull, King of Cloverland, a son of Eminent's Bess who beat the world's record in producing in one year 18,782 pounds of milk and 1,132 pounds of butter. The animal is owned in Houghton County, Michigan, a part of a northern region which in the last few years has developed an enormous clover growth. It is from this fact that the distinguished progeny of a champion takes his name. Houghton county belongs to the famous copper country of the upper peninsula of Michigan, where dairying as well as clover has been given a great start. —G.

A KING OF THE JERSEY TRIBE KNEE-DEEP IN CLOVER.

SIZE OF SILO

Will you kindly tell us what size silo should be built to care for 22 head of cows, feeding them silage for 8 months in the year? What is the cheapest type of construction? W. H. M., Lancaster County, Pa.

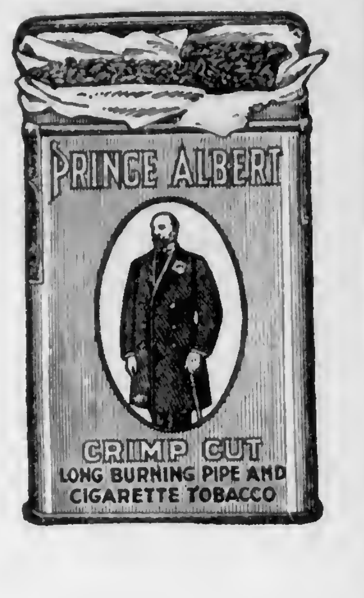
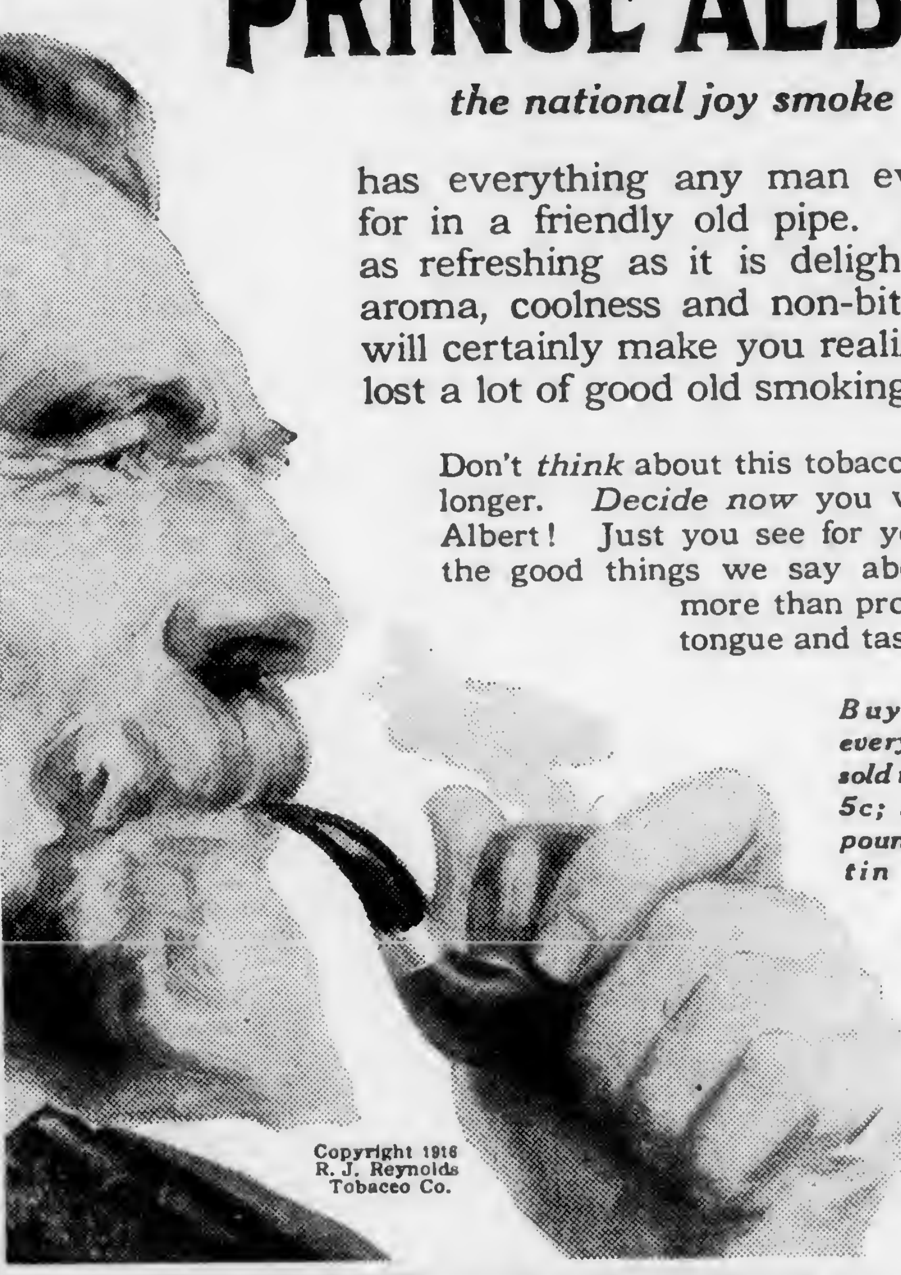
With good silage you will want to feed about 40 pounds per head per day. This would require 880 pounds of silage per day for a herd of 22 cows. As you want to feed silage for 8 months in the year, you would have to provide for about 240 days. At 880 pounds per day you would need a silo holding 211,200 pounds or about 105 tons. Better figure on 110 tons to be safe. This capacity can be obtained in silos of various dimensions, but to keep well, at least two inches of silage should be fed off the entire surface every day. A silo 12 feet in diameter would require about 2½ inches off the surface every day to give you your 880 pounds per day. A silo 12 by 41 feet would give you about 110 tons capacity. You will find it advisable to keep the diameter small, even tho you have to build higher, as the silage will keep better.

As to cheapest type it will be well to remember that durability and ability to keep silage well are as great factors as the first cost. The silo should be regarded as one of the permanent buildings of the farm and should be built accordingly. We would suggest that you investigate different types and compare on basis of cost completed on your farm, durability and safety of stored feed.

ENSILOING DRY CORN FODDER

In Pennsylvania Farmer, of December 4, appears an inquiry about ensiloing corn fodder. I have had many years of experience and spent much thought and time to ascertain the best method of getting all there is out of the corn fodder. I think I have learned a few valuable suggestions along that line. I ensiloed my fodder for two years. This was in the early history of silos in Crawford County. After an exhaustive search for information I failed to find a man who had any experience and who was willing to recommend the process as a safe venture. Not being satisfied, I cut and filled a medium sized silo with splendid dry fodder, cut in half-inch lengths. I sprayed on the fodder as it came from the cutter and ascended the elevator in the most approved manner about 50 barrels of water. I had the fodder well tramped and packed down, and I thoroly wet it down again on the top. A great share of this fodder came out mouldy, not fit for stock to eat.

I then began to suspect that the natural sap of the growing corn, while yet green, was necessary to good ensilage. But I still suspected that more water might have been needed. I repeated my experiment the following year, increasing the amount of water and taking more pains in tramping and packing. This treatment made some improvement but it did not pay and was an actual loss compared to the value of the dry fodder. I have for years taken great pains to utilize and care for the corn fodder, as I value it as an excellent feed for cows in early winter if properly cured. I had a convenient power and a large cutter with elevator,

Prince Albert paves the way

for men to get a new and cheerful understanding of how good a pipe can be. If you *think* you can't smoke a pipe, or if you are taste-tired, we tell you Prince Albert will bring you back without any fuss or feathers—quick! The patented process fixes that—and cuts out bite and parch!

PRINCE ALBERT CRIMP CUT LONG BURNING PIPE AND CIGARETTE TOBACCO

PRINCE ALBERT

the national joy smoke

has everything any man ever yearned for in a friendly old pipe. Its flavor is as refreshing as it is delightful; and its aroma, coolness and non-biting qualities will certainly make you realize you have lost a lot of good old smoking time!

Don't *think* about this tobacco question any longer. *Decide now* you will try Prince Albert! Just you see for yourself that all the good things we say about P. A. will more than prove out to your tongue and taste!

Buy Prince Albert everywhere tobacco is sold in toppy red bags, 5c; tidy red tins, 10c; pound and half-pound tin humidors and in that classy pound crystal-glass humidor with sponge-moistener top that keeps the tobacco in such fine trim.

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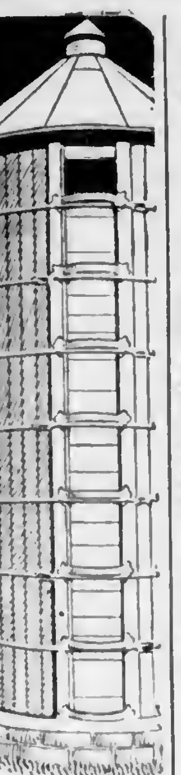
R. J. REYNOLDS TOBACCO CO.
Winston-Salem, N. C.



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NEW and exclusive improvements make the Harder better than ever. The massive durable construction, rigid storm-proof anchor system, air-tight hermetically-sealed walls, perfect fitting doors make the Harder the best investment on the market—the cheapest to buy and the cheapest to operate.

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ABSOLUTELY ON APPROVAL

Gears thoroughly protected. Different from this picture, which illustrates our large capacity machines. Western orders filled from western points. Whether dairy is large or small write for handsome free catalog. Address;

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Only $2 Down
One Year to Pay!

$24 Buys the New Butterfly Jr. No. 2. Light running, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in four larger sizes up to 5 1-2 shown here.

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No. 5½

Registered Jerseys

We have a number of beautiful heifers of the choicest breeding, young bulls, bull calves and a few mature cows. This stock is of the finest breeding to be had and we will quote a low price on the same.
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Jersey Calves both sexes. Fine stock, of the most noted pedigrees in the world. Fred G. W. Runk, Allentown, Pa

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Last Call The BIG FOUR Sales Look Better Than Ever

There are a lot of high class cattle to be sold featuring the

Entire Dispersion of 4 Good Herds

Two at Syracuse and two at Earlville, N. Y.

The 44-lb. bull, King Korndyke Pontiac Lass. This bull has 60 daughters practically all in good hands. His full brother sold at auction for $15,000. There are other bulls out of high record dams (32 lb., etc.). Perhaps you'll like 'em better.

There are around 75 A. R. O. cows, headed by Topsy Korndyke Beets, a 3-year-old with 31.6 lbs., now on test and looks good to make 32 lbs., another with 28, two others with 27, two others with 26, others with 25 and so on.

About 125 are daughters of A. R. O. dams, among these dams around 50 with records of 20 to over 34 lbs.

We find 260 or more A. R. O. granddams of high quality. About 100 of these cows with records of 20 to over 44 lbs.

Nearly all are daughters or granddaughters of famous sires.

To miss these sales will be to miss one of the best chances of the coming sale season.

In these sales you have an opportunity never before offered in one sale combination.

All animals over 6 months of age will be tuberculin tested by state approved veterinarians.

Remember the places and dates.

Syracuse Sale Pavilion, Syracuse, N. Y. Jan. 17-18, 1916.
Holstein Sale Pavilion, Earlville, N. Y. Jan. 19-20, 1916.

Come and improve your opportunity.

Liverpool Sale & Pedigree Co., Inc., Sale Mgrs., Liverpool, N. Y.

Purebred Registered HOLSTEIN CATTLE

As evidencing the enthusiasm with which members of the Holstein-Friesian Association apply themselves to the exploitation of the "Black-and-White" breed, it is only necessary to state that over 4,000 certified reports of official tests were received at the Advanced Registry Office during the month of April, 1915. The Holstein-Friesian Association distributes each year $15,000 in prizes for milk and butter production. Begin with Holsteins if you do nothing more than to buy a purebred Bull to use on your grades. Investigate the big "Black-and-Whites."

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Save the loss of experimental dollars—learn the truth about silos. Zyro Pure Galvanized Iron Silos stay air tight—no spoilage—rust-resisting—can't shrink or swell—storm proof—cost less to build. Write today for Book of Silo Facts.

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strongest built, simplest to put up and easiest operated on the market. Adjustable automatic take-up hoop—continuous open-door front—air-tight door and permanent ladder are some of the unusual features. The International Silo Co., 118 Main St., Linesville, Pa.

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HOLSTEINS

7-8 holstein heifer calves 1 week old $15 each. 8 registered heifer calves 2 to 10 months old $100 each. Registered bull calves $25 to $50. Express paid in lots of 5. 2 ready for service $60 to $75 each. Registered cows $125 up, high grade cows $50 up. 1 carload of 3 year olds $55 each. We are in the heart of the Holstein section, see us before you buy.

J. C. REAGAN, Tully, N. Y.

Another Good Buy
Registered Holstein Bull

Born May 21, 1915. Sire-Spring Farm King Pontiac. Dam - A granddaughter of De Kol Burke with A. R. O. record of 18.6 lbs. butter and over 400 lbs. milk in 7 days. $100 buys him.

STEVENS BROTHERS CO., Liverpool, N. Y.

Unadilla Silos Are Trustworthy

They preserve silage perfectly. Combine best construction, greatest durability and convenience. Easy to erect and keep air-tight. Write today for catalogue. Agents wanted. Address

UNADILLA SILO CO., Box P, Unadilla, N. Y.

Keystone Farms Bulls ready for service out of large record A. R. O. dams, sired by Prince Segis Korndyke Jr. son of Beauty Ranwerd De Kol with record of 30.54 lbs. butter, 7.19 lbs. milk 7 days and 109.6 lbs. milk one day. Good individuals. Low prices.
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Crystal Spring Farm
Registered Holsteins

Heifer and bull calves. Golden Segis De Kol Korndyke 70534 and Allamuchy Fayne Hengerveld Hartog 94180 breeding. Well marked. Write for pedigrees, pictures and farmers' prices.
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King Pontiac Blood for $50 A bull calf from a granddaughter of King of the Pontiacs, evenly marked. The first check gets him.
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The place to secure Holsteins and Guernseys that produce. It is a fact we can give you great value in young bulls or a few females from officially tested or untested dams. 250 head in the herd. Write or visit.
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Guernsey Males and Females
May Rose and Gov. of Chene breeding from imported and domestic females with record backing.
WADDINGTON FARM, Wheeling, W. Va.

Stock Bull For Sale born March 15th 1911. Imperial Sir Bethel De Kol No. 92497 H. F. H. B. Reason of selling on account of relation.
ELMER E. CLEMSON, West Chester, Pa., Route B

Cheap Feed Dried Salvage Grain from mill fire—feeding value uninjured. Price low—Ask for sample.
BARTLETT CO., Mill L, Jackson, Mich.

Registered Holsteins Desirable calves for sale at prices that are right. Satisfaction guar't'd. Ideal Farm, Conyngham, Pa.

HOW MUCH DOES YOUR MILK COST?

33 cents worth of UNICORN plus 26 cents worth of roughage made 100 lbs. Milk in Official Holstein Tests made by Bayliss Griffin, Sylvania, Ohio. 1 pound of UNICORN made 4½ lbs. of milk. Hundreds of UNICORN feeders are doing as well. YOU CAN TOO. - - - - -

UNICORN DAIRY RATION

is equally as profitable for tests or every day dairying. *Try it.*

FOR FACTS AND FIGURES WRITE,

Chapin & Co., Dept. P HAMMOND, IND. BOSTON, MASS.

and could cut in a short time enough to last 50 head of cattle about two weeks—one feed a day. I kept this spread over about 1,000 square feet of floor space and not tramped. In this manner it would not heat and was kept fresh and sweet. Any large amount of shredded or cut fodder cannot be kept packed in mows in large quantities. I would prefer to have my fodder rot in field rather than in the barn.

To make good fodder, corn should be cut as soon as fairly glazed and set up in large well-bound shocks, and husked as soon as dry enough. My method is to haul as fast as husked and fill all space in barn where fodder can be set up on end. It will not keep packed in the mow. If necessary to stack it we put in small stacks as fast as we had enough for a stack—say not over three loads so all or most of the butts come to the outside of the stack. It can be stacked in that way and will come out green and in splendid condition any time in the winter. If it is to be fed in the stable it should be taken to barn and cut or fed in a pasture lot to keep the stalks out of the manure. All dry fodder should be fed in fall or winter. After February it deteriorates very fast if exposed to the air. Ensiloed fodder would be a poor substitute for real ensilage during the spring months. — Wm. R. McGill, Crawford County, Pa.

BUTTER CONTEST AT STATE COLLEGE

The largest dairy-butter contest ever held at State College was conducted on Pennsylvania Day under the auspices of the Dairy Club of the School of Agriculture.

Two classes, i.e., farm and creamery butter, were recognized in the contest and samples were received from almost every county in the state. These samples, sixty-three in all, were much above the average. The highest score was 95, the lowest 82, with 28 samples scoring 90 or over. First, second and third prize ribbons were awarded as follows:

Creamery class—M. C. Nelson, Grove City, Pa.; Mrs. H. H. Modine, Titusville, Pa.; Red Oak Creamery, Spartansburg, Pa.

Farm butter class—Joseph J. Taylor, West Chester, Pa.; Mrs. F. J. Zanny, Westover, Pa.; Joseph Boyer, West Chester, Pa.

The following exhibitors scored 90 and were awarded ribbons of merit:

Austin Leonard & Sons, Troy, Pa.; R. E. Lindill, Sugar Grove, Pa.; Mrs. S. O. Marshall, Dayton, Pa.; Mrs. G. F. Barnhart, Greensburg, Pa.; Mrs. L. E. Bartlett, Brookville, Pa.; Mrs. F. B. Fideller, Reedsburg, Pa.; Mrs. Ella Symonds, Centerville, Pa.; John Hanna, Franklin, Pa.; E. B. Jones & Sons, Neath, Pa.; Mrs. John Bauman, Ebensburg, Pa.; G. A. Metzger, Ronks, Pa.; W. F. Kellar, Meadville, Pa.; J. R. Lehman, Dilltown, Pa.; Mrs. J. W. Tinsman, Downingtown, Pa.; Mrs. Bertha Mitler, Millville, Pa.; Mrs. William G. Mothersbaugh, State College, Pa.; Mrs. Cyrus Kellar, Dagus Mines, Pa.; Mrs. F. Alice Myers, Wysox, Pa.; Mrs. Cora Pettigrew, Townsville, Pa.; Mrs. Laura Deiffenbach, New Albany, Pa.; Mrs. E. D. Lent, Ulster, Pa.; Mrs. W. H. McGranahan, Spartansburg, Pa.; Mrs. J. C. Franks, Spring Creek, Pa.

OPEN SHEDS MAKE DAIRY HERDS HUNGRY IN WINTER

An experiment conducted for several years at the Pennsylvania Experiment Station to study the effect of housing dairy animals under open sheds as compared with housing them in the ordinary closed barn, has included the following general lines: (1) The food requirements under both conditions of housing; (2) the milk yield under both conditions; (3) the effect upon the health of the cow; (4) the bedding required under each system; (5) the difference in the bacterial content of milk.

From the data secured by this experiment it appears that cows kept under the open shed have keener appetites and consume more roughage than those kept in stables. The milk yield of the outside group in the experiment decreased more rapidly than that of the inside group. In the long run, there was little appreciable difference between the two groups in total yield of milk, butter-fat and total solids, these differences being so small as to be within the range of error due to the individuality of the animals used, the skill of the feeder, and variation in the composition of the several feeds.

The bedding question may be summed up with the statement that the outside cows required more bedding, but less labor was required to move it than in the case of the inside cows. Animals housed in the open shed are less susceptible to diseases, such as tuberculosis, than those kept in stables.

Precautions should be taken in housing animals in an open shed, to protect them from drafts; in other words, the shed should be tight except on the open side.

BALANCED GRAIN RATION

Will you kindly suggest a good balanced grain ration for milk cows to be fed with meadow hay, cut corn stalks and corn meal? I can buy alfalfa meal, dried brewers' grains, dry beet pulp and cottonseed meal if needed. A. H., Mt. Bethel, Pa.

If the meadow hay has but little clover you will need rather a rich grain feed. Using your corn meal, dried brewers' grains and cottonseed meal, a fairly satisfactory ration could be made up of 100 pounds corn meal, 35 pounds of dried brewers' grains and 18 pounds of cottonseed meal. Adding dried beet pulp, a good mixture could be made up of 110 pounds corn meal, 90 pounds beet pulp, 60 pounds of distillers' dried grains and 30 pounds of cottonseed meal. The addition of beet pulp would increase rather than decrease the need of the higher concentrates, but it would add variety and bulk to the grain ration.

A PROSPEROUS CHEESE EXCHANGE

Tuberculosis

The Watertown Produce Exchange, Watertown, N. Y., has sold this year 214,936 boxes of cheese which represents a value of about $1,800,000. The average price was a little over 14 cents. At the closing meeting of the Exchange Mr. Jared Van Wagenen, institute lecturer, discussed the tuberculosis question and strongly urged the pasteurizing of milk and whey. He advocated a law to accomplish that end. He said that there are 1,500,000 cows in the state and during the five years between 1909 and 1914 official tests were made on 90,000 of them. There were 15,000 reactions, 66 percent showed general tuberculosis and 33 percent local tuberculosis. In respect to the reimbursement of dairymen who have diseased cows the state, he said, is pursuing a liberal policy. It allows the appraisal of the cows at their market value as if they were sound. The cows are slaughtered and if found to have local tuberculosis the owner will be allowed 80 percent of their appraised value, as they can be treated so as to be safely sold for food. The state is killing from 30,000 to 40,000 head a year.—D.

DAN PATCH 1:55
GEORGE GANO 2:02
MINOR HEIR 1:58½
FASTEST STALLIONS IN THE WORLD. M. W. SAVAGE OWNER
THE M. W. SAVAGE ART DEPARTMENT 167 MINNEAPOLIS MINN.

M. W. SAVAGE WANTS TO GIVE YOU THIS NEW PICTURE

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This NEW, Splendid COLOR PICTURE of M. W. Savage's Three World Champion Stallions is on LARGE 22 by 28 Size, Extra Heavy, and Superfine Enamel Stock. Mailed in Extra Heavy Mailing Tube,—to insure Safe Delivery. Free of Advertising and is Worthy to Hang in Any Home or Office. It is a Very Fine Horse Picture. I Want to Mail You One—Absolutely Free, Postage Prepaid, IF You Are a Stockowner Over 21 and Answer 3 Questions.

FIRST—In What Paper did you Read this Free Picture Offer?

SECOND—How Many Horses, Cattle, Sheep or Hogs do you own?

THIRD—Have you ever used the World Famous, International Stock Food Tonic, a Grain Saver for Horses, Cattle, Sheep or Hogs?

YOU MUST ANSWER THE 3 QUESTIONS
International Stock Food Co. or Write
M. W. SAVAGE, Minneapolis, Minn.

THESE THREE STALLIONS COST $105,000. CASH.

Dan Patch 1:55, World Champion. Minor Heir 1:58½ and Geo. Gano 2:02, Champion Team 2:02.

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14 COLORS

WONDERFUL AND SENSATIONAL DAN PATCH RECORDS—THAT WILL PROBABLY NEVER BE EQUALLED IN YOUR LIFE TIME

Some Horse may go as fast or faster but when will ANY HORSE do what Dan Patch has done,—and Every Day or over Fourteen Years,—Dan Patch,—has had International Stock Food Tonic–as also have My Other Stallions and 250 Brood Mares and Colts. DAN has paced One Mile in 1:55, One Mile in 1:55¼, Two Miles in 1:56, Three Miles in 1:56¼, Fourteen Miles averaging 1:56½, Thirty Miles averaging 1:57½, Forty-Five Miles averaging 1:58, Seventy-Five Miles averaging 1:59½, 120 Miles averaging 2:02½, 132 Miles averaging 2:04¾, Lowered World Records 14 Times, Mile Record, 1906 1:55, Half-mile track record 2:01. Mile Wagon record 1:57¼, Two Mile Record 4:17, Mile to high-wheel sulky 2:04¾, Half-Mile record :56. Half-Mile to wagon :58½, Half Mile on ½ Mile track :58½. Dan Patch Never lost a race. No Horse has Ever officially equalled Dan's 1:55 Record and he was Never hitched double to help pull him along with a running horse and NEVER went behind a wind shield. Dan Patch has Traveled over 100,000 Miles during his Speed Exhibitions. Over Two Million Farmers and Stockmen have Written Me for Pictures of Dan Patch 1:55,—and this is Indisputable Proof that he is the Most Popular Horse in All The World's History. Minor Heir and Geo. Gano,—are the Champion Team of the World,—with a Wagon Record of 2:02, and Geo. Gano is the Champion, Pacing Saddle Horse of the World,—with a Record of 2:10¾. Dan Patch 1:55,—has also proven to be one of the Greatest of Sires and has Over ONE HUNDRED OF HIS COLTS IN THE OFFICIAL LIST, 22 in 2:10 List and Is The ONLY STALLION in World's History,—to have Over 100 Colts in the Official List,—and being the Sire of only 158 Colts,—over two years old. ALL THREE STALLIONS,—are owned by M. W. Savage, Minneapolis, Minn.

72 PIECE SET OF BEAUTIFUL, $12.75 DISHES, ABSOLUTELY FREE.

My New and Special Set of 72 Beautiful, Genuine La Francaise Dishes—Absolutely Free,—with the specified Three Pails of International Stock Food Tonic,—on 9 Months Free Trial,—Entire Three Pails are to be used for Your Horses or Cattle, or Cows or Hogs,—Without Your Sending a Cent of Money. This Fine Set of 72 Dishes,—is Absolutely Free and At Once and Regardless of whether you Ever Remit for the International Stock Food Tonic or not. You are Never to remit for the Three Pails unless it can be used at the Extremely Low Using Cost of,—3 FEEDS for ONE CENT,—and unless it gives More Strength, Health and Vigor and Saves 70 Bushels of Oats, per year, for Every Team you work. Unless it makes Each One of Your Cows give Two to Four Quarts,—More Milk Every Day. Unless it Makes Your Hogs, Shoats or Pigs,—Grow and Fatten Amazingly,—on Less Grain and in a Shorter Time and also Preventing Hog Cholera, by Increasing the Number and Vitality of Phagocytes in the Blood and these Destroy all Hog Cholera Germs that may enter the system. You are to be the Sole and Only Judge of Your Results,—and I agree to Accept Your Own Statement,—but the 72 Dishes are Yours,—Perfectly Free,—in either case. International Stock Food Tonic,—World Famous for over 26 Years as the Most Dependable, Blood Purifying Tonic and Aid to Digestion and Assimilation,—and the ONLY Preparation that can be used at the Extremely Low Cost of,—3 FEEDS for ONE CENT,—and Positively Guaranteed as to certain specified, big money making results. Over Two Million Farmers have proven that there are no strings tied to any Free Offer I ever make. ☛ This Set of 72 Pieces of the Famous La Francaise Dishes.—is Pure White, Semi-Porcelain,—with Artistic, Royal Blue and Gold Decorations of Elegant and Exquisite Beauty,—just as produced in European Potteries,—for over One Hundred Years, under a Secret Process, but now made in America by one of the Largest Potteries in the World. The 72 Dishes are All Large Size Dinner Dishes,—of Guaranteed Extra Quality and Great Beauty,—such as I use in My Own Home and such as you will Highly Appreciate in Your Home, or for a Beautiful Wedding Present. WRITE FOR ACCEPTANCE BLANK,—TO FILL OUT AND MAIL ME FOR DISHES.

Your farm paper has a set of nice La Francaise dishes and knows that the dishes are exactly as described. This Set of Dishes often retails at $12.75 and I Save you the Entire Retail Price. Ask My International Stock Food Tonic DEALER,—in your City,—about My Absolutely Free Offer of this 72 Piece Set of Dishes and also my $15.00 Cash,—Dan Patch Gold Stop Watch Certificate, or about My 599 Other Free Premiums,—offered through,—My Dealers,—for Your Saving Labels from Any of My 49 Different Preparations,—or You Can Write and Ask M. W. Savage, Minneapolis, Minn.,—when requesting PICTURE,—for his,—ACCEPTANCE BLANK and also Beautiful, Color Illustrations and Complete Description of Every Dish,—in Every Free Set.

DON'T DELAY or You may Miss this Extraordinary Opportunity of Securing a Big Set of Beautiful and Extra Quality Dishes,—without their Costing you a Cent,—Now or at any other time. Your Family and Every Family,—always needs more dishes,—on account of Constant Accidental Breakage. I offer different Sets of Beautiful, Extra Quality Dishes,—that any Woman will be Proud to have in her home. Let M. W. Savage Keep Your Home Supplied with all the Beautiful,—High Class Dishes you may need,—Absolutely Free. Don't pay out money for Dishes,—when I will Supply you with the Famous La Francaise Dishes,—or Conventional Patterns,—without your paying me a Cent,—either at time of shipment or at any other time. OR IF YOU PREFER,—I will send you a Beautiful, High Quality, 25 Piece Set of Oneida Community Reliance Silver Ware,—,—the kind you read about in—Saturday Evening Post,—Ladies Home Journal,—Good Housekeeping, Etc.

100 PIECE SET OF DISHES,—ABSOLUTELY FREE.

I have a New and Special Set of 100 of the Beautiful and Genuine La Francaise Dishes or other kinds,—Absolutely Free,—for you if you will accept the specified Four Pails of International Stock Food Tonic,—on 9 Months Free Trial,—with the Same conditions and Agreements,—as stated above. This 100 Piece Set is Exactly the Same Quality and Decorations,—as the Other Set described above. It often retails for $17.50. I can mail you an Engraving,—showing Every One of these Dishes,—so that you can See Each Dish, and Know Just What Kind of a Set You Will Receive. All you have to do is to Test International Stock Food Tonic,—3 FEEDS for ONE CENT. Guaranteed to make you Extra Money for Horses, Cattle, Sheep or Hogs. ☛ DO NOT SEND ME A CENT OF MONEY.

42 PIECE SET OF DISHES,—ABSOLUTELY FREE.

I have a New and Special Set of 42 of the Beautiful and Genuine La Francaise Dishes, or other Patterns,—Absolutely Free,—for you, if you will accept the specified Two Pails of International Stock Food Tonic,—on 9 Months Free Trial,—with the Same Conditions and the same Agreements as stated above. My 42 Piece Set of La Francaise Dishes, is Exactly the Same Quality and Decorations as the Larger Set described in My First Offer. Your Dishes Are Absolutely Free,—Regardless Of The Results of Your SPECIFIED Test of International Stock Food Tonic.

21 PIECE SET OF DISHES,—ABSOLUTELY FREE.

I have a New and Special Set of 21 Beautiful and Genuine La Francaise Dishes or other Kinds,—Absolutely Free,—if you accept the specified One Pail of International Stock Food Tonic,—on 9 Months Free Trial,—with the Same Conditions and Agreements as stated above. This 21 Piece Set is Exactly the Same Quality and Decorations,—as the Larger Set described in my First Offer. I can mail you A Splendid Color Engraving,—showing Every One of these Dishes,—so that you can see Each Dish in its Color Decorations and Know just what Kind of a Set you will Receive.

All My Free Premium Offers are Based on Fair and Square, Every Day, Practical, Profit Sharing Co-operation between Manufacturer and Consumers. I buy my Premiums at the Very Lowest Manufacturing Prices but I Save You the Big Retail Price. Ask Dealers About My 599 Free Premiums,—for SAVING LABELS from My 49 Different Package Preparations. They are the Greatest and Most Sensational, Profit Sharing,—Free Premium Offers in the World. EVERY LABEL Counts FULL FACE VALUE on 599 Free Premiums. YOU MUST WRITE FOR MY ACCEPTANCE BLANK FOR DISHES.

AN EXTRA,—ADDITIONAL $15.00—ABSOLUTELY FREE.

Is My Agreement to Send You Free,—if you will accept ANY ONE of My 9 Months' Free Trial Offers on International Stock Food Tonic,—A $15.00 Cash, DAN PATCH GOLD STOP WATCH CERTIFICATE—which has an Absolute Cash Value of $15.00,—DO NOT SEND ME A CENT. You will be Delighted to carry my Beautiful, Gold Watch. My Certificate will be accepted at Any Time, from Any One,—as a $15.00 Cash Payment, on My Dan Patch Gold Stop Watch. M. W. Savage is Sole Owner of Dan Patch Watch. The Only Successful, High Grade, Regular Gold Watch and Gold Stop Watch,—Combined,—Ever Made in America.

YOUR WIFE WILL BE DELIGHTED WITH MY GENUINE LA FRANCAISE DISHES.

7 WODER COWS 7 of Th World

And Ho ey Made THEIR ASTON ING RECORDS

You no doubt have heard of these s Wonder Cows." You may know them by name and by record. But, do you know h made their astonishing records?

Everyone of these seven World's Champion SCHUMACHER FEED as the base of the ration during its record-making, record-breaking o

In each instance SCHUMACHER FEED was a necess of the daily food. The owners of these cows of breeds—at different farms and different times, were all in acc lecting SCHUMACHER FEED as a part of the rations to b these important tests. These men know feeds as breeds. They also know that the best feed must b get the best results in the pail. It is also a significant back of almost every World's Record of recent yea SCHUMACHER FEED as the "unseen power" w

lies the energy, stamina and continued health, so necessary to any ow which undergoes the strain of long continued milk production. Mr. Dairyman, you may not be trying for World's records, but you surely are anxious to get bigger yields, stronger constitutions, "every-day-on-the-job" health conditions, stronger calves, etc. If SCHUMACHER FEED will help do this and make World's Champions, it will help your cows to do better and make better records for you. It has proved BEST for the BEST cows in the world—it will prove BEST FOR YOURS.

1

World's Champion Junior 3 Year Old

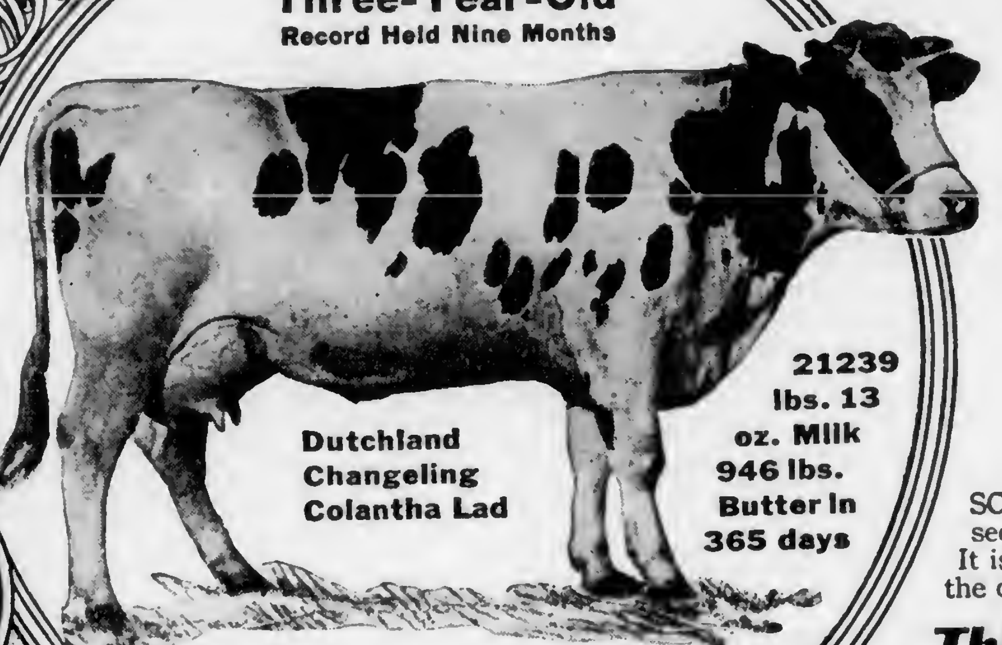
Schumacher Feed an Important Part of Her Ration

"Now I certainly claim we have a most extraordinary cow, but I will give your feed a little credit for this great performance as we have used your SCHUMACHER FEED and your Blue Ribbon Feed for 60% of the grain feed which she has been given during this one year's test and besides this grand cow producing such an enormous amount of milk and butter, she has gained 250 lbs. in flesh. It would seem that to make a wonderful record like this one would need to have a great cow and in connection with the cow to feed her some good feed, that is, SCHUMACHER FEED and your Blue Ribbon Feed." Very truly yours, (Signed) Bernhard Meyer, Finderne, N. J.

2

World's Champion Junior Three-Year-Old

Record Held Nine Months

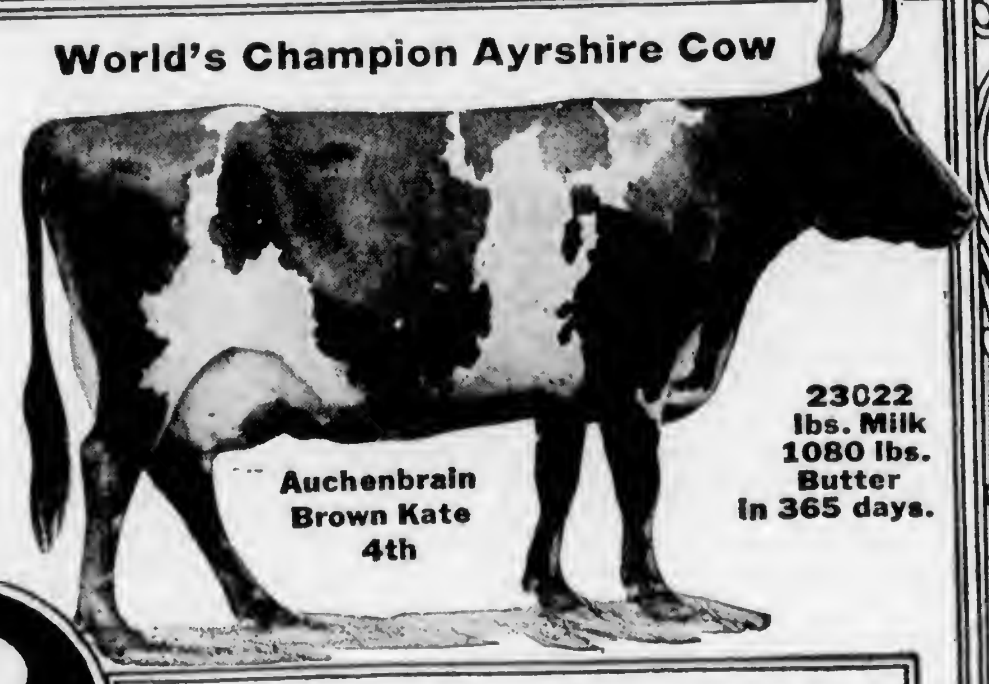


Schumacher Feed Praised by Her Owner

"Your SCHUMACHER FEED has scored another big success as our new world's champion junior three-year-old heifer Dutchland Changeling Colantha Lad is being fed this feed as part of her grain ration. Her stable mates, Dutchland Colantha Vale and Dutchland Colantha Mona are also being fed same ration and will have world's records in the near future."—Fred. F. Field Holstein Co., Brockton, Mass.

3

World's Champion Ayrshire Cow



Would Not be Without Schumacher Feed

"We had such good results with your SCHUMACHER FEED, fed our world's champion cow—

"AUCHENBRAIN BROWN KATE 4TH, who produced 23022 pounds milk, 1080 pounds butter, in one year, that we have since fed it to all of our test cows. Yours truly,

Penshurst Farm, (Signed) E. S. Deubler, Supt., Narberth, Penn.

SCHUM HER FEED

The Record-Making, Rec g Feed of the World's Champions

SCHUMACHER FEED is a "wonder feed"—the most palatable feed ed as suggested below, in addition to producing bigger yields, you will see "better conditions," brighter eyes, more vigor and life, less sickn ed" conditions, because of its varied and ideally balanced food elements. It is composed of kiln-dried, finely ground products of corn, oats, wh cientifically blended and balanced to meet the exacting requirements of the dairy cow to best advantage. When fed on the following plan, it b

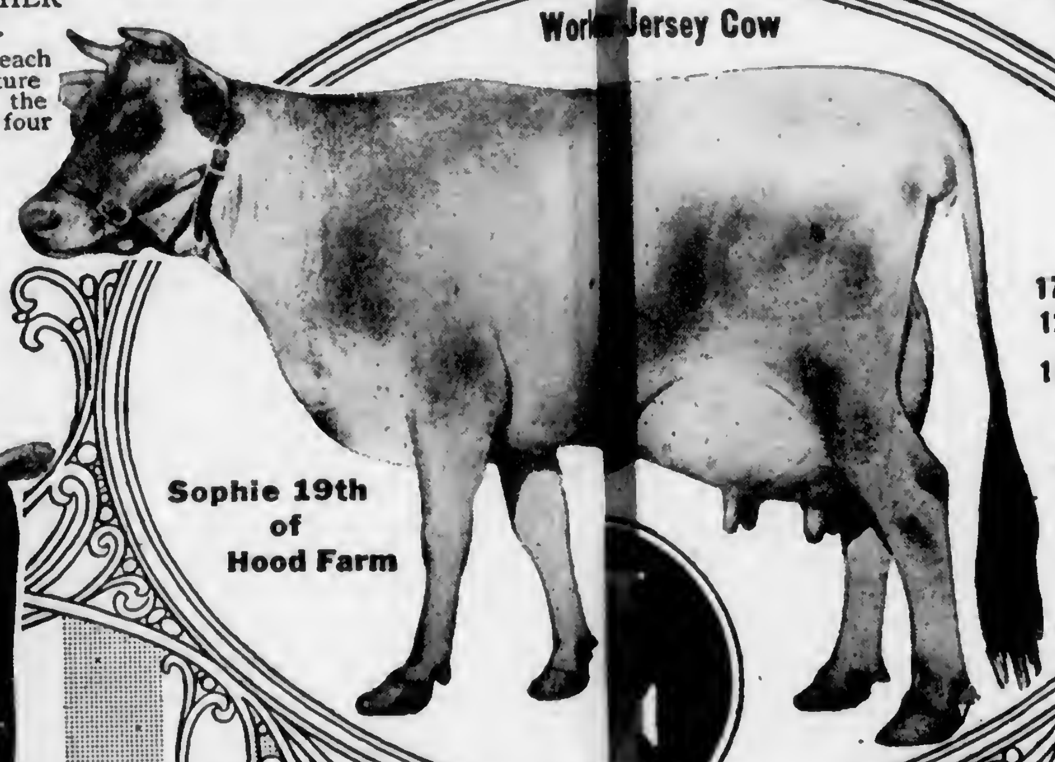
This Feeding Plan Will Surprise Y

Feed as the grain part of the ration, three sacks of SCHUMACHER FEED sack of gluten, oil meal, linseed meal, dried brewers' grains, dried distillers' grain, Malt Sprouts, Blue Ribbon Dairy Feed or any other high protein mixture. When cottonseed meal is used, feed four to five sacks of SCHUMACHER FEED to one of cottonseed meal.

As a suggestion of the amount to feed each cow, give one pound of the above mixture with all the roughage and ensilage the animal will consume, to every three or four pounds of milk that the animal yields.

THE
Quaker Oats Company
CHICAGO, U. S. A.

Wor Jersey Cow



Here's What Her About Schumacher Feed

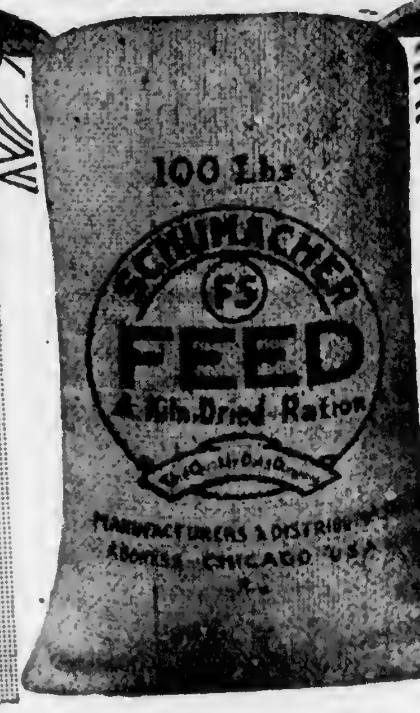
"It will probably intere we have been feeding SCHUMACHER FEED to Sophie 19th of H he finished her last record January 20, 1914, which makes her the Cow of the world, and stamps her the greatest dairy cow living er SCHUMACHER FEED a splendid feed for dairy cows, and a asing the milk and butter production." Very truly yo r J. E. Dodge, Mgr., Lowell, Mass.

Also Good For Horses, Hogs and Calves

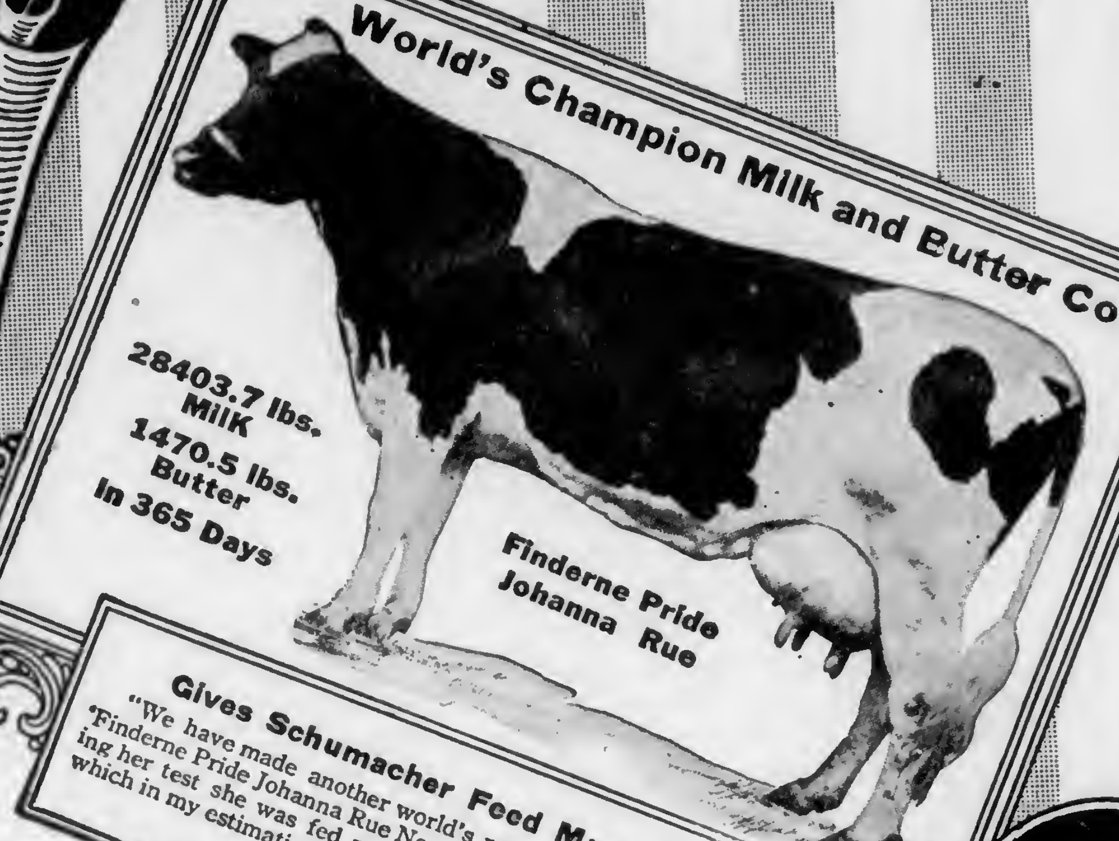
Because SCHUMACHER FEED is strictly a grain ration, it is also the best and most economical feed for horses, brood sows, growing pigs, calves and cattle. For these animals it is a complete and balanced ration—ready to feed with ensilage, hay or other farm roughage. You can sell your high-priced whole grains, buy SCHUMACHER and save money and get far better results in growth of bone and weight in flesh.

If your dealer cannot supply you, write to us. Send today for a copy of our latest booklet, "WORLD'S GREATEST COWS AND HOW THEY MADE THEIR ASTONISHING RECORDS"—free postpaid.

THE
Quaker Oats Company
CHICAGO, U. S. A.



World's Champion Milk and Butter Cow



Gives Schumacher Feed Much Credit

"We have made another world's record with our Holstein cow 'Finderne Pride Johanna Rue No. 121083.' I am glad to say that during her test she was fed mostly on your SCHUMACHER FEED, which in my estimation is a very valuable feed for dairy purposes." (Signed) Bernhard Meyer, Finderne, N.J.

5

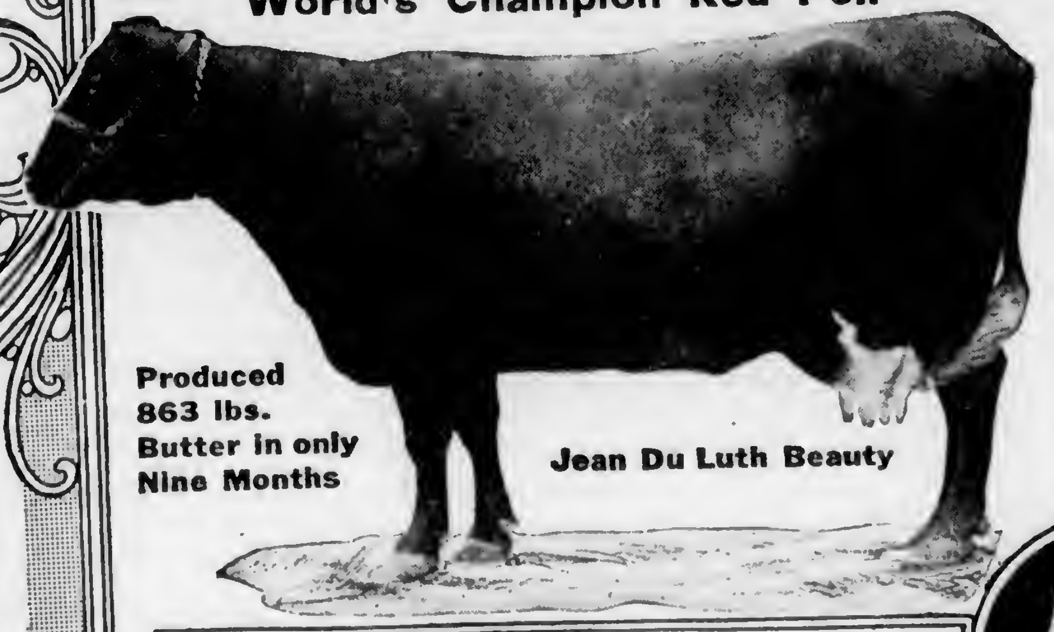
World's Champion Four-Year-Old Jersey for Six Months

6

Schumacher Feed Helped Make This World's Record

"As a good example of the result of feeding SCHUMACHER FEED, I am pleased to report the record of our Junior four-year-old Jersey, Flying Fox's Maid. 265318, who has just made a record of 14315.6 pounds milk containing 785.9 pounds butter fat, exceeding the best previous record by nearly forty pounds. Her milk brought $572.02 at wholesale, and the cost of her feed was $170 75, leaving a net profit of $401.27 for the year. She was fed SCHUMACHER FEED for the last six months of her test, that feed replacing ground oats in her ration, and although fed no meal or hominy, she finished in better flesh than she started. The result was so satisfactory that we are now feeding the entire herd in the same manner, and consider your SCHUMACHER FEED one of the most essential elements of our ration. Sincerely yours, D. E. Moulton, Prop. Gilsland Farm, Portland, Me.

World's Champion Red Poll

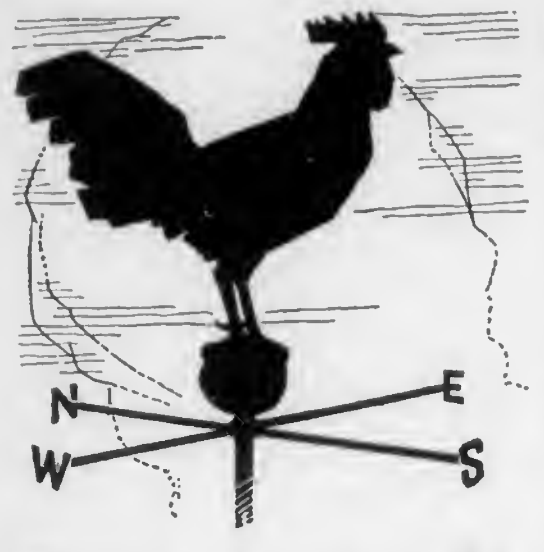


Schumacher Feed a Liberal Part of Her Ration

"We are so well pleased with the work done by Jean Du Luth Beauty and Jean Du Luth Pear that we are making SCHUMACHER FEED a part of the ration in both our Red Poll and Guernsey herds. We have over 35 cows on official test." Jean Du Luth Farm, Duluth, Minn.

7

(46)



Don't leave the flavor to chance

DON'T spoil good butter by using poor salt. To get the best results from your good stock, good feed and careful dairying, go one step further. Use Worcester Salt in your butter-making.

Worcester's pure, even grains work in easily, and do away with "mottles" and streaks. Its genuine saltiness brings out the fine flavor your butter deserves.

Worcester Salt overcomes many of the troubles you meet in producing top notch butter. Our booklet, "Butter Making on the Farm", tells why. Free on request.

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Packed in 28-lb. and 56-lb. bags of strong Irish linen. Get a bag at your grocer's.

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Largest Producers of High-grade Salt in the World
NEW YORK

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Save Agents Profits

DIRIGO and STANDARD Silos have always been famous for their uniform high quality and exclusive features. The strongest and tightest construction. Safe steel ladder. Sure anchorage. Money back guarantee. Send for free catalog, prices and the most liberal offer we ever made for early orders.

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Free Book Just Out

Written by man who has devoted his life to poultry—book teems with pointers and real secrets on how to raise more and better chicks, get 100% hatches, produce prize winners. Tells how to save money on incubators and brooders—illustrates many with very latest improvements. Needed by beginners, farmers and others. Write today—edition limited. Model Incubator Co., 15 Henry St., Buffalo, N. Y. Also 39 Barclay Street, N. Y. C.

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Buy direct at wholesale—it's safe, you are protected by absolute guar. of actual grower. Finest Fruit Trees and Ornamentals grown in our nursery, largest in N. Y., in 32 years. Big free wholesale catalogue illus. in colors.

Maloney Bros. & Wells Co.
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Gem Steam Cooker

Cooks entire meal over one burner. Will not burn or scorch food. Guaranteed 15 years. Thousands will be sold—low price—big profit. Write quick for exclusive territory and large free catalogue of 400 specialties.

American Aluminum Mfg. Co., Div. B D Lemont, Ill.

Farms Four miles water front farm land, bordering on Chester River, in Queen-Anne Co., Md., within sight of Chestertown and near State (macadam) road. Fine fishing and water-fowl gunning. Acreages up to 20 may be purchased, affording ample land for either a summer home, dairy or truck farming. Price $100 to $250 per acre. Also have several farms of 100 to 300 acres with farm buildings. Price $40 to $85 per acre.
W. IRVING WALKER, R. D. 1, Chestertown, Md.

MEN WANTED

We positively teach you at home by mail to earn $25 to $50 weekly as Chauffeur or Repairman. Students assisted to positions. Best system, lowest price. [illegible] Write for Free Book. Pratical Auto School, 66-W Beaver St., New York

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Live Stock

RAISING PUREBRED DRAFT HORSES

A well-mated, well-trained pair of young draft horses is one of the most salable finished products of the farm today. A good pair of young draft horses will always command a fair price, while a trotting horse or roadster must show extreme speed or quality to be salable at any price. A few weeks ago Chas. Parker, of Erie County, N. Y., sold a four-year-old pair of draft mares for $800. After deducting the cost of raising them, the interest on the money invested and allowing a good percentage for risks, the young team made at least a net profit of $400. Mr. Parker has a number more equally as valuable horses and uses only brood mares and young teams for performing the work on his dairy and fruit farm.

The colts are not the only profit that Mr. Parker receives from his draft horses. At all times of the year he has the very best horses in the country to work. He says: "I figure that the mares more than pay for their feed and care in the work they do. In handling 80 acres of fruit and truck crops and 170 acres of farm land the brood mares are kept fairly busy during the spring, summer and autumn months. At the present time I have five teams of Percheron mares and 16 head of young horses and colts. By keeping one extra team of brood mares and working two young teams it allows me to give the mares a good rest for a few days before and a few weeks after the colts are born. This makes the colts stronger and gives them a good start in life. I always give the colts a good chance the first year and have better horses afterward than would be the case if I neglected the mares and colts at the most critical period."

YOUNG MULES GROWING INTO MONEY AT SMALL COST.

Mr. Parker allows the colt to suckle the mare as long as it will and then it is removed. As soon as the mare's milk flow begins to decrease, supplemental feed is supplied so that by the time it is separated it hardly notices the change. One thing you do not see on Mr. Parker's farm is the colts running over the fields with the mares when they are at work. The foal that lies around in a clean, darkened stable during the day while its dam is at work usually makes better gains during July and August than one that runs out all the time. By resting in a darkened barn during the day, it escapes the flies and is handy for regular feeding. When the mare is fed grain regularly and turned with it to pasture at night there is plenty of opportunity to play and graze in comfort. Feed, exercise and comfort are the essentials for rapid early growth, and early growth is necessary for a large mature size.

In the winter time the colts are kept in the barn at night, but have the run of a large paddock during the pleasant days. Oats, bran and mixed hay form the bulk of the ration. Even when they have the run of a good pasture in the spring and summer the colts get some grain feed night and morning. The mares are fed some corn with their rations to furnish the necessary carbohydrates and fat. They are also fed mixed hay and timothy while they are working on the farm. During the second summer the colts are kept in the barn during the hot part of the day and turned out at night. They are fed liberal rations of grain so that they will be in good condition at the beginning of the winter.

At the end of the second year the colts are trained to do light work by hitching them beside an older horse and working them a few hours at a time. Just as light work on the track and at a young age is considered the proper way to develop the trotter, so light work is an advantage to the young and growing draft horse. Such work not continued to the point of fatigue, but more in the nature of daily exercise, will develop the colt into a good horse. It will develop the bone and muscle and the habit of using his strength in the way most pleasing to his owner. Such training will tend to give the colt good draft horse style and tend to cure or avoid acquiring unpleasant tricks or habits. The colts at two years handled in such a way will almost pay for their keeping and a young draft team that is properly trained and used to work might very easily be worth double the value of a pair of green colts at the same age.

In the spring the stud colts that show signs of breeding excellence are put in a separate pasture. In this way there is less danger and they are more contented and make better growth. Mr. Parker has his own stallion and has several young stallions being fitted for sale. He has sold several young stallions at figures considerably above $500 per head.

As the demand and the price for purebred draft horses is steadily increasing it seems that many farmers would find it profitable to start with two or three purebred mares. Mr. Parker is making money at the business and there is plenty of opportunity for others to do as well.—W. M. K., Erie County N. Y.

CUTTING PORK ON THE FARM

Killing when the weather is too warm causes heavy pork losses on farms every year. Study the weather forecast and plan to butcher at the beginning of a cold spell is good advice. Remove

Make Good Your Big Opportunities with Poultry

High market prices for poultry and eggs—big grain crops producing cheap poultry foods—plentiful money and busy factories everywhere—all make big opportunities for poultry raisers. Now is the time to start with

Cyphers-Built Incubators

Low in cost—sure in results—three styles eight sizes. Also complete line of Hovers, Brooders. Write today and start hatches early.

Big Catalog FREE—Write Today

148 pages showing 100 different articles for poultrymen. Also ask for book "Poultry Foods and Feeding."

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Three Styles Eight Sizes
$12 to $40

Feed Less Corn and Get More Pork

Profit-paying hogs are only produced by right feeding. *They must have animal food.*

REICHARD'S DIGESTER TANKAGE hastens growth—promotes health—reduces feed costs—swells profits.

Samples and prices, with new circular on hog-feeding, mailed FREE. Write today.

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13 W. Lawrence St. Allentown, Pa.

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Bourbon Red Turkeys. Large vigorous and grandly marked, domestic as chickens. Toms $5.00. GLEN DALE POULTRY FARM, Wellsville, Pa.

Manager wanted for poultry plant, must have a thorough knowledge of poultry raising and excellent references. Apply to Geo. Allen, 1214 Chestnut St., Phila.

Ringlet Barred Rock Cockerels, large beauties from best blood. The kind to improve your flock. Strawberry plants. Satisfaction guaranteed. Catalogue free. JOHN W. HALL, Marion Station, Md.

Barred Rocks Large, early cockerels, pullets. Fine breeders. Show birds for any competition. Priced to sell. Morris & Richardson, Box F, McConnelsville, O.

50,000 Chicks for 1916. S. C. White, Brown Buff Leghorns, Barred Rocks, Wyandotts and Broiler Chicks. 7 cents each, and up. Circular free. Keystone Hatchery, Box 45, Richfield, Pa.

R. C. White Minorca cockerels and a few pullets. Prices reasonable. W. W. Hockenbery, Woodbourne Farm, Sussex, N. J.

60 BEST BREEDS Chickens, ducks, geese, turkeys, guineas, dogs and hares. Stock for sale. Valuable catalog. Free. H. A. Souder, Box P, Sellersville, Pa.

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Holstein Herd of 20 head of the highest grade Holsteins. Each cow has a complete cow testing association record. Registered Pure Bred Bull calves for sale at all times. Plumlyn Farm, Fairview Village, Pa., near Norristown

For Sale 2-yr.-old Holstein-Friesian bull (hornless). Dam at 4 yr. has 7 day A. R. O. record of 23.7 lbs.; semiofficial in 293 days, 750 lbs. Well grown, half white. Price $300.00. Send for catalogue. Geo. E. Stevenson & Sons, Clarks Summit, Pa.

Holsteins 4 bull calves $30 each, 2 mos. old, Korndyke breeding. 5 heifer calves $100 each, 2 mos. old, fine individuals; light colored and well bred. W. H. MACE, Cortland, N. Y.

Holstein bull calves for sale; grandsons of the $50,000 bull, King Segis Pontiac Alcartra No. 79602 WILLOWHURST FARMS, R. O. Williams & Sons, Canton, Pa.

Registered Holstein bull calves, by son of a 23 lb. cow, and from dams of good breeding. Price $30. J. B. WINKELBLECH, Lewisburg, Pa.

Reg. Guernsey Heifer born August 30, 1913. Guaranteed breed. Tuberculin tested. Write for price. ADDISON R. KRIEBEL, R 2, Norristown, Pa.

Reg. Holstein-Friesian cattle, cows, heifers, A. R. O. bull calves. Also Reg. Duroc swine "Royal Breeding." Prices very reasonable. H. Y. Ruth, R 4, Hatfield, Pa.

Guernseys Special January sale yearling bulls and bull calves, A. R. Breeding. EDWIN B. MAULE, Parkesburg, Pa.

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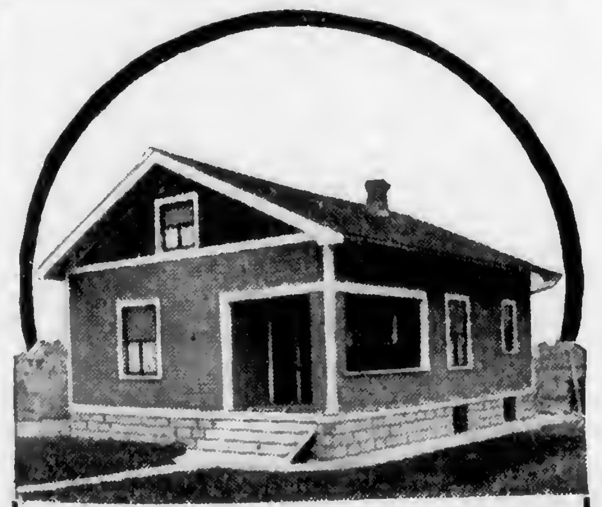
Bonnie Brae A wonderful value and a remarkable plan. Seven fine rooms—large kitchen—spacious dining room—comfortable living room—three good bedrooms with closets (one cedar-lined), bath, porch and handy rear entrance. Size 24 x 40 ft. Cost $819 complete or half down, remainder in two years. Write for book and see this offer.

Stronbilt Think of this full, two-story, 28 x 36 ft. Home with six bedrooms, eight closets (one cedar-lined), built-in pantry with cupboard, linen closet with drawers, model kitchen, splendidly large dining room and handsome living-room—**all complete**—$1336!! Or half down, balance in two years. Let the Sterling Book save you half.

Monarch The King of Homes. Most pratical plan on list. Nine fine rooms—closets (one cedar-lined), built-in pantry with cupboards and shelves. The handiest plan imaginable. Yet this $3000 beauty—24 x 36 ft.—sells for only $1176, saving you **half**. Send for the Book. Read the particulars. See how easily you can build with half down. Save that half and pay the balance in two years.



Cloister This trim 22 x 32 ft. beauty contains five very sizable rooms and two closets. A charming Home with a model arrangement—built permanently with selected materials at the world's lowest price—$530 complete! Or half down, balance in two years. Investigate this offer before you build.

Suppose, in buying your new Home, you could save THIRTY THREE cents on each dollar's worth of Materials! Suppose at the same time, you could save SIXTY-SIX per cent of the usual carpenter expense. Suppose, also, that the usual EIGHTEEN percentage of waste, due to *hand-sawing* were saved you.

Then suppose you could save a month or perhaps *two months'* TIME in building; and a whole lot of tiresome dickering with lumber dealers, hardware dealers, architects, plumbers and carpenters. And suppose, finally, after making these MANY and BIG savings, you found yourself in possession of a handsome, strong, substantial Home.

Wouldn't *anybody* just *jump at the chance to get such a wonderful BARGAIN?* Well—that's exactly what the Sterling System has delivered to thousands of farmers and city folk. And it is exactly what the Sterling System will deliver to YOU!! Make us *prove* it! Just give us your name and address. Then see how quickly we put the unquesitonable facts before you.

Yes, Sir, we will promptly prove that the figures here given are correct—*absolutely*. We will show you the *actual letters* of Sterling customers who have already *made* these savings. We will also show you *why* these big savings are possible. Just send your name and address.

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Do we command *full cash in advance* like other house building companies? No! Our customers are given *two whole years to pay for their homes.* We not only save each customer *big money,* but we make it easy for the customer to pay our low price.

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We Have 5000 Letters Like These

In the past season we have received approximately 5,000 letters similar to those reproduced below. We do not give the post office address of the letters here shown, but will be pleased to supply this address if you will write us. Then you can write to any or all of these people.

Mrs. L. C. Wilson, of Pa.—"My carpenter says that a house like you sold me would cost me $700 more if put up by a contractor."

Mr. Samuel Way, of Ohio, says:—"Total cost is $1,080. Had I bought everything here, it would have cost me nearly $2,000."

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Mr. Thos. F. Martin—"The carpenters who put up my house say that no such lumber could be bought here at any price."

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Mr. W. E. Reisinger—"The carpenters and painters say they never before saw such lumber. I am very well pleased."

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Mr. J. W. Stephens—"You have saved me a good, big sum. Every time I can go out of my way to help you I am going to do it. You are the squarest people I ever dealt with."

Mr. Douglas Golden—"I have never seen better material and I have saved between $400 and $500."

Remember, the complete post office address of each of these writers can be had for the asking.

Sterling System of Home Building

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MORE MEAT ON LESS FEED
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Beautiful $10.00 Set of Dishes GIVEN FREE

To introduce MOTTS HOG MEAL, we will for the next few days give a handsome full dinner set described below absolutely free.

MOTTS HOG MEAL

is made from the highest grade tankage, middlings, vegetable meal, cocoanut oil cake meal, molasses and charcoal—an ideal balanced ration. Hogs thrive and fatten quickly on it. "It is the best hog meal in the world," said one farmer, "because it makes more meat on less feed, and the feed costs less and goes further."

Guaranteed Analysis: Protein 23 percent to 25 percent, fat 3 percent to 5 percent, fibre under 10 percent.

Price for immediate acceptance only: $32.00 per ton, $17 per half ton, delivered to your station in 100-lb. sacks—this includes the set of dishes FREE. Booklet, "How to Get More Meat on Less Feed," FREE with every order.

The price of raw materials is rapidly advancing. Our heavy supplies bought before the rise will soon be exhausted and we will shortly be compelled to advance our price to you on Motts Hog Meal. Order now before the advance.

Dishes

42-piece, full set for 6 persons, highest grade gold and white Am. Semi-Porcelain, fully guaranteed by makers of the famous Gold Medal dinnerware. *FREE with every order for 1 ton or more.*

31-piece set, same quality. *Free with every order for 1-2 ton.*

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Branford Farms-Berkshires

Headed by the following great boars:

Lee Premier's Rival
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Hopeful Lee's Successor

We are now making room for 1916 Spring litters, and offer over 100 head, including tried brood sows (open) and gilts ready to breed for Spring litters, service boars, including Hopeful Lee's Successor. Spring and Fall pigs at surprisingly low prices.

We will contract to breed a number of the sows to be sold, to Lee Premier's Rival and Branford Artful Rival the latter used in the A. J. Lovejoy herd.

Buy a son or daughter of Lee Premier's Rival, the greatest boar we ever owned, bred, raised and owned by Branford Farms. When writing, specify what you desire us to price you. Everything high-class. Satisfaction guaranteed. Visitors always welcome.

Branford Farms, Groton, Conn.

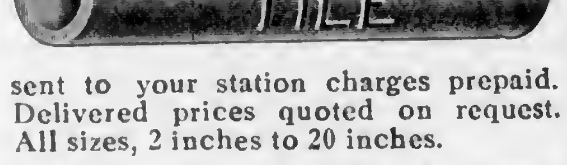
FATTER HOGS MORE MILK MORE EGGS ON LESS FEED

6 Sizes

Don't begin another winter without a "FARMERS' FAVORITE" Feed Cooker and Boiler

Saves enough to pay for itself every few weeks. Many uses every day, every season, indoors and out. Saves 4-5 any fuel. No brick foundation. 30 days free trial. Satisfaction guaranteed. Interesting, convincing circulars free.

Lewis Mfg. Co., 65-19 Owego St., Cortland, N. Y.



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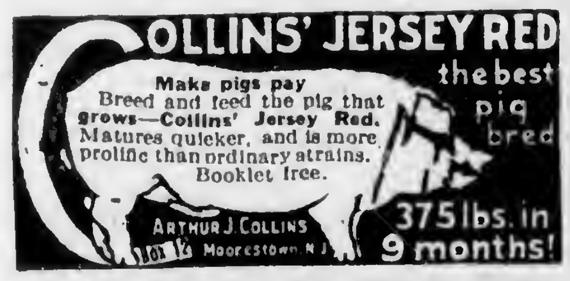

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the leaf fat while the carcass is warm in order that the meat may chill quicker. You cannot possibly cut the meat into neat, shapely pieces while it is still warm, so let the carcass hang for the night where it will cool thoroly, but not freeze.

Remove the head at the first joint, cut the ribs very close, and take out the back bone. The man who has had a little experience can do this entirely with a knife by cutting where the rib joins the back bone. If the cutting is done with an axe or cleaver, splinters of bone are likely to get into the sausage meat. In removing the spare ribs, keep the knife against the rib bone all the time so as to leave the surface of the bacon in better shape. Leave the cartilage ends of the ribs in the bacon.

Cut the hams thru the joint square with the carcass and leave them shapely and uniform. Remove all excess fat for lard, and expose plenty of lean meat to the action of the brine or dry mixture used in curing. Skin very fat hams after they have been closely trimmed, leaving the skin only around the shank. Cut off the foot at the hock joint. Take off the shoulder just back of the blade and trim it into a square, blocky piece. If you want much sausage make a small picnic shoulder of the lower half, and work up the upper half for sausage and lard.

The whole side may be cured, but it is better to take out the loins and use them fresh, fry them down in lard, or make sausage of them. Render the back fat into lard and trim the rest of the side for bacon. The cheeks or jowls may be cured as bacon or used for sausage or lard. If the weather is mild and the loins can be sold or used fresh, split the carcass while warm. After the half carcasses are well chilled cut off the hams, and separate the shoulder from the side by cutting thru between the third and fourth ribs. In cutting the neck bone including three ribs from the shoulder keep the knife close to the bone so as to leave a well-shaped shoulder. With the ham and shoulder removed, the side should be cut so as to separate the loin piece from the bacon. Saw thru the ribs two or three inches from the back bone; finish with the knife. Trim off the back fat from the loin which now is ready to be used for loin roast or for pork chops. Remove the spare rib from the lower part of the side which is to be trimmed up for bacon.—Press Bulletin.

CATTLE FEEDING EXPERIMENTS SHOW VALUE OF CORN SILAGE

The Pennsylvania Experiment Station at State College has conducted several experiments to determine the difference in cost of feeding cattle by the common Pennsylvania ration of mixed hay and corn stover as roughage, and chopped ear corn, or corn and cobmeal and bran, as concentrates; and a ration composed of corn silage, mixed hay and cottonseed-meal, supplemented by ear corn. In all experiments smaller gains were made by the lot of cattle fed the ordinary Pennsylvania ration.

In one experiment, which is typical, the average amount of air-dry matter required to make a pound of gain ranged from one to three pounds more per head for cattle fed the common ration than for those fed the ration adopted by the Station. The cost of producing 100 pounds of gain for the entire period of the experiment, in the case of the lot fed the Pennsylvania ration, was $2.87 greater per hundred, compared with the cheapest of the other lots, and $1.85 higher than the most expensive lot where silage formed a part of the ration. The daily cost of feed per head for the entire experimental period ranged from 22.04 cents with the common ration to 16.92 cents for the adopted ration.

The experiment emphasizes a decided advantage in using corn silage for at least a portion of the roughage in fattening cattle, if they are to be fed economically. Results also show the advantage of feeding a large amount of roughage during the early part of the feeding period, especially with the prevailing high prices of grain feeds.

BREEDING EWES REQUIRE JUDICIOUS WINTER FEEDING

Breeding ewes when taken from pasture should be placed in quarters having good ventilation and clean, dry footing. It is at this period that the ewe should be fed a ration which will strengthen her vitality and enable her to overcome the drain attendant upon nursing the lamb during the previous year, and to meet the needs of the developing foetus.

A satisfactory ration for breeding ewes in use at the Pennsylvania State College is composed of clover or alfalfa hay in sufficient quantity to meet the appetite of the ewe, and corn silage or roots at the rate of two pounds per head daily. More than two pounds of either the two latter feeds is liable to provide too much succulence, which would prevent the consumption of enough roughage to meet the body and foetal requirements, when roughage is the sole ration.

If clover or similar hay is not available a grain ration of one-fourth to one-half pound per head daily should be fed, in addition to some good timothy hay. A mixture of equal parts of corn, oats and bran gives a satisfactory grain ration.

The lamb crop is the important item to keep in mind in sheep raising. Only by judicious feeding will the quality of the lambs be improved, the life of the ewes prolonged and greater profits assured.

DRY-CURING PORK

Rub each piece of meat with fine clean salt and allow it to stand from 6 to 24 hours in a pile on a bench or a table so the bloody serum can drain out.

Rub each piece of meat thoroly with a dry-curing mixture, made as follows: Dry-Curing Mixture for 1,000 pounds of meat—Fine clean salt, 40 pounds; white or brown sugar, 10 pounds; white or black pepper, 4 pounds; red pepper, half pound. Mix thoroly. Take care to see that the mixture penetrates the muscles around the ends of the bones of the hams and shoulders. Pile the meat carefully with the skin down, in a cool, airy place, but avoid damp, musty cellars. Do not make the pile more than three feet deep, or let the meat stay more than three days without another application of the mixture, but after the second application no other need be applied for five or six days more.

A 14-pound ham should be allowed to cure for three weeks, or a day and a half for each pound of its weight. After this treatment, it should be thoroly cured. Only two-thirds as much time need be allowed for giving a mild cure to meat to be used during the spring. Wash each piece with warm water and remove any extra curing mixture. Wipe it dry and hang up for smoking. When all the meat is ready, smoke with hickory, oak, apple, or in fact any wood except that of the pine family. About 25 smudges make a good mild smoke, but the taste of the user should determine this. Country-cured meat may mould in damp weather without any injury, but it must be carefully wrapped or sacked to keep out the skippers. —Mo. Press Bulletin.

Grange

PENNSYLVANIA STATE GRANGE MEETING

The 43rd annual convention of the Pennsylvania State Grange was held at State College, Pa., December 21 to 23. Being the "off year," with no officers to elect, the session was largely routine, interspersed with sight seeing and visiting. The routine work, calling out reports of committees and regular officers, brought up all of the active work of the state organization and outlined a strong platform for next year's work. A visitor can not fail to be impressed with the broad field of endeavor of the state body, and the opportunities for constructive work open to the subordinate bodies. There is inspiration for all members in these state gatherings, but it would seem that all might profit by making the state meetings more representative of the full membership. Lack of time makes it necessary to handle most of the work thru committees or committee chairmen, but it would seem that these committee reports could be drawn more largely from the deliberations of the subordinate bodies. The strength of the order lies in its democracy, and all members should have a voice in outlining and carrying on the work of the state organization.

There were about 1,500 members present thruout the sessions. The meetings were comfortably housed in the College Auditorium, while delegates were cared for in the comfortable fraternity houses on the campus. The delegates found much to entertain and instruct them about the various buildings and activities of the School of Agriculture and some sessions of the convention suffered accordingly in attendance. The delegates also missed a general headquarters where there is opportunity for pleasant and profitable visiting and getting acquainted between sessions. In all other respects the College proved an admirable host and an ideal meeting place.

State Master's Report

The meeting marked the first appearance of the new State Master, John A. McSparran, in the chair so long held by the beloved Farmer Creasy. Master McSparran's report was accepted as a clear-cut review of the past year and an outline of the work for the new year. It covered the entire field of grange activities. It commended the work of State College, but expressed the conviction that all agricultural schools could come into a broader field of usefulness by training their students in the problems of the body politic and give attention to the ills of society as well as to the ills of farm stock and the soil. The Master reported 65,000 members in the state in 835 subordinate granges, with Pomonas covering nearly the entire state. As an aid in organization work, he suggested giving the secretaries of Pomonas a stipulated sum to tabulate the information that is sent in by the several granges quarterly and ascertain by mail the condition of those that fail to report. He suggested further that in place of the deputy system now maintained, there be kept a list of patrons by districts that can be called upon for work as needed.

Co-operation.—The Master's report on co-operation showed a total of $45,000,000 in risks in the Grange Fire Insurance Company. The report commended the Farmers' and Traders' Life Insurance Company of Syracuse, N. Y., a company manned by grangers and loaning premium money on farm mortgages. He recommended this policy as a partial solution of the farm credits need. The Keystone Exchange was reported as making favorable progress in spite of unfavorable business conditions the past year. Subordinate granges were urged to make a study of contracts offered, and make use of such as are found favorable.

Legislation.—The Master found reason for congratulation in the fact that there would be no session of the state legislature this year. The last session was reviewed as to its work on taxation, road legislation, local option, school appropriations, workmen's compensation and child labor; in none of which rural interests received much or favorable consideration. The report favored a rural credit system, but advocated seeking it thru an amendment of our banking laws to permit real estate to become the basis of bank loans. It condemned the preparedness propaganda, advocated more liberal state support to our common schools, condemned the recent revision of rural mail routes and the granting of higher freight rates by the Inter-state Commerce Commission so long as railroad property is not assessed regularly by public officers the same as other property. The report closed by proposing the following slogan for the new year: "No dormant granges, few weak granges, many new granges; and a fuller manhood and womanhood, a more sovereign citizenship and a bigger life."

Degree Work

Large classes were initiated into the fifth and sixth degrees. These classes were fortunate in having with them State Master Gardener, of Massachusetts, who not only assisted in the degree work but gave a full discussion of the new code and the secret work of all degrees. Mr. Gardener made many friends for himself among Pennsylvania grangers.

Reports and Resolutions. — Resolutions were adopted favoring shortening of rural mail routes, condemning extensive and expensive preparedness plans, administration of state highway department in neglecting country earth roads, favoring a permanent annual income plan for State College, favoring a government owned merchant marine and clearing of technicalities to permit practical manufacture of denatured alcohol. The body renewed its platform for fairer tax laws, revision of road laws, budget appropriations to charitable institutions, iniative, referendum and recall, and for an anti-treating law.

Among the Granges

Butler County Notes.—Butler County Pa., Pomona Grange No. 17 P. of H. held its regular meeting in the Court House at Butler, Pa., Friday, December 3. The attendance at this meeting was not very large. The principal business transacted was the election of officers for the next two years which resulted as follows:

Master—Hon. W. H. Grabe, Jefferson; overseer, Edmund Ramsey, Cranberry; lecturer, Frank A. McClung, Eureka; secretary, Frank Clark, Prospect; steward, H. C. Pryor, West Sunbury; assistant steward, Roy Humphrey, Worth; treasurer, W. J. Stoner, West Sunbury; treasurer, W. R. Moore, Worth; gatekeeper, H. J. Dunwoody, Mercer; ceres, Mrs. Ray Walters, Jefferson; pomona, Anna Raisley, Eureka; flora, Idena Graham, Eureka; lady assistant steward, Nellie Ash, Jackson.

During the lecturer's hour the principal address was made by Prof. W. H. Darst, of State College, on Alfalfa and Soy Beans on the Farm.

In connection with Pomona Grange an agricultural meeting was held at Saxonburg during the afternoon and evening which created much interest and was well attended. This meeting was in charge of County Agriculturist, H. S. Adams. Able addresses were made by W. H. Darst, of State College and O. H. Benson, of the U. S. Department of Agriculture, Washington, D. C.

Saturday, December 4, was taken up with the closing work of the Boys' Corn Clubs and the Girls' Bread Baking Contest.

The morning program was in charge of Frank A. McClung, County Superintendent of Schools. Hundreds of grange members and farmers interested in the local farm bureau work attended.

The music was furnished by the West Sunbury orchestra. Prof. Benson spoke on "Teaching Thrift by Means of Home Canning." Prof. Darst talked on "Selection of Seed Corn." At the noon hour every one was given an opportunity to inspect the displays of corn and bread which were exhibited in the hallway in the Court House where the meetings were held.

The corn was judged by Prof. Darst and the following were the successful contestants:

Louis Fox, Winfield township, 15 tons burnt lime; Chas. Wachsmuth, Butler township, 10 tons burnt lime; Howard Fox, Winfield township, Purebred Berkshire Hog; Clinton Puff, Jefferson township, set carpenter tools; Robt. Young, West Sunbury, Pen Purebred Poultry; Glenn Robb, Oakland township, pair of shoes; Curtis Wachsmuth, Butler township, pair of shoes; Clifford Hays, Clinton township, book on agriculture; Clarence Ritzert, Donegal township, American Boy magazine; George Barnhart, Franklin township, American Boy magazine; Clarence Brown, Mercer township, Special prize; Chas. Miller, Worth township, Special prize.

The bread was judged by a committee consisting of Miss Gertrude Seibert, teacher of domestic science in the Butler High School, Miss Margaret Wilson, teacher of domestic science in West Sunbury Vocational High School and Mrs. A. M. Douthett of Butler. The winners in the bread contest were as follows:

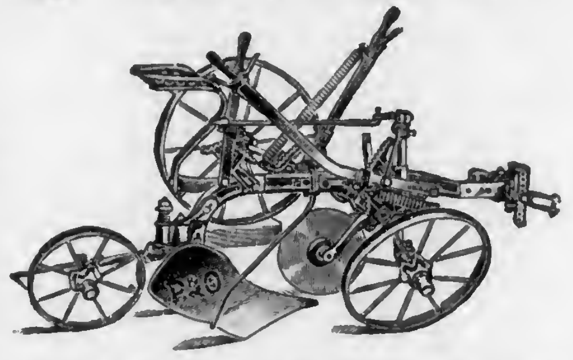
Kathleen Christy, Washington township, free trip to State College; Mary Spence, Evans City, $10 in gold; Grace Mattern, Mars, $5 hat; Dorothy Stauffer, Harmony, $3 worth of merchandise; Eleanor Grossman, Oakland township, umbrella; Helen Reiter, Mars, pair of shoes; Anna Steuben, Saxonburg, $2 book; Mabel Kneiss, Whitestown, magazine; Clara Kennedy, Mars, magazine; Ethel Welsh, Jefferson Center, magazine.

The afternoon session was a very interesting one, H. S. Adams, County Agriculturist presided. The program included talks by Prof. Darst on Corn Judging, by Prof. Benson on "Educating the Boys and Girls for Life", followed by Essays "On How I did It" by the first and second prize winners in each class and the distribution of the prizes by Prof. McClung. Everybody was well pleased with the results of the year's work and seemed to grasp the inspiration for renewed effort to greater accomplishments next year. — F. E. P.

Susquehanna Co., Pa. — Highland Grange No. 339, met Saturday P. M. December 11, and elected officers for the year 1916. It might be of interest to the lecturers of other granges to know of some of the methods practiced by the lecturer, Mrs. E. A. Blaidell, to keep up interest and increase the attendance in this grange during the summer and fall months.

One meeting we had a picture gallery, everybody brought their baby picture and they were numbered and the one knowing the larger number won the prize.

Another meeting there was a large number of articles placed on a table



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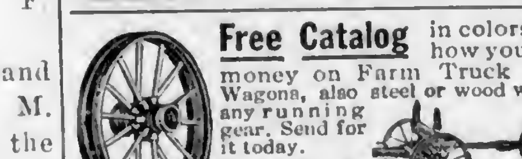

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and the members passed by in single file and looked over the articles. The person writing down the largest number of articles he or she remembered seeing won the prize. This was called an observation contest.

We also had a guessing contest. A large bottle was filled with beans and the one guessing nearest the correct number in the bottle received the prize.

A museum is also interesting. Everybody brings some article that was in use 50 or 75 years ago. If a grange has something interesting each meeting it will increase the attendance wonderfully.—Clayton C. Benson.

GOOD ROADS

Good roads are one of the evidences of civilization. The better roads, the higher we find human conditions.

I am much interested in the proposed great highway which will connect Pittsburgh and Erie—the two largest cities of Western Pennsylvania—including all the other county seats and prominent towns situated between the two, embracing a population of more than a million.

This road should be a model, and should cost to the average mile not less than twenty thousand dollars. This great industrial artery will be the means of doubling the volume of business in one-half the time and at one-third the cost, because it would no longer pay a heavy "mud tax", which has crippled our fathers for more than a century. Let me insist that it shall cost the amount above stated, which can be paid as easily today as could the cost of corduroy and turnpike one hundred years ago.

We are not to use this road during the war only, but for all the golden years of a peace which will surely come; not for a million of active people today, but for two or three millions of our children and children's children in the centuries to come. It will be relatively cheap in comparison with an up-to-date dreadnaught which some think is necessary to prepare us for Gen. Sherman's definition of war. The cost of this machine would build nine hundred miles like the above—no shoddy but good goods and seven yards wide.

The enhanced value of land contiguous to this main trunk line would pay its cost and leave a credit of several millions besides. Within fifty years the lateral branches that would seek connection with the main line would equal one-half the length of it—and this is not an overdrawn picture.—John D. Gage, Crawford Co., Pa.

A WELL CONDUCTED CANNERY

The inclosed photograph shows a cannery erected at Atlanta, Steuben County, N. Y., in 1913. It has therefore been in operation two seasons. The following figures show the work done in 1915. Beginning with spinach, 3,500 cases were put up, each case containing 24 cans. Next came peas, with 70,000 cases. This is the main product. One would be surprised to see the loads of peas almost tumble over one another in their effort to reach the cannery yards first. There are places for four loads to dump at one time, but it required a yard manager to avoid trouble among the patrons. Beans came next with 10,000 cases, then corn with the same number. Ears were broken off and drawn in to be husked. It was purchased of the farmers at $10 per ton. Apples followed with 4,000 cases. These were not purchased in the locality but brought in by rail. Exclusive of apples, there was paid to the farmers about $40,000, and for labor, about $20,000, thus dividing $60,000 among the producers and laborers. Corn stover, (except husks) was left in farmers' hands, and they tell me the cows eat it far better than ordinary corn fodder. Pea silage can be obtained by patrons at $1.00 per ton, and it is counted an excellent feed. Clarke M. Drake.

A SUCCESSFUL NEW YORK CANNERY.

TIOGA COUNTY FARM BUREAU

The Tioga County Farm Bureau was launched with a monster meeting of over 1200 people who filled every available space in the large opera house in Wellsboro, Pa., on December 17. At the opening of the meeting there was a signed-up membership of 560 farmers.

Representatives were present from all parts of the county. The membership committee had worked hard to secure the co-operation of the leading men thruout the county who were interested in agriculture. Representative George Williams, in a few well chosen remarks, opened the meeting and introduced Gov. Martin G. Brumbaugh, who outlined a number of reforms that had been instituted or were in view for the benefit of the farming interests. He stated that movements of the nature of the Farm Bureau met his hearty approval. See that the farmer prospers and the entire state enjoy prosperity.

Prof. McDowell, of State College, outlined the history of the Farm Bureau, its object and the results that had been attended by some of the Farm Bureaus in successful operation in this state.

C. E. Bennett, who had been one of the foremost in the movement was then called to take charge of the meeting. The next order of business was the election of a board of directors. Seventeen were chosen by nomination and election from different parts of the county and from their members the following officers were elected:

President, B. S. Havens, Westfield township; vice-president, E. L. McMurty, Covington township; Secretary, John K. Campbell, Delmar townsship; treasurer, C. E. Bennett, Wellsboro.

The meeting was then adjourned subject to the call of the president.

Governor Brumbaugh held a reception after the meeting and shook hands with several hundred of Tioga County's citizens.

Among other notables present were State Treasurer R. K. Young, State Senator Kriss, Representative Frank Marvine, Judge David Cameron, Judge-elect S. F. Channell, Hon. Frank Rockwell, State Cashier Thos. Creigton, Division Supt. McCormack of the N. Y. C. & H. R. R. R., Commissioners Putnam and Cleveland.

The Tioga County Farm Bureau started under the most favorable conditions and its success is assured.—J. K. C.

RIGHT TO USE THE EARTH

Editors of Pennsylvania Farmer:

Your reprint of Dean Galloway's address before the New State College is very interesting, because he so well expresses the fear of many thinking people—regarding the danger of our creating a "peasant" agricultural class.

To our discredit it may be said, that we have been creating such a class. It has already become profitable and it will become more and more profitable—as population increases—to hold more and more land out of use altogether, or to charge higher premiums for permission to use it. To my mind no better way to creaste a peasant class can be found.

Think of it! With only 100,000,000 population—about 40 people to a square mile—with hundreds of millions of acres untouched by the hand of labor—we are in danger of "overcrowding." The land speculator has done his work so well, that from many quarters comes the cry for restriction of immigration and birth control. Does this not prove that there is something wrong somewhere?

The passage of the Smith-Lever extension act, in so far as its financial, educational and co-operative features are concerned, will not solve the problem, but will rather go a long way toward making a bad situation very much worse. Let us assume that the American farmers are not scientific and that they are wasteful, unintelligent and totally ignorant of the blessings of co-operation. If the holders of unused and rent paying lands were wise they would stand the entire expense of doing all the Smith-Lever act contemplates, and they would find it one of the most profitable investments of the century. What a purchase price or increased rent they could demand when the aforesaid irgnorant, wasteful, individualistic, fifteen-bushel-to-the-acre farmers are changed into intelligent, saving, forty-bushel-to-the-acre farmers who know all about the advantages of co-operation. With such a change in conditions would not the speculator in land hasten to increase his holdings? It seems to me he would, because, even if our present population would remain stationary, the changed conditions would bring him added profits, but who can estimate the profits that will come to him when population doubles or trebles?

If it is moral and just for the land speculator to reap the lion's share of the rewards or dividends which come from increase of population of public expenditure or of public intelligence, then I can see no remedy in sight. We cannot help but drift out to the rocks of starvation and anarchy, or follow in the wake of the republics of history into a deserved oblivion.

If it is not moral and just, however, then the Smith-Lever act or any other surface-skimming act will not help, for it will require our getting the aid of fundamental principle to work out a solution. We will have to end the career of a system which compels labor and capital to pay a tribute to idleness before they are permitted to work on the only element on which they can work, and we must see that private individuals are not permitted to collect and retain the land values which are the rightful property of the collective body. "The School and Farm of the Future" must take up this new course of study. We must establish chairs of Justice in all our Universities and Colleges, and those chairs must rest on the fundamental principle of the right of all men to the use of the earth. Any other foundation will not suffice.—Oliver McKnight, Phila. Co., Pa.

TEACHERS OF AGRICULTURE

The demand for properly trained men to teach agriculture in secondary schools is greater than the supply and, from present indications, will continue to increase for some time. Hitherto, comparatively few men have studied agriculture with the deliberate intention of teaching it as a life work. In consequence, while provision for agricultural education has been greatly developed, the number of teachers is still small.

This subject is discussed in the Agricultural Education Monthly, published by the department. It points out that a good teacher of agriculture must, of course, have all the fundamental qualifications. He must know his special subject and must also be versed in the science of education and the art of teaching. Those already qualified to teach general subjects in secondary schools who wish to teach agriculture should, if possible, take at least a course extending over several years in the State agricultural colleges. Those who can not leave their positions can with very little trouble or expense take courses during the summer vacation or short courses during the winter.

A great deal of practical agriculture may also be learned by attending institutes and other farmers' meetings. If no such meetings are held in the teacher's district, he can assist in organizing them. Tho their primary purpose may be to aid the farmer, a receptive man can not fail to learn much from the speakers that are invited to attend. In some states special sessions for teachers of agriculture are held in connection with state or county associations of teachers. Such meetings offer an oportunity for exchange of ideas and for keeping in touch with new methods.

While there are thus many ways in which the ambition teacher of agriculture may become both a better instructor and a more thoro master of agriculture, practical experience remains an essential to real success. Men who find themselves weak in this side of their work should take advantage of every opportunity to remedy the deficiency. Summer vacations can be spent in practical work on the farm. If the teacher does not own or can not rent land of his own, he may obtain invaluable experience by working under some good manager.—O. N. L.

Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., Jan. 4, 1916.

The local produce market holds up well in activity of seasonable commodities. Holiday buying was exceptionally good and gave firmness to the market in practically all departments.

Live poultry is firm with demand fair on all grades. There is little fancy stock being offered, and what comes to market is readily taken at full quoted prices. Lower grade stock is in limited demand but receipts are also limited and the market steady to firm. Good fowls are quoted from 14 to 16 cents per pound, depending on size and quality. Exceptional stock is higher. Roasters move at 11@12c; spring chickens, 14@16c according to quality. Live turkeys are firm at 20@22 cents, with exceptional lots going still higher. Ducks are quoted at 15 to 17 cents with large sizes preferred. Geese move at 15 and 17 cents; guineas from 50c to $1 per pair, depending on weight and quality. Live pigeons are quoted at from 18 to 25 cents per pair.

The dressed poultry market is firm and shows good activity. Fine fat turkeys are in small supply and firm, altho the demand is naturally less active than one and two weeks ago. Fowls and chickens of desirable size and quality rule steady under like offerings, but trade is rather quiet. Ducks and geese are firm at quoted prices. Fine large dressed squabs are in good demand and firm. Near-by good, dry-packed turkeys are quoted at 23 and 25 cents per pound; exceptional lots which are not plentiful sell higher. Good to choice turkeys are marked at 23 and 25 cents; fair, 20@22 cents; old toms, 21 cents. Fancy selected fowls are firm at 18 cents; those weighing from 3 to 5 pounds each are marked at 14 to 17½ cents. Fancy broilers are steady at 24 to 26 cents, with a second grade moving at 22 to 24 cents. Nearby young ducks move quite readily at 18 to 20 cents; geese, near-by, 16@18c; squabs, $2.50 to $5.40 per dozen.

White potatoes, of desirable quality rule firm and higher under moderate offerings and a fairly active demand. Sweets are steadily held, but quiet. Onions of fine quality are well cleaned up at the recent advance. There was a fair inquiry for fancy cabbage and the market ruled firm and higher on this description, but much of the supply was of unattractive stock, which was little wanted and somewhat irregular in value. There was a fair movement in other vegetables, but prices showed little change. Choice white potatoes bring from $1 to $1.10, with a fair to good grade moving at 90 and 95 cents. Jersey stock by the basket is quoted at 55 to 60 cents for No. 1 varieties, and 30 to 40 cents for No. 2 grades. Jersey sweets by the basket are quoted at 40 to 50 cents. Good No. 1 onions move easily at $1.85@2 per 100-pound bag with a No. 2 grade at 75 cents to $1. Danish cabbage is not active but moves in small quantities at $8 to 10 per ton. New York celery moves at from 15 to 40 cents per bunch, depending upon quality.

Early vegetables from the South are active and prices are holding steady. Spinach from the Norfolk section sells at $1 to $1.25 per barrel; kale, 60@75c per barrel; Florida beans, $1.50@3 basket; eggplants, $2.25@2.75 crate.

Apples of fine quality sold fairly at outside rates, but ordinary stock was little wanted and irregular in value. There was a fair movement in other fruits and values generslly were well sustained. Jonathan, fancy, sold at $3.25@3.50; do., fair to good at $2.50@3; McIntosh at $3@3.50; Winesap, at $2.50@3.25; Baldwin at $2.50@3.25; Black Twig at $2.50@3.25; Grimes' Golden at $2.50@3; Greening at $2.50@3; York Imperial at $2@3; Twenty Ounce, at $2@3; Pippin at $2@3; Ben Davis at $1.75@2.50; other varieties at $1.50@2.50; No. 2 at $1@1.25; apples in bulk per 100 lbs. at 50c@$1.50; Cranberries, Cape Cod, $2.50@3 per crate; do., Jersey, $2.25@2.75 per crate.

Eggs.—Buyers were indifferent, and, with somewhat more liberal arrivals, prices of fresh stock declined 30c per case. Storage eggs were well cleaned up and values ruled steady on fine marks. Nearby extras in free cases are quoted at 38c per dozen; nearby firsts at $10.50 per standard case; nearby current receipts at $9.90 per standard case; refrigerator eggs, fancy, at $7.80 per case; do. firsts at $7.50 per case; do. seconds at $6.30@6.60 per case; inferior lots lower. Fancy selected, candled fresh eggs were jobbed out at 40@42c per dozen.

NEW YORK PRODUCE

New York City, Jan. 3, 1916.

Business starts in a little slowly after the holidays, altho it is firm and prospects are for steady business. Butter prices remain about as last week and cheese prices are firm. Egg receipts are moderate but there has been considerable delay in shipments. The demand is fair. There is a very light movement in poultry as is natural after the holidays. Very light demand for chickens and fowls. The potato market continues very strong altho trade is rather slow. Apples in heavy supply but trade steady.

Butter. — Creamery extra, (92 score) per pound, 33½c; higher score, 34@34½c; thirds to firsts, 24@33c; state dairy, 27@32c; packing stock, 17@19c.

Cheese. — Whole milk specials, 17¼@17¾c; Daisies, 17¾c; skims, fresh choice, 15c.

Eggs. — Fresh gathered, extra, 35@36c; firsts, 34@34½c; thirds, 27c; dirties, 18@23c; nearby whites, fine to fancy, 45@48c dozen; ordinary to good, 35@44c; browns, 38@40c.

Dressed Poultry. — Chickens, 28@30c; fancy roasters, 25c. Capons, 25@30c. Fowls, 16@18c. Old roosters, 12½c; squabs, $2.25@4.75 dozen. Spring ducks, per lb. 17@18c. Turkeys, dry picked, 22@25c. Rabbits, cottontails, prime, 20@35c per pair.

Apples.—These prices show the range from "B" to "A". Jonathan, bbl., $2@4.25; York Imperial, bbl., $1.75@3.25; Winesap, bbl., $2.25@4.25. Twenty Ounce, bbl., $1.50@2.50; Greening, bbl., $2@3.50; King, bbl., $1.75@3.25; Northern Spy, $1.75@4; Baldwin, bbl., $1.75@3.25; Hubbardson, bbl., $1.75@3; Ben Davis and Gano, bbl., $1.75@2.50; Common, bbl., $1.50@3.

Vegetables.—Beets, per bbl., $1; Carrots, bbl., $1@1.25. Cabbage, near-by, per ton, $5@7. Danish, $7@10. Cauliflower, bbl., $1@5.50. Celery, choice, crate, $3@4. Turnips, bbl; $1. Onions, white, $2@4.50 basket; do., yellows, $1@2.25 bag. Squash, Hubbard and Marrow, $1.50@2.25 barrel. Potatoes, Jersey, $2.50@2.75 bag. Long Island, $3.25@3.50 bag. Sweets, $2@2.50 barrel.

Country Dressed Veal:

Choice in skin, per lb.		@14½
Prime, in skin, per lb.	13½	@14
Fair to good, in skin, per lb.	12½	@13
Coarse, heavy, in skin, per lb.	12½	@13
Common, in skin, per lb.	11½	@12
Buttermilks, in skin, per lb.	10	@11
Grassers, in skin, per lb.	9	@10

YORK PRODUCE MARKET

York, Pa., Jan. 3, 1916.

The holiday spirit prevailed in the markets with light buying except in novelties. Friday, however, was an exception and a large throng of people was pushing and shoving, each trying to be first to get his favorite article. We have never seen so many dressed chickens on the stalls at the close of the Christmas market. This week it was the other way. Buyers were asking continually for poultry, but none was to be had.

Eggs.—36@40c per dozen.

Butter.—Country, 32@35c lb; separator, 35@36c lb. Milk, 6@7c quart.

Poultry.—Hens, 12@14c lb; dressed, 45@85c each. Turkeys, 22@25c lb.

Vegetables.—Potatoes, 8@10c ½-pk; 65@75 per bu. Cabbage, 3@6c each. Lettuce, 5@10c per head. Beets, 3@5c bunch. Radishes, 5@8c bunch. Onions, 4@5c bunch; 10@12c ½-pk. Lima beans, 25c quart. Soup beans, 12@15c quart. Lard, 13@15c lb. Cucumbers, 3@5c each. Turnips, 10@12c ½-pk. Spinach, 10c ½-pk. Sauer kraut, 8@10c quart.

Fruit.—Apples, 15@30c ½-pk; 60c to $1.50 per bushel. Pears, 12@15c ½-pk. Grapes, 8@12c a basket.

Wholesale Grain Market.—Wheat, $1.28; corn, 90c; oats, 55c; rye, 90c; bran, $1.40 per owt.; middlings, $1.65 per cwt.

Wholesale Grain Market.—Wheat, $1.18; corn, 73c; oats, 44c; rye, 86c; bran, $26 per ton; middlings, $28@31 ton.

BALTIMORE PRODUCE

Baltimore, Md., Jan 3, 1916.

Butter. — Creamery fancy, 36@36½c; choice, 34@35c; Maryland and Pennsylvania rolls, 20c; dairy prints, 19@20c.

Eggs. — Nearby firsts, 32c dozen; Westerns, 33c; Southerns, 31c.

Live Poultry.—Prices, per pound: Chickens, large, 16c; small, 13c; old hens, 16@17c; do., light, 13c; old roosters, 10@11c; ducks, spring, 16@17c; White Pekins young, 16@17c. Pigeons, per pair, 15@20c. Guinea fowls, each, 45@50c; turkeys, young, 25@26c; do., old 22c. Dressed turkeys, 26@27c; chickens, 17@18c.

Vegetables and Green Fruit. — Potatoes, Pennsylvania per bu. 90c@$1; near-by, 80@85c bushel. Sweets, $2@2.25. Apples, per barrel, $1@1.50. Pennsylvania, $1.75@2.50. New York, $2@3.50. Cabbage, per ton, $6@7; Danish, $8@10. Celery, per bunch, 40@75c. Onions, 65@75c bushel. Turnips, per bu., 20@25c.

Wheat. — Native, $1@1.25; No. 2 red western, $1.26.

Corn.—Prime yellow, 75c; Ear corn, $3.45 barrel.

Oats.—No. 3 white, (new) 48c.

Rye.—No. 2 rye, $1.02. No. 3 97@98c; bag lots, 90@98c as to quality and condition.

Mill Feed.—Prices per ton in 100-lb. sacks.—Spring bran, $24@24.50; white middlings, $29@30; winter bran, $24.50@25.

Hay.—No. 1 timothy, $20.50; do., No. 2 $18@18.50; No. 3, $15@17; light clover mixed, $18@18.50. Choice clover, $17@17.50. No. 1 $15@17. Sample hay, $10@13.

Straw.—No. 1 straight rye, $13; No. 2 $12; No. 1 tangled rye, $11@11.50. No. 1 wheat straw, $8@8.50; do., No. 2 $7@7.50; No. 1 oat straw, $10@10.50; No. 2 do., $9@9.50.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., Jan. 3, 1916.

Receipts for the week ending Friday evening, December 31:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	2,482	7,252	7,229
Previous week	2,365	5,792	6,690

Calves. — Total receipts of calves for this week were 1,137 against 673 last week.

Beef Cattle.—Current shipments included Southern, nearby Ohio and Illinois brands of cattle in moderate numbers, but more than equal to average requirements, inasmuch as the market moved slowly on all lines, with an indifferent feeling prevailing. Calves showed a slight increase in arrivals, and with bulls and cows, while commanding former rates, were not much inquired after. All of the stockyards were closed during the New Year's holiday and none but the most urgent orders were looked after.

Best steers	$8.60@8.75
Choice	8.40@8.50
Good	8.00@8.30
Medium	7.25@7.50
Common	6.75@7.00
Bulls	4.60@6.15
Fat cows	5.15@6.65
Thin cows	2.75@3.00

Veal Calves.

Exceptional lots	$11.00@11.50
Good to choice	10.00@10.50
Medium	8.50@ 9.00
Common	6.00@ 7.00
Southerns and barnyards	4.00@ 5.00

Sheep and Lambs.—Sheep were steadily held, the finest heavy ewes a fraction firmer, and the most desirable lambs moved a shade upward. Trade was seasonable.

Wethers, extra	$6.75@7.00
Choice	6.00@6.50
Medium	5.25@5.50
Common	3.00@4.20
Ewes, heavy, fat	5.50@6.00
Lambs, extras	10.50@10.75
Good to choice	10.00@10.25
Medium	9.00@ 9.50
Common	6.50@ 7.25

Hogs.—The market closed under a fractional rise in prices, in touch with the outside situation, ruling strong. Quotations for Western, as to size and quality, were $10@10.25.

City Dressed Stock. — Meats that were choice and prime were firmly held, with inquiry moderately normal.

Steers	10	@14
Heifers	9	@13
Cows	8	@11
Veal calves	14½	@15½
Southerns and barnyards	9½	@12½
Country dressed	14½	@15½
Sheep	9½	@10½
Lambs	14½	@15½
Hogs	10¼	@10

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., Jan. 3, 1916.

Cattle.—The supply on sale Monday was 55 loads compared with 70 loads the week before. The market ruled active with prices higher on all grades of fat cattle with quality, while the plain and coarse cattle sold only steady. Heifers in fair supply and sold steady on all grades except the plain light grades. Cows higher on all grades from bologna to choice. Bulls sold steady on all grades. Best fresh cows steady; medium and springer grades slow. The cattle supply today totaled 90 loads; market slow on heavy cattle but active and stronger on the light handy grades.

Good to choice	$8.50@8.80
Good, 1300 to 1400 lb.	8.00@8.25
Medium to good, 1200 to 1300 lb.	7.40@8.10
Tidy, 1050 to 1150 lb.	7.40@8.00
Fair to medium, 1000 to 1150 lb.	6.50@7.00
Fair, 900 to 1000 lb.	6.00@6.50
Common, 700 to 900 lb.	4.75@5.50
Rough, half-fat, 1000 to 1300 lb.	6.00@7.00
Common to good fat oxen	4.00@6.25
Common to good fat cows	4.50@6.00
Common to good fat bulls	4.75@6.75
Heifers, 700 to 1100 lb.	4.75@7.50
Bologna cows	3.50@4.35
Fresh cows and springers	$40@85

Calves.—Receipts of veals fair and market closed 75c per cwt. above Monday's prices. There were 350 head of calves on the market today.

Veal calves	$9.00@11.75
Heavy and thin calves	4.50@ 8.00

Hogs.—The supply on sale during the week has been light and with a good demand the market has ruled active and higher, the close for the week being 50 to 60c per cwt above Mondsy's prices. There were 90 double-deck loads of hogs received today; market lower on all grades.

Prime heavy	$7.20@
Heavy mixed	7.20@
Prime medium weights	7.20@
Best heavy Yorkers	7.20@
Light Yorkers	7.10@
Good pigs	6.80@7.00
Common to good roughs	5.90@6.25
Stags	5.00@5.25

Sheep and Lambs.—The supply of sheep and lambs has been fair and the market ruled steady on best grades of sheep, while choice handy weight lambs solds a little lower than Monday's prices, heavy lambs selling $1 per cwt. below tidy weight lambs. Sheep and lamb receipts totaled 15 double-deck loads; demand good and market active and higher on lambs; strong on sheep.

Prime wethers	$6.80@7.00
Good mixed	6.50@6.75
Fair mixed ewes and wethers	5.50@6.25
Culls and common	3.00@4.75
Spring lambs	7.00@10.50

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., Jan. 3, 1916.

Hay and Straw.—Receipts of hay and straw are only moderate. There is a fair demand for desirable grades of hay and the market rules steady. Straw sells slowly at steady quotations. Loose prime timothy sells at $1.10 to $1.20 per hundred pounds. The feed market rules steady under moderate offerings and a fair demand. Wheat shows daily fluctuations following the speculative demand. Prices were up several cents at times during the week, but at the close quotations were back to last week's figures. Demand is fair from both millers and exporters. Corn supplies are small and the market rules firm even with light trading. Oats are up about one cent per bushel over last week. Offerings are light and a steady demand keeps the market firm.

Hay.—No. 1 timothy, $20.50@21; No. 2 do., $19@19.50. No grade, $10@15. Clover, light mixed, $18.50@19. No. 1 do., $18@18.50; No. 2 $15@16.

Loose Hay and Straw.—Prime timothy, $1.10@1.20 per cwt.; mixed, $1.05@1.15 cwt; straw, 70@80c cwt.

Straw.—No. 1 straight rye, $13.50@14; No. 2 do., $12.50@13. No. 1 wheat straw, $9.50@10. No. 2 do., $8.50@9. No. 1 oats straw, $9.50@10; No. 2 do., $8.50@9.

Feed.—Car lots, in 100-lb. sacks; winter bran, $24.50@25. Spring bran, $23.50@24.

Wheat.—In round lots, No. 2 red, $1.22@1.24. No. 3 red, $1.22@1.24. Rejected A, $1.19½@1.21½. Rejected B, $1.18@1.20.

Corn.—No. 2 yellow, 81½@82½c; steamer yellow, 80½@81½c; No. 3 yellow, 79½@80½c. New ear corn, 71@72c per 70 pounds.

Oats.—No. 2 white, 50@50½c bu.; No. 3 do., 47½@48c; sample, 44@45c; standard white, 49@49½c.

Flour.—Car lots, winter clear, $5.25@5.50; patent, $6.00@6.30. Favorite brands, $6.50@6.80. City mills, choice, $6.50@6.80. Rye flour, $5.25@5.50 as to quality.

NEW YORK HAY AND GRAIN

New York City, Jan. 3, 1916.

Hay and Straw.—The hay market is without material change. There is a firm tone at most harbor points on large bales of timothy hay, of which the supply is very light. Small bales are barely steady, inclining to further weakness at the close of the week. Considerable quantities of hay went out on European boats last week which helped to relieve the situation but there is still a large quantity of offerings on tracks and in the country waiting to be shipped. There is a fair call for the better sorts of mixed clover, exceptional sales of alsike mixed making up to $24. Alfalfa is in very light supply and not wanted. Rye straw is scarce and wanted at present.

Grains.—Wheat is steady at last week's quotations. Principal interest attached to the speculative market and the closing of December options. Such options expired at $1.20¼ as compared with $1.27 a year ago. The export demand is strong. There is also an urgent milling demand. Domestic crop news are rather favorable. Much of the wheat belt is well protected with snow, while rains elsewhere have been favorable to the growing crop. There are, however, complaints of damage by insects from many quarters. Corn is firm. Offerings are light, interior shipments being small for the season. Oats are firm and steady in price. There is a good cash demand.

Hay.—Large bales—No. 1 $24@25; No. 2, $21.50@23; No. 3 $19@20.50; fancy clover, $22@23; No. 1 $20@21; No grade, $14@18.

Straw.—Per ton, No. 1 rye, $14@15.

Wheat.—No. 1 Northern, $1.41; No. 2, $1.38; No. 3 $1.34.

Corn.—No. 2 yellow, 85¾c.

Oats.—No. 3 white, 48½@49½c; No. 4, 47½@48½c.

Rye.—$1.04@1.05.

Mill Feed.—Coarse Western spring one hundred-pound sacks to arrive, $22.85@23. Standard middlings, $22.85@23; flour, do., $26.80 to arrive. Red dog, to arrive, 140-lb. sacks, $28.75. Oil meal, $39@39.50. City feed, bulk bran, $22.60. Heavy feed in bulk, $22.60. Red dog, $32. Flour middlings, $31 50. Middlings, $22.60@31.50.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., Jan. 3, 1916.

Hay.—Receipts of poor hay continue excessive. It is difficult to dispose of shipments of this quality. Concessions are being made in order to effect sales. This is particularly true of No. 2 clover and No. 2 heavy mixed hay. There is a fair demand for strictly No. 1 timothy with very little arriving. This grade brings top market value. No. 1 timothy, $18.25@18.50; No. 2 timothy, $15.50@16.50; No. 3 timothy, $12@13; No. 1 light mixed, $15.50@16.50; No. 1 clover mixed, $14.50@15; No. 2 clover mixed, $12@13; No. 1 clover, $14@14.50; No. 2 clover, $9@12; No. 3 prairie, $11@11.50; No. 4 prairie, $8.50@9.

Straw.—A little better feeling on straw; receipts light while the demand has increased somewhat. No. 1 oat, $8.50@8.75; No. 2 oat, $7.75@8; No. 1 wheat, $8.50@8.75; No. 2 wheat, $7.75@8; No. 1 rye, $9.75@10.25; No. 2 rye, $8.25@8.75.

Ear Corn.—Not much activity to the ear corn market; mild weather operates against same; market quiet. New No. 2 Yellow, 70@71c; No. 3 yellow, 67@69c; No. 2 high mixed, 68½@69½c; No. 2 mixed, 67@68c.

Oats.—Receipts liberal while demand is only fair; market slow. No. 2 white, 47½@48c; Standard, 46½@47c; No. 3 white, 45½@46c; No. 4 white, 44@45c; Rejected, 37¾@40¾c.

NEW YORK MILK MARKET

New York City, Jan. 3, 1916.

The market is still a little shy in spots, altho it is believed if there could be an equalization of distribution, the supply would go around. The receipts of milk last week fell off from those of the previous week to the extent of 7,313 cans, but the receipts of cream were greater by 802 cans. The market value is between 4 and 4¼ cents a quart for Grade B in the so-called 26-cent zone.

The receipts of milk and cream in 40-quart cans for the week ending January 1, were as follows:

Railroad	Milk	Cream
Erie	41,509	1,982
Susquehanna	9,600	148
West Shore	15,213	902
Lackawanna	53,225	1,015
N. Y. Central (long haul)	84,377	1,037
N. Y. Central (short haul)	20,950	30
Ontario	38,694	1,939
Lehigh Valley	39,917	1,001
Homer Ramsdell Line	3,475	30
New Haven	7,282	77
Pennsylvania	8,972	171
Other sources	1,125	17
Totals	324,339	8,349
Same week last year,	310,295	8,106

PHILADELPHIA BUTTER MARKET

Philadelphia, Pa., Jan. 3, 1916.

Butter is steady in the local market, but the feeling is none too firm. Buyers are operating only for actual wants but the demand is sufficient to keep the supply of high-grade creamery and prints well cleaned up. Prices on these grades are held firm. Offerings are mostly of medium and low grades, which continue dull and irregular. The cheese market is firm under light offerings, but the demand is only moderate.

Butter. — Fresh, solid-packed creamery, fancy specials, 38c; extras, 36c; firsts, 30@32c; seconds, 26@28c; near-by prints, fancy, 39c; firsts, 30@34c; seconds, 26@28c; special, fancy prints, 42@45c.

Cheese.—N. Y. full cream fancy, 17¾@18c; do., fair to good, 17@17½c; part skims, 9@14c.

ELGIN BUTTER MARKET

Elgin, Ill., Dec. 31, 1915.

Butter sales were made today at 31½c and 33c, majority at 31½c. Eighty tubs sold at 31½c and 50 tubs at 33c.

TOBACCO MARKET

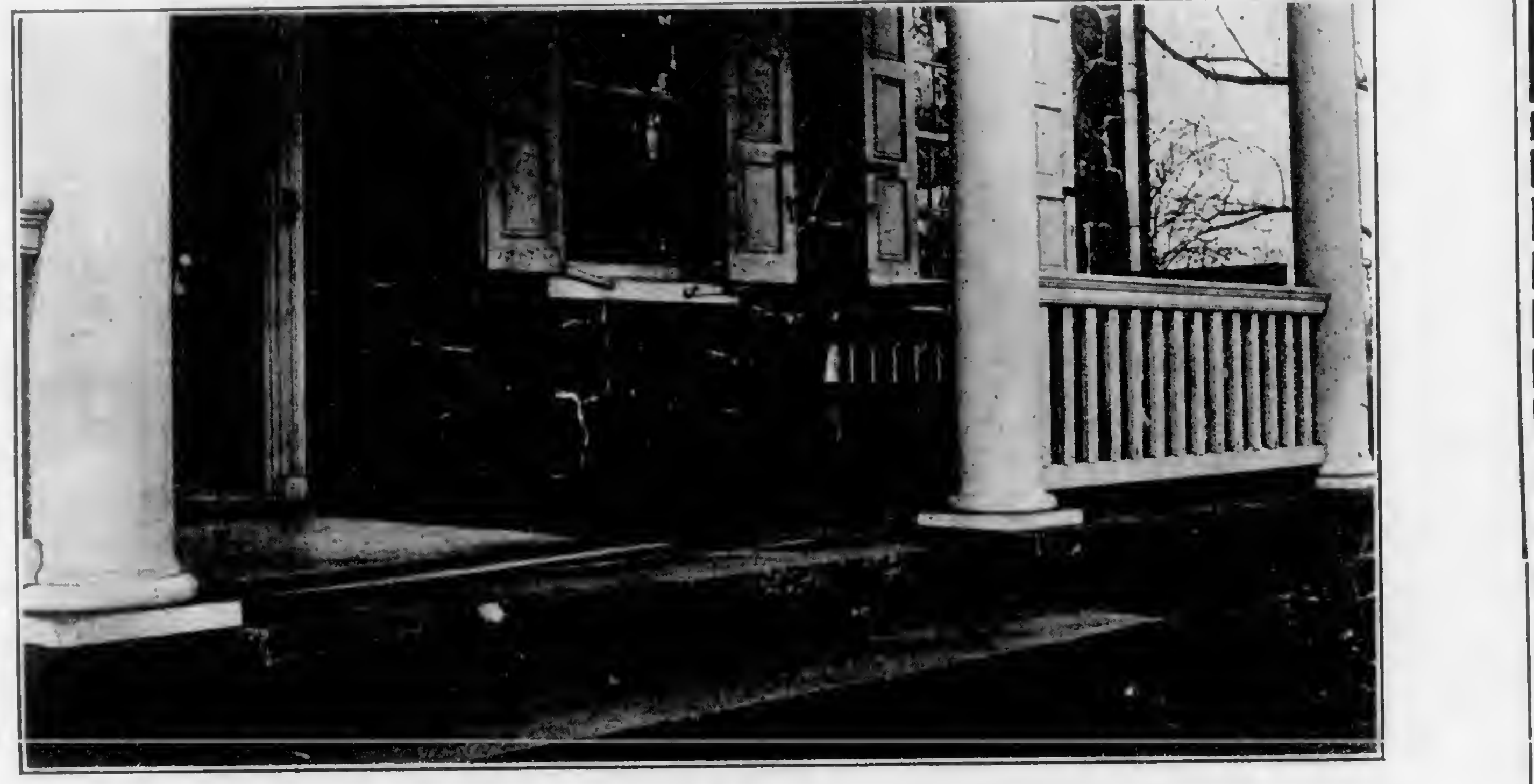
Had it not been for the holidays the week would have been one of very unusual activity among growers, as the weather was favorable to stripping and delivery and all are anxious to get their tobacco off hands before the rush of late winter and early spring. As has been said before, the crop is now practically all sold, the small remainder not being in any great urgent demand at present. The buyers, too, are urging early deliveries. Where deliveries have been made the quality has been fully up to expectations, and thus entirely satisfactory to purchasers. The good quality but light weight of the new crop is more and more apparent. No county sales were reported during the week, but average crops could have been sold at $10 and 3 per cwt. There was more or less comment as to the prospective acreage of 1916 and it was agreed that it will be larger than during the past year. Satisfactory prices are always reflected in a renewed interest and increased effort. The returns that are coming to tobacco growers for the present crop, together with the other sources of income in the section was a subject of comment, it being agreed that the tobacco section of Pennsylvania even better than heretofore lays claim to the title of the "garden spot" of the entire country this side of California. Statistics show that but one county in the entire country surpasses Lancaster county, Pa., in agricultural wealth and value of products. Without tobacco, such would not be the case. If growers could reach some agreement by which over-production, unfair selling prices, etc., could be avoided, the situation would at once become still more favorable and the section would at once be classed the best in the entire domain for agricultural purposes. Just now, while formulating plans for a new crop, would be a suitable time to begin.—H. E. Tweed, January 3, 1916.

Household

A TASTY AND ENDURING PORCH

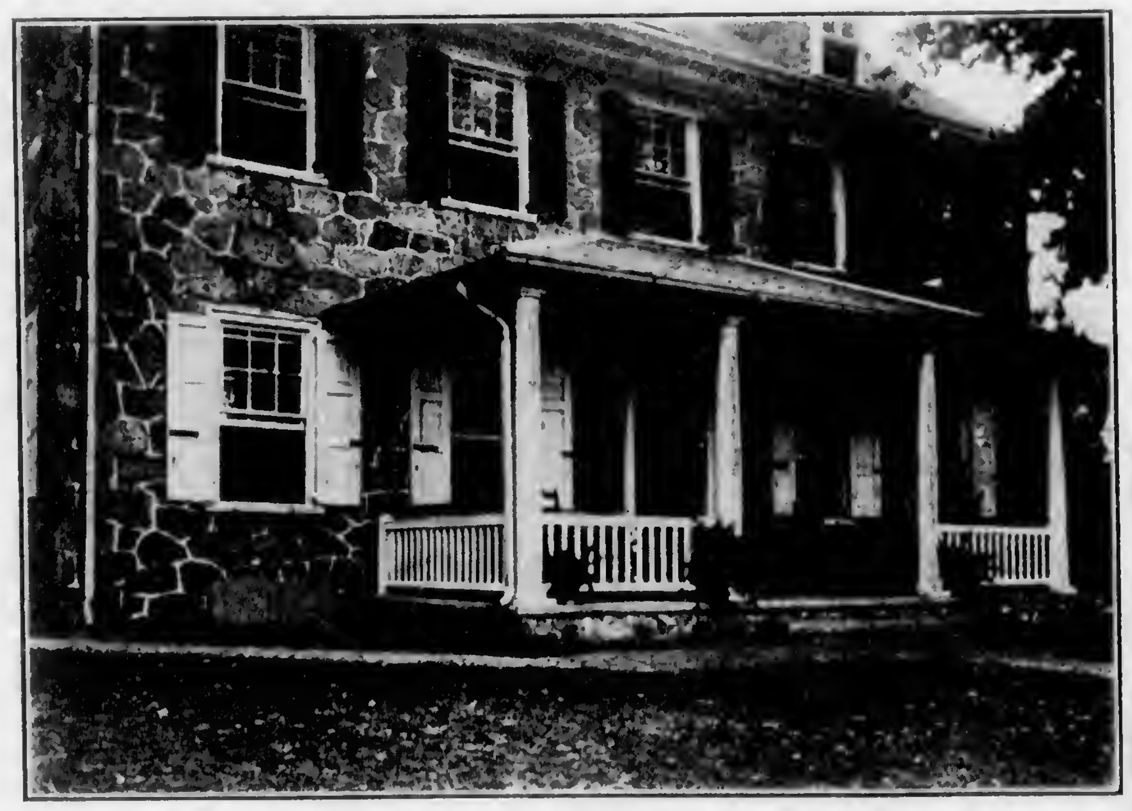
We needed a new porch. Our old one, built entirely of wood, as is generally customary, was a constant source of annoyance and expense from decay, and finally reached a complete stage of delapidation. This time we decided to try something that would be reasonably permanent if it could be secured without sacrificing comfort or appearance, and at the same time be economical. We could not afford to be lavish, and every dollar spent must give full value in return.

The wooden floor and girders were always first to give trouble. We used concrete and stone. The photographs will show that there is nothing cheap or conspicuous about the finished porch and that it is entirely suitable to match the 100-year-old farm house. It was a new idea to many, at that time. All sorts of illnesses were predicted from the "cold damp floor," but the family physician approved of the scheme and we went ahead. After five years of pleasure and satisfaction from it we are convinced that concrete porch flooring is worthy of more extended use.



SHOWING STONE COPING, MARBLE SLABS AND CONCRETE FLCOR.

The porch measures 9x25 feet. It could not well be made larger without shutting out too much light and air from cellar and first-floor rooms. This is just wide enough to accommodate two old fashioned benches that were part of the original porch. A foundation wall was built around the outer edge, using stone from the farm. This was capped by slabs of gray coping stone 18 inches wide and 3 inches thick, rough cut on the outer edge and chipped smooth at the connecting ends and inner edge. Inside of this wall was filled solidly with earth and cinders, and over them was laid a floor of concrete, rubbed smooth.



NEAT AND DURABLE PORCH BUILT ON OLD STONE HOUSE.

The step is masonry covered with a single slab of coping 8 feet long, 18 inches wide and 4 inches thick. The white blocks under each post are marble and can scarcely be distinguished from the regulation painted wood. These will never be affected by water, and the base of the wooden pillar is protected, except in case of dashing rains or careless scrubbing. The roof is of best quality slate, and should last a generation at least. A cheaper roofing may be used.

The general appearance of the floor is gray, like smooth painted boards. There is not a crack except at the edges where it has shrunken slightly from the stones. One of the greatest causes of satisfaction is the absence of wooden splinters; and barekneed children can play over the floor in peace and comfort. It is non-absorbent and for that reason requires far less scrubbing and cleaning than wood or brick. Muddy foot tracks or dust will sweep off clean with a broom. When the occasional washing is given the water rolls off, and in an amazingly short time the floor is dry and ready to be occupied again. Here is the itemized cost: 40 feet coping stone, 18x3 in. @ 75c, $30; 1 step, 8 ft. x 18 in. x 4 in., $8; 4 marble blocks, 13x2 in. @ $1.50, $6; masonry work, $40.26; lumber and mill work, $83.60; carpentry, $32.19; spouting and tin work, $11.86; painting, $27; slate roof, $30.24. Total, $269.15.—Elinor S. Brinton, Chester Co., Pa.

Note.—While the stone coping gives a more pleasing effect, concrete slabs might be used for the same purpose at a less cost. Concrete blocks might be used in the place of the marble slabs with additional saving.—The Editors.

OUR MAKE-OVER DEPARTMENT

(Have you some out-of-date garments, hats or other articles of personal or house apparel that you would like to know how to make use of economically? Tell us about them, and we will have our make-over lady help you out with her ideas.—The Editors.)

Modernizing Old Shirtwaists

We have a number of old-style shirtwaists that are perfectly good as to material, but have stiff cuffs, and are calculated for stiff collars. Please give me some ideas about making them up-to-date.—Berks Co., Pa.

Rip off the stiff neckband, cuffs and overlaps above the cuffs. Try on the garment and pin it snugly around the waist with a band of tape, blousing just as you want it to look when finished. Cut off the portion below the tape, and reserve it for lengthening the sleeves and for the collar. A two-inch band of the goods, or a similar width of white cotton braid or Hamburg insertion, makes a desirable stitched-on belt. The front portions cut away below the waist should piece out the sleeves to a correct length. The piecing may be covered by tucks or insertion. Tucks and all sorts of trimmings may cover a multitude of piecing. I am supposing that the part cut away from the waist below the belt in the back will make a collar, using trimming wherever necessary to piece out or shape it. Or make a new collar of wide embroidery, strips of insertion, chintz—whatever suits the fancy, or is convenient. The collar may be perfectly straight around the neck, shaped with points in front, or as one wishes. Now make buttonholes midway between each of the old buttonholes, and up the button side of the collar for about three inches. Two or three buttons on one side of the collar will look well. The old buttonholes should be worked over if they need it. A button and buttonhole fasten the belt. For buttons, fill little round pieces of muslin tight and full with cotton, gather the edges securely, and cover each with a round crochet made in single crochet stitch with coarse white thread. If the waist is to be left open at the neck, sew the first four or five buttons at the top on the wrong side of the garment so that, when it is opened in a V, these will act as trimming on one side of the neck of the shirtwaist.

Another pretty way to remodel such a waist is to leave the neckband on, but rip off the cuffs and the overlaps above the cuffs, and piece out the sleeves with any common, stout white cotton cloth, for this will not show. Try on the waist and fasten tape as for shirtwaist No. 1, adding a two-inch belt of the goods as before described, with a button and buttonhole in the front of the belt for fastening. From ¼ yard of flower-printed chintz cut a wide collar and cuffs after a pattern of the Puritan collar and cuff sets so much worn at present. These should have an inch-wide border of white. Probably there will be plenty of the cut-off shirtwaist material after the belt is made, tho any other white cotton goods that launders smoothly will do as well. These chintz sets are lined with plain white lawn or muslin, the lining and outside put together according to directions accompanying our Pennsylvania Farmer patterns. A line of machine stitching is sewed around the chitz edge, which slightly overlaps the white border, and a neckband with back and front buttonholes should be added.

The chintz collar and cuff set should then be starched and ironed to a shiny smoothness. The buttons may be placed close together as in shirtwaist No. 1, and are pretty, durable and cheap made as described for that garment.

Remodeling an Old-Style, Peg-Top Skirt

Have a blue serge skirt of the peg-top era. What shall I do with it to make it wearable?—Putnam Co., N. Y.

Rip off the belt and placket facing, rip out the hem, clean and press the goods. Cut off the old hem if cleaning and pressing have not made it usable. Turn the garment end for end, and fit the inverted bottom, which is now the top, smoothly to the waist and hips. As tunic skirts are so much worn, this would make a most desirable tunic. A sham skirt of lining underneath could have a pleated or a circular flounce, according to the amount and kind of contrasting material to be used with it. Often some partly worn garment will furnish very acceptable material for remodeling, as two, three or even four materials are seen in pleasing combination this season. If the skirt seems satisfactorily full, it may be pieced out with a wide band of contrasting material around the bottom. A more flaring appearance may be achieved by placing two more bands, each narrower than the other, above the first, at intervals. These may each flare slightly, or may be cut in circular flounces, as the old skirt, even tho it had a full top, is probably none too full for this season's styles. The skirt should be faced with a somewhat stiff lining, and should hang at least four inches from the floor.

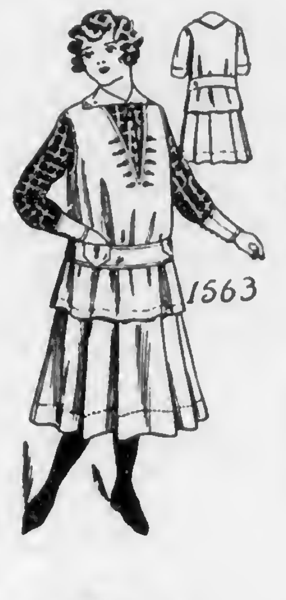
The man who never does anything until he is told to do it will never be told to do anything important.

PENNSYLVANIA FARMER PATTERNS

Be sure to give the figures and letters of each pattern exactly as printed at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-63 So. Third Street, Philadelphia, Pa.

1563.—Over Blouse Dress for Juniors.—Cut in 3 sizes: 12, 14 and 16 years. It requires 2½ yards for the guimpe, and 5½ yards of 27-inch material for the dress for a 14-year size. Price of pattern, 10 cents.

1552. — Ladies' Apron, with Sleeve Protector and Cap.—Cut in 3 sizes: Small, medium and large. It requires 5⅛ yards of 36-inch material for the apron, ⅜ yards for the cap and ⅞ yard for one pair of sleeve protectors, for a medium size. Price, 10 cents.



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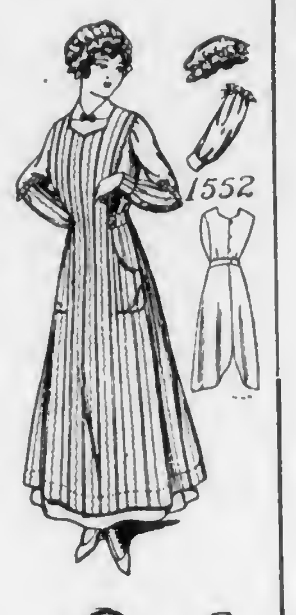

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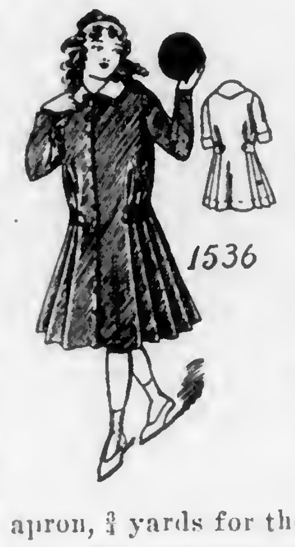

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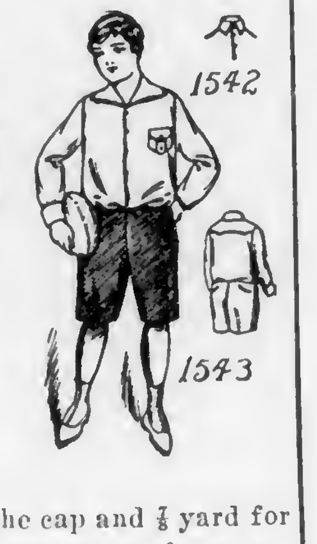

1542

1543

1536.—Girls' Dress.—Cut in 4 sizes: 6, 8, 10, and 12 years. It requires 3 yards of 44-inch material for an 8-year size. Price, 10 cents.

1542-1543.—Boys' Suit.—Blouse, 1542, cut in 5 sizes: 6, 8, 10, 12 and 14 years. Size 10 will require 2 yards of 36-inch material. Trousers, 1543, cut in 5 sizes: 6, 8, 10, 12 and 14 years. It requires 1¾ yards of 27-inch material for a 12-year size. This calls for two separate patterns, 10 cents for each pattern.

Boys and Girls can get subscriptions to Pennsylvania Farmer just as well, and sometimes better than grown-ups, and it is good training for initiative and perseverance. We have a steadily increasing number of such local agents, who turn spare time into pocket-money, and still have room for more. Send for terms and free sample copies.
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SUGAR
when ordered with other Groceries
25 lbs., 98c

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Larkin Blend Coffee, 3 lbs., 75c; Imported Tea, 30c per lb., Cream Tartar Baking Powder, 12½c per 1-2 lb.; Country Gentleman Corn, 3 large cans, 29c; Tomatoes, 15-cent kind, 10c; Pork and Beans, 15-cent size can for 7 1-2c; Alaska Salmon, 3 1-lb. cans, 31c; Macaroni, pound package, 7 1-2c; Sweet Home Laundry Soap, or Maid o' the Mist Floating Soap, 2 1-2c per bar; Norwegian Sardines, 10c per can; 5 lbs. Rice, 35c; Egg Noodles, 1-2 lb., 5c; Peanut Butter, large jar, 12 1-2c; 5 lbs. Prunes, 55c; Larkin Mince Meat, 9c; 1 lb. Saleratus, 5c; 1 lb. Pearl Tapioca, 6c; 1 lb. Corn Starch, 5c; ¼ lb. Black Pepper, 5c; Large can Sliced Hawaiian Pineapple, 19c.

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Indoor Closet
More Comfortable Healthful and Convenient than the Out-Door Privy

Eliminates the out-door privy, open vault and cesspool. They are breeding places for germs. Have a warm, sanitary, odorless toilet right in your house. No going out in cold weather. A boon to invalids. Endorsed by State Boards of Health.

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Parcel Post prepaid within 150 miles. Guaranteed to satisfy or money cheerfully refunded. Our tea at 30c lb. is exceptional value. Sample free. State if black, mixed or assam is desired.

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Honey and Peanut Butter direct from the producer. Clover, Comb or Extracted, Honey (white). Put up in any quantity and quality guaranteed. Send for price list.
W. O. Hershey, Landisville, Pa.

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BEATS ELECTRIC OR GASOLINE
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We don't ask you to pay a cent until you have used this wonderful modern light in your own home ten days—we even pay transportation charges. You may return it at our expense if not perfectly satisfied after putting it to every possible test for 10 nights. You can't possibly lose a cent. We want to prove to you that it makes an ordinary oil lamp look like a candle; beats electric, gasoline or acetylene. Lights and is put out like old oil lamp. Tests by Government and 33 leading Universities show it

Burns 50 Hours on One Gallon

common coal oil, and gives more than twice as much light as the best round wick open flame lamps. No odor, smoke or noise; simple, clean, no pressure, won't explode. Several million people already enjoying this powerful, steady light, nearest to sunlight. Guaranteed.

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Largest Kerosene (Coal Oil) Mantle Lamp House in the World
CHICAGO NEW YORK CITY PORTLAND, ORE. MONTREAL or WINNIPEG, CANADA

Won GOLD MEDAL at World's Exposition San Francisco

Karo The Nation's Spread for Griddle Cakes and Waffles

FOUR hours of breakfasting from New York to San Francisco—and golden brown Karo being poured thick over tempting hot cakes every minute.

The Nation's breakfast—Karo on cakes, waffles, corn-bread and hot biscuits—in many thousands of homes, day after day.

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It is the custom now among thoughtful housewives to order Karo by the half dozen cans.

Special Karo Premium Offer

You can get this $2.25 Solid Aluminum Griddle for 85 cents in stamps or money order, provided you send us at the same time labels from 50 cents worth of Karo.

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Karo (REG. U.S. PAT. OFF.)
CORN PRODUCTS REFINING CO.
GENERAL OFFICES-NEW YORK, U.S.A.

SUGAR 2½c PER LB.

Here is the List of Groceries You Get

20 Lbs. Granulated Sugar	$ .50
1 lb. Coffee (unground)	.25
1 bottle Vanilla Extract, 2-oz.	.25
1 bottle Lemon Extract, 2-oz.	.25
1 can Baking Powder, 1-lb.	.25
1 package Baking Soda, 1 lb.	.10
1 package Whole Nutmeg	.05
6 cans Pork and Beans (large size)	.90
1 can Hominy	.15
1 package Breakfast Oats, 1½-lb. package	.15
1 package Pancake Flour, 1 lb.	.20
3 packages Spaghetti, 1-lb. packages	.45
2 packages Shredded Cocoanut, ½-lb. packages	.40
4 packages Caramel Pudding	.60
4 packages Strawberry Gelatine, (package makes 1 pint)	.40
2 packages Corn Starch, 1-lb. packages	.20
2 jars Peanut Butter	.40
2 jars Prepared Mustard	.30
1 package Black Pepper, (ground)	.10
3 packages Ever-Ready Tapioca 1-lb.	.45
5 cans Lustre Bright Scouring Powder	.50
3 packages Washing Powder	.30
1 package Gloss Starch, 1 lbs.	.10
1 box Medicinal Toilet Soap	.25
20 bars Floating Bath Soap	1.00
30 bars Family Laundry Soap	1.50
Total	$10.00

20 LBS. GRANULATED SUGAR
BARGAIN GROCERY ORDER FROM CROFTS
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ALL FOR $10.00

And this Fine Oak Rocker FREE
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BIG BARGAIN GROCERY ORDER

Just to get you acquainted with the high quality of Crofts & Reed Grocery Products and especially our money-saving factory-to-home plan of buying, we will send you this big bargain list of Groceries, including 20 lbs. of Granulated Sugar at 2½c per lb., and over 20 other products which every housewife uses every day—all for only $10.00 — and give you as an extra inducement, absolutely free of charge, this fine Oak Rocker.

We are making this bargain so big—so attractive—that no housewife can afford to miss this opportunity. We want to prove to you that our factory-to-home plan of dealing gives you nearly double the value that you can secure elsewhere without extra cost. Now is the time to lay in a supply of staple groceries.

This big bargin list of groceries may not appear again. Remember, this list of groceries, including 20 lbs. of sugar for 50c, and this comfortable Oak Rocker all for only $10.00. Send in your order today. You take no risk. Our money-back guarantee given below, makes you absolutely safe.

Rocker No. 90276

This handsome Rocker has a solid Oak frame, finished in the popular Golden Oak finish. The spring seat measures 19x19 1-2 in. Heavy upholstered comfortable back is 27 in. wide and 25 1-2 in. high from seat. Beautifully upholstered and tufted in best grade of black imitation leather. Arms are 5 1-2 in. wide. Front posts broad and neatly shaped. Built strong and durable, this Rocker will be appreciated by every member of the family and give many years of satisfactory service in any home.

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Your Money Back If Not Pleased

We have made this offer so big that no one can afford to miss it. We guarantee perfect satisfaction to every purchaser. When you receive this shipment, if you are not satisfied with everything—just send the shipment back to us at our expense and we will refund your money, making no charge for a reasonable amount of goods consumed in making a test.

Order direct from this advertisement and get the biggest bargain you ever received. Remember we allow you to try the groceries—test them—let you see for yourself that everything is satisfactory—take all back at our expense if you are not fully pleased. Fill out the Coupon, enclosing $10.00, and we will ship everything at once. You take no risk whatever. MONEY BACK IF NOT SATISFIED. ORDER TODAY. Don't Delay. Prices Guaranteed for 90 Days Only.

CROFTS & REED CO.
Dept. C 82 CHICAGO

CROFTS & REED CO. Dept. C 82 Chicago.
I am enclosing $10.00 for which please send me the $10.00 Grocery Order including 20 lbs. of sugar for 50c and Rocker No. 90276. You agree to take goods back at your expense and refund my money if not satisfied.

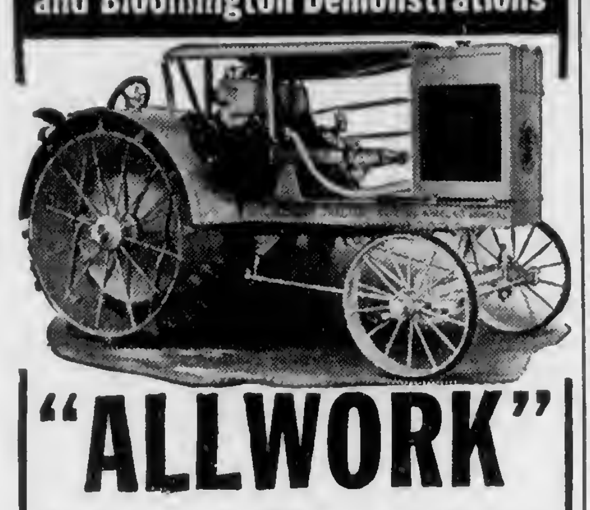
Name ....

Street or R.F.D. ....

Town ....

If your neighbors wish to take this offer [illegible]

SUCCESSFUL AT
Hutchinson, Champaign, Fremont and Bloomington Demonstrations



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Pulls Three Plows Easily
A Four-Wheel Tractor Dependable as a Horse
A simple, durable, powerful machine selling at a price you can easily afford. Equipped with four-cylinder vertical engine 5x6, developing 25 h. p. at belt, 12 h. p. at drawbar. Two-speed transmission working in oil, automobile type front axle, roller-bearing rear axle, steel gears thoroughly protected from dust and self-oiling, radiator and fan that cool absolutely, 16-inch face rear wheels, weight 4800 pounds.
A sensible, practical tractor, built by a company with an established reputation and numerous machines at work in fields today. Write for catalog.
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30 DAYS FREE TRIAL
Backed by a Million Dollar Company
With every Bessemer Engine you get a guarantee that means the best engine service in the world. You are assured of a Kerosene Engine that is built upon correct lines—built to run at lowest fuel cost—and give sure and steady power for years. Write us for some eye-opening facts as to what Bessemer Kerosene engines are doing. Sizes 2 to 10 H. P., and this means *full* horse-power, too! Direct connected to electric lighting plants, pumps, hoists, etc. Prompt shipments assured.
THE BESSEMER GAS ENGINE CO.
142 Lincoln Ave., Grove City, Pa.
Those who need more power should use the Bessemer Fuel Oil Engine. 15 to 200 H. P. Free catalog "O" explains them.

LOWEST FUEL COST

LET US TAN YOUR HIDE.

Cattle or Horse hide, Calf, Dog, Deer, or any kind of skin with hair or fur on. **We tan and finish them right;** make them into coats (for men and women), robes, rugs or gloves when ordered.
Your fur goods will cost you less than to buy them, and be worth more. **Our illustrated catalog** gives a lot of information which every stock raiser should have, but we never send out this valuable book except upon request.
It tells how to take off and care for hides; how and when **we pay the freight both ways;** about our safe dyeing process which is a tremendous advantage to the customer, especially on **horse hides and calf skins;** about the fur goods and game trophies we sell, taxidermy, etc. If you want a copy send us your correct address.
The Crosby Frisian Fur Company,
571 Lyell Ave., Rochester, N. Y.

1916 ASK FOR AGENCY TERMS
$50.
ATCO AUTOS
Send for 1916 announcement showing Atco Autos in various makes and models including Roadsters, Touring Cars, Trucks and "Jitney" Busses, at prices representing a fraction of their original cost. All sold on Easy Payment Terms. $50.00 now will secure any car for future delivery. Any one may also be purchased at from five to eight dollars per week. We ship everywhere to anyone. Atco Autos Guaranteed for One Year. Prices from $275.00 to $785.00.
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AUTO TRADING CO., INC. PITTSBURGH, PA.

KITSELMAN FENCE

Get It From the Factory Direct
HORSE-HIGH, BULL-STRONG, PIG-TIGHT
Made of Open Hearth wire, heavily galvanized—a strong, durable, long-lasting, rust-resisting fence. Sold direct to the Farmer at wire mill prices.
Here's a few of our big values:
26-inch Hog Fence - 12 cts. a rod.
47-inch Farm Fence - 18 cts. a rod.
48-inch Poultry Fence - 24 cts. a rod.
Special Prices on Galv. Barbed Wire.
Our big Catalog of fence values shows 100 styles and heights of Farm, Poultry and Lawn Fence at money-saving prices. Write for it to-day. It's free.
KITSELMAN BROS. Box 143 Muncie, Ind.

Hepsey Burke

By Frank N. Westcott

SYNOPSIS OF PRECEDING CHAPTERS

Donald Maxwell, a young minister, has spent several months in his first ministerial charge at the little town of Durford, at a salary of $600 per year. Hepsey Burke, a widowed member of his flock, has proved his most faithful and efficient helper. The Senior Warden, Sylvester Bascom, is an important, if not the most loved, factor in dictating the affairs of the church. Miss Virginia Bascom is a busy, but not always the wisest, worker with an unusual interest in the young minister. Interest in unmarried ministers is a habit with Virginia and she showered attentions on Mr. Maxwell as long as he remained single. When he brought his young wife, Mrs. Betty, to Durford, there was a decided change in Miss Virginia's sentiments as well as her activity in the church. While all of Durford accepted Mrs. Betty as a welcome addition to the community life, Miss Bascom sought every opportunity to snub her. Jonathan Jackson, the Junior Warden, becomes Mrs. Betty's faithful supporter, and she in turn advises him for his own good on the subject of matrimony. She has just startled him with the suggestion that he propose to Mrs. Burke. Altho apparently startled at the suggestion, Jonathan takes the matter under advisement for a time. Stirred by the events of a circus put on by Nickey Burke, or perhaps prompted by the thought that Nickey needs a sterner foster parent, Jonathan finally proposes and receives some good advice for his pains.

CHAPTER XIV (Concluded.)

''Jonathan, your manners need mendin' a whole lot. The idea of insinuatin' that I am not a shy young thing. I'm ashamed of you, and I'm positive we could never get along together.''

''But I can't tell a lie about you, even if I do want to marry you. You don't want to marry a liar, do you?''

''Well, the fact is, Jonathan, polite lyin's the real foundation of all good manners. What we'll ever do when we get to heaven where we have to tell the truth whether we want to or not, I'm sure I don't know. It'll be awful uncomfortable until we get used to it.''

''The law says you should tell the truth, the whole truth, and nothin' but the truth,'' persisted the literal wooer.

''Now, see here, Jonathan. Would you say that a dog's tail was false and misleadin' just because it isn't the whole dog?''

This proposition was exceedingly confusing to Jonathan's intelligence, but after careful consideration he felt obliged to say ''No.''

''Of course you wouldn't,'' Mrs. Burke continued triumphantly, quickly following up her advantage. ''You see a dog's tail couldn't be misleading, 'cause the dog leads the tail, and not the tail the dog. Any fool could see that.''

Jonathan felt that he had been tricked, altho he could not see just how the thing had been accomplished; so he began again:

''Now Hepsey, we're wanderin' from the point, and you're just talkin' to amuse yourself. Can't you come down to business? Here I am a widower, and here you are a widowess, and we're both lonesome, and we——''

''Who told you I was lonesome, I'd like to know?''

''Well, of course you didn't, 'cause you never tell anything to anyone. But I guessed you was sometimes, from the looks of you.''

Hepsey bent her head over her work and counted stitches a long time before she looked up. Then she remarked slowly:

''There's an awful lot of sick people in the world, and I'm mighty sorry for 'em; but they'll die, or they'll get well. I guess I'm more sorry for people who have to go on livin', and workin' hard, when they're just dyin' for somebody to love 'em, and somebody to love, until the pail of it hurts like a wisdom tooth. No, I can't afford to be lonesome much, and that's a fact. So I just keep busy, and if I get too lonesome, I just go and jolly somebody that's lonesomer than I am, and we both feel better; and if I get lonely lyin' awake at night, I light a lamp and read Webster's Dictionary. Try it, Jonathan; it's a sure anti-doubt.''

''There you go again, tryin' to change the subject, just when I thought you was goin' to say somethin'.''

''But you don't really want to marry me. I'm not young, and I'm not interestin': one or the other you've just got to be.''

''You're mighty interestin' to me, Hepsey, anyway; and—and you're mighty unselfish.''

''Well, you needn't throw that in my face; I'm not to blame for bein' unselfish. I've just had to be, whether I wanted or not. It's my misfortunte, not my fault. Lots of people are unselfish because they're too weak to stand up for their own rights.'' She paused—and then looked up at him, smiling whimsically, and added: ''Well, well, Jonathan; see here now—I'll think it over, and perhaps some day before—go 'way, you horrid thing! Let go my hand, I tell you. There! You've made me drop a whole row of stitches. If you don't run over home right now, before you're tempted to do any more flirtin', I'll—I'll hold you for breach of promise.''

CHAPTER XV

Nickey's Social Ambitions

To Nickey, the Maxwells were in the nature of a revelation. At his impressionable stage of boyhood, and because of their freedom from airs and graces of any kind, he was quick to notice the difference in type — ''some class to them; not snobs or dudes, but the real thing,'' as he expressed it. His ardent admiration of Donald, and his adoration of Mrs. Betty, gave him ambition to find the key to their secret, and to partake of it.

He was too shy to speak of it,—to his mother last of all, as is the nature of a boy,—and had to rely on an observant and receptive mind for the earlier steps in his quest. When Maxwell boarded with them, Nickey had discovered that he was wont to exercise with dumb-bells each morning before breakfast. The very keenness of his desire to be initiated held him silent. A visit to the town library, on his mother's behalf, chanced to bring his eyes—generally oblivious of everything in the shape of a book—upon the title of a certain volume designed to instruct in varius parlor-feats of physical prowess.

The book was borrowed from the librarian,—a little shamefacedly. The next morning Mrs. Burke was somewhat alarmed at the noise which came from Nickey's room, and when there was a crash as if the chimney had fallen, she could stand it no longer, and hurried aloft. Nickey stood in the middle of the floor, clad in swimming trunks, gripping a large weight (purloined from the barn) in either hand, very red in the face, and much out of breath.

As the door unexpectedly opened he dived for bed and pulled the clothes under his chin.

''Land Sakes!'' Hepsey breathed, aghast. ''What's all this about? If there's a nail loose in the flooring I can lend you a hammer for the asking,'' and she examined several jagged dents in the boards.

''Say ma,'' urged Nickey in moving tones. ''If I'd a pair of dumb-bells like Mr. Maxwell's, I c'd hold onto 'em. I've pretty near smashed my feet with them things—gosh darn it,'' he added ruefully, nursing the bruised member under the clothes.

''I guess you can get 'em next time you go to Martin's Junction; but if it's exercise you want,'' his parent remarked unsympathetically, ''there's plenty of kindling in the woodshed wants choppin'.''

She retired chuckling to herself, as she caught a glimmer of what was working in her son's mind.

The ''reading habit'' having been inculcated by this lucky find at the library, it was not long before Nickey acquired from the same source a veritable collection of volumes on the polite arts and crafts—''The Ready Letter-Writer''; ''Manners Maketh Man''; ''Seven Thousand Errors of Speech;'' ''Social Culture in the Smart Set,'' and the like.

Nickey laboriously studied from these authorities how to enter a ball room, how to respond to a toast at a dinner given in one's honor, how to propose the health of his hostess, and how to apologize for treading on a lady's train.

In the secrecy of his chamber he put into practice the helpful suggestions of these invaluable manuals. He bowed to the washstand, begged the favor of the next dance from the towel rack, trod on the window shade and made the prescribed apology. Then he discussed the latest novel at dinner with a distinguished personage; and having smoked an invisible cigar, interspersed with such wit as accords with walnuts and wine, after the ladies had retired, he entered the drawing-room, exchanged parting amenities with the guests, bade his hostess good night, and gracefully withdrew to the clothes-press.

Several time Hepsey caught glimpses of him going thru the dumb show of ''Social Culture in the Smart Set,'' and her wondering soul was filled with astonishment at his amazing evolutions. She found it in her heart to speak of it to Mrs. Betty and Maxwell, and ask for their interpretation of the matter.

So, one day, during this seizure of feverish enthusiasm for self culture, Hepsey and Nickey received an invitation to take supper at the rectory. Nevertheless, Mrs. Burke thought it prudent to give her son some good advice in regard to his behavior. She realized, perhaps, that a book is good so far as it goes, but is apt to ignore elementals. So she called him aside before they started:

''Now Nickey, remember to act like a gentleman, especially at the table; you must try to do credit to your bringin' up.''

''Yes, I'll do my level best if it kills me,'' the boy replied.

''Well, what do you do with your napkin when you first sit down to the table?''

''Tie it 'round my neck, of course!''

Oh, no, you mustn't do anything of the sort; you must just tuck it in your collar, like any gentleman would. And when we come home what are you goin' to say to Mrs. Maxwell?''

''Oh, I'll say, 'I'll see you later.' ''

''Mercy no! Say, 'I've had a very nice time.' ''

''But suppose I didn't have a nice time,—what'd I say?''

For a moment Hepsey struggled to reconcile her code of ethics with her idea of good manners, and then replied:

''Why say, 'Mrs. Maxwell, it was awfully good of you to ask me,' and I don't believe she'll notice anything wrong about that.''

''Hm!'' Nickey retorted scornfully. ''Seems pretty much like the same thing to me.''

''Oh no! Not in the least. Now what will you wear when we go to the rectory?''

''My gray suit, and tan shoes, and green tie with the purple spots on it.''

''Who'll be the first to sit down to the table?''

''Search me—maybe I will, if there's good eats.''

''Nonsense! You must wait for Mrs. Maxwell and the rector to be seated first.''

''Well,'' Nickey exclaimed in exasperation, ''I'm bound to make some horrible break anyway, so don't you worry, ma. It seems to me from what them books say, that when you go visitin' you've got to tell lies like a sinner; and you can't tell the truth till you get home with the door shut. I never was good at lyin'; I always get caught.''

''It isn't exactly lyin', Nickey; its just saying nice things, and keepin' your mouth shut about the rest. Now suppose you dropped a fork under the table what'd you say?''

''I'd say ' 'scuse me, Mrs. Maxwell, but one of the forks has gone, and you can go thru my clothes if you want to before I go home.' ''

''Hm!'' Hepsey remarked dryly, ''I guess the less you say, the better.''

Arrived at the rectory, Nickey felt under some restraint when they first sat down to the supper table; but under the genial manner of Mrs. Maxwell he soon felt at his ease, and not even his observant mother detected any dire breach of table etiquette. His conversation was somewhat spare, his attention being absorbed and equally divided between observation of his host and consumption of the feast set before him. With sure tact, Mrs. Betty—tho regarding Nickey as the guest of honor—that evening—deferred testing the results of his conversational studies until after supper: one thing at once, she decided, was fair play.

After the meal was over, they repaired together to the parlor, and while Hepsey took out her wash rag knitting and Maxwell smoked his cigar, Mrs. Betty gave Nickey her undivided attention.

In order to interest the young people of the place in the missionary work of the parish, Mrs. Betty had organized a guild of boys who were to earn what they could towards the support of a missionary in the west. The Guild had been placed under the fostering care and supervision of Nickey as its treasurer, and was known by the name of ''The Juvenile Band of Gleaners.'' In the course of the evening Mrs. Maxwell took occasion to inquire what progress they were making, thereby unconsciously challenging a somewhat surprising recountal.

''Well,'' Nickey replied readily, ''we've got forty-six cents in the treasury; that's just me, you know; I keep the cash in my pants pocket.''

Then he smiled uneasily, and fidgeted in his chair.

There was something in Nickey's tone and look that excited Mrs. Betty's curiosity, and made his mother stop knitting and look at him anxiously over her glasses.

''That is very good for a start,'' Mrs. Betty commended. ''How did you raise all that, Nickey?''

For a moment Nickey colored hotly, looked embarrassed, and made no reply. Then mustering up his courage, and laughing, he began:

''Well, Mrs. Maxwell, it was just like this. Maybe you won't like it, but I'll tell you all the same. Bein' as I was the president of the Juv'nal Band of Gleaners, I thought I'd get the kids together, and start somethin'. Saturday it rained cats and dogs, so Billy Burns, Sam Cooley, Dimple Perkins and me, we went up into the hay loft, and I said to the kids, 'You fellows have got to cough up some dough for the church, and——' ''

''Contribute money, Nickey. Don't be slangy,'' his mother interjected.

''Well I says, 'I'm runnin' the Juv'nals, and you've got to do just what I say. I've got a dandy scheme for raisin' money and we'll have some fun doin' it, or I miss my guess.' Then I asked Sam Cooley how much money he'd got, and Sam, he had forty-four cents, Billy Burns had fifty-two cents, and Dimple had only two. Dimp never did have much loose cash, anyway. But I said to Dimp, 'Never mind, Dimp; you ain't to blame. Your dad's an old skinflint. I'll lend you six to start off with.' Then I made Billy Burns sweep the floor, while Sam went down to the chicken yard and caught my bantam rooster, Tooley. Then I sent Dimp after some chalk, and an empty peach basket, and a piece of cord. Then we was ready for business.

''I marked a big circle on the barn floor with the chalk, and divided it into four quarters with straight lines runnin' thru the middle. Then I turned the peach basket upside down, and tied one end of the string on the bottom, and threw the other end up over a beam overhead, so I could pull the basket off from the floor up to the beam by the string. You see,'' Nickey illustrated with graphic gestures, ''the basket hung just over the middle of the circle like a bell. Then I took the rooster and stuck him under the basket. Tooley hollered and scratched like Sam Hill and ———''

''For mercy sake, Nickey! What will you say next?''

''Say, ma, you just wait and see. Well, Tooley kicked like everything, but he had to go under just the same. Then I said to the kids to sit around the circle on the floor, and each choose one of the four quarters for hisself,—one for each of us. 'Now,' I said, 'you must each cough up——' ''

''Nicholas!''

''Oh ma, do let me tell it without callin' me down every time. 'You kids must hand out a cent apiece and put it on the floor in your own quarter. Then, when I say ready, I'll pull the string and raise the basket and let Tooley out. Tooley'll get scared and run. If he runs off the circle thru my quarter, then the four cents are mine; but if he runs thru Dimps quarter, then the four cents are Dimp's.'

''It was real excitin' when I pulled the string, and the basket went up. You'd ought to 've been there, Mrs. Maxwell. You'd have laughed fit to split——''

''Nicholas Burke, you must stop talkin' like that, or I'll send you home,'' reproved Mrs. Burke, looking severely at her son, and with deprecating side-glances at his audience.

''Excuse me, ma. It will be all over in a minute. But really, you'd have laughed like sin—I mean you'd have just laughed yourself sick. Tooley was awful nervous when the basket went up. For a minute he crouched and stood still, scared stiff at the three kids, all yellin' like mad; then he ducked his head and bolted off the circle thru my quarter and flew up on a beam. I thought the kids would bust.''

Mrs. Burke sighed heavily.

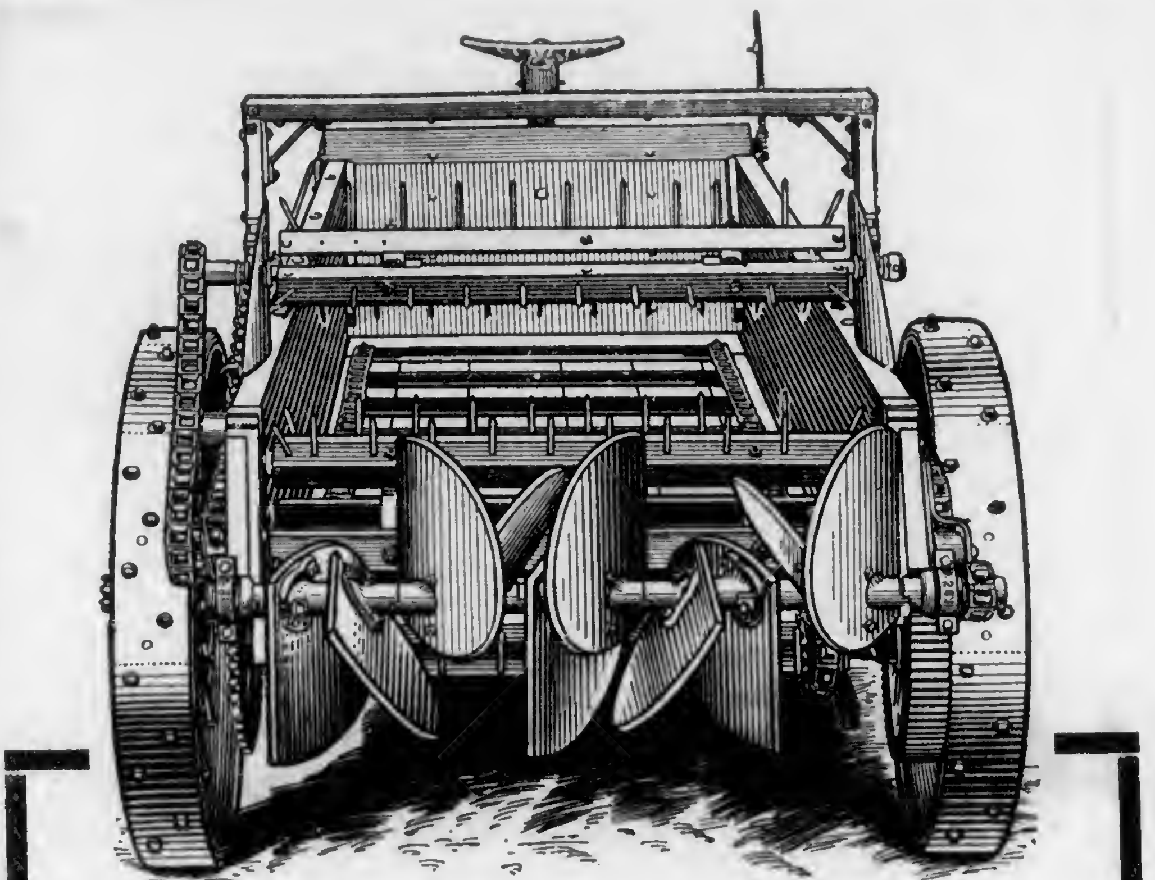
''Well, burst, then. But while they were laughin' I raked in the cash. You see I just had to. I won it for fair. I'd kept quiet, and that's why Tooley come across my quarter.''

Mrs. Maxwell was sorting over her music, while Maxwell's face was hidden behind a paper. Mrs. Burke was silent thru despair. Nickey glanced furitively at his hearers for a moment and then continued:

''Yes, the kids was tickled; but they got awful quiet when I told them to fork over another cent apiece for the jack-pot.''

''What in the name of conscience is a jack-pot?'' Hepsey asked.

Donald laughed and Nickey continued:



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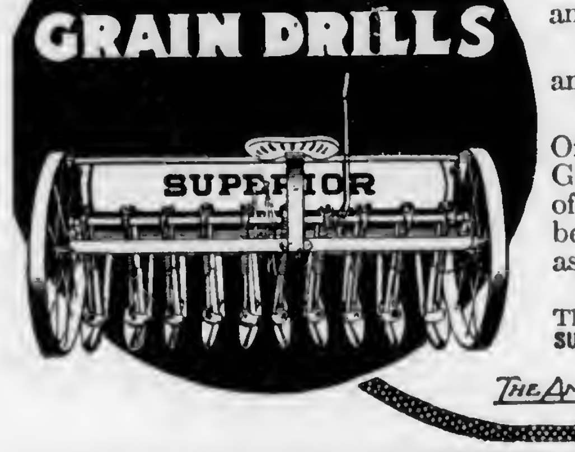

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"A jack-pot's a jack-pot; there isn't no other name that I ever heard of. We caught Tooley and stuck him under the basket, and made him do it all over again. You see, every time when Tooley got loose, the kids all leant forward and yelled like mad; but I just kept my mouth shut, and leaned way back out of the way so that Tooley'd run thru my quarter. So I won most all the time."

There was a pause, while Nickey looked a bit apprehensively at his audience. But he went on gamely to the end of the chapter.

"Once Tooley made a bolt in a straight line thru Dimp's quarter, and hit Dimp in the mouth, and bowled him over like a nine-pin. Dimp was seared to death, and howled like murder till he found he'd scooped the pot; then he got quiet. After we made Tooley run ten time, he struck work and wouldn't run any more; so we just had to let him go; but I didn't care nothin' about that, 'cause you see I had the kids' cash in my pants pocket, and that was what I was after. Well, sir, when it was all over, 'cause I'd busted the bank——"

"Nicholas Burke, I am ashamed of you."

"Never mind, ma; I'm most thru now. When they found I'd busted the bank, they looked kind of blue, and Dimp Perkins said it was a skin game, and I was a bunco steerer."

"What did you say to that?" Donald inquired.

"Oh, I just said it was all for religion, it was church money, and it was all right. I was just gleanin' what few cents they had, to pay the church debt to the missionary; and they ought to be ashamed to have a church debt hangin' over 'em, and they'd ought to be more cheerful 'bout givin' a little somethin' toward raisin' of it."

When Nickey had finished, there was an ominous silence for a moment or two, and then his mother said sternly:

"What do you suppose Mrs. Perkins will say when she finds that you've tricked her son into a regular gambling scheme, to get his money away from him?"

"Mrs. Perkins," retorted Nickey, thoroly aroused by the soft impeachment. "I should worry! At the church fair, before Mr. Maxwell came, she ran a fancy table, and tried to sell a baby blanket to an old bachelor; but he wouldn't take it. Then when he wasn't lookin', blessed if she didn't turn around and tie the four corners together with a bit of ribbon, and sell it to him for a handkerchief case. She got two dollars for it, and it wasn't worth seventy five cents. She was as proud as a dog with two tails, and went around tellin' everybody."

Silence reigned, ominous and general, and Nickey braced himself for the storm. Even Mrs. Maxwell didn't look at him, and that was pretty bad. He began to get hot all over, and the matter was fast assuming a new aspect in his own mind which made him ashamed of himself. His spirits sank lower and lower. Finally his mother remarked quietly:

"Nickey, I thought you were goin' to be a gentleman."

"That's straight, all right, what I've told you," he murmured abashed.

There was another silent pause—presently broken by Nickey.

"I guess I hadn't thought about it, just that way. I guess I'll give the kids their money back," he volunteered despondently—"only I'll have to make it up, some way, in the treasury." He felt in his pockets, and jingled the coins.

Another pause—with only the ticking of him mother's knitting needles to relieve the oppressive silence. Suddenly the worried pucker disappeared from his brow, and his face brightened like a sunburst.

"I've got it, Mrs. Maxwell," he cried. "I've got seventy-five cents comin' to me down at the Variety Store, for birch-bark frames, and I'll give that for the blamed old missionaries. That's square, ain't it now?"

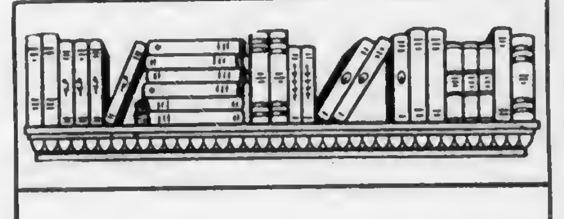
Mrs. Betty's commendation and her smile were salve to the wounds of her young guest, and Donald's hearty laughter soon dispelled the sense of social failure which was beginning to cloud Nickey's happy spirit.

"Say Nickey," said Maxwell, throwing down his paper, "Mrs. Betty and I want to start a Boy Scout Corps in the parish, and with your resourceful genius you could get the boys together, and explain it to them, and soon we should have the whole thing in shipshape order. Will you do it?"

"Will I?" exclaimed the delighted recruit. "I guess so—but some of 'em ain't Piscopals, Mr. Maxwell; there's Sam Cooley, he's a Methodist, and—"

"That doesn't cut any ice, Nickey—excuse my slang, ladies," he apologized to his wife and Hepsey.

(To be continued.)



PIECES *to* SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

THE RURAL TELEPHONE

Neighbors not so far from here,
Put in a telephone last year;
Farmers built a rural line—
Instruments all talked up fine,
All you had to do was ring—
Every bell went ting-a-ling—
One for central, two for Boggs,
Short and long call for Scroggs.

Every neighbor had his call;
Twist the crank and that was all;
Mighty nice when work was thru
To gossip for an hour or two
With your neighbors one by one;
Mighty nice but lots more fun
When you heard some other two
Telling what was not for you.

Every time the signal rang
To the phone each farmer sprang;
Slyly grinned and softly took
Each received from its hook;
Other people's secrets dear
Poured into his large red ear;
How he slapped his legs—"I swan,
Telephoning's lots of fun."

Somehow in a year or two,
Troubles dark began to brew;
Farmer Jones got fighting hot;
Heard old Scroggs called him a sot;
Farmer Scroggs seemed angry too
Heard Smith telling what he knew.
Smith heard Apple telling lies;
Paid him off with two black eyes.

Women too were in the muss
Raised a most tremendous fuss—
Everyone from Scroggs to Jones
In glass houses throwing stones.
Now the line has silent grown
Wires rusted, poles o'erthrown.
Now twenty friends are deadly foes
Each one full of griefs and woes;
Each too mad to speak a word
Because of things they've overheard.

Submitted by—
Mrs. Chas. S. Paxson, Bucks Co., Pa

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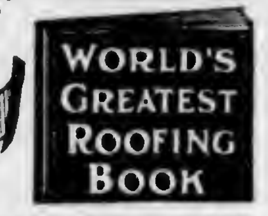

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Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Wire Cut.—Swollen Leg.—A month or six weeks ago one of my horses got fast in wire, getting a bad cut on inside of left hind leg. I used peroxide, lard and turpentine, the sore is nearly healed, but the leg is much swollen. Horse does not appear to suffer pain and works all right. How can I reduce swelling? T. P., Schwenksville, Pa.—Give him one dram potassium iodide at a dose, once a day and bandage leg in cotton. A swelling of this kind is not easily reduced.

Indigestion.—Pin Worms.—We have a seven-year-old horse that is troubled with pin worms. He is very low in flesh, been treated by our local veterinary for sometime, but nothing we have done for him yet appears to have helped him. B. R. P., Orwigsburg, Pa.—Mix together one part powdered sulphate iron, one part salt and two parts fenugreek, four parts ground gentian—give him a tablespoonful at a dose, in ground feed, three times a day. This horse should be well groomed, fed all the nourishing food he will eat and not over-worked.

Surfeit.—I have a four-year-old horse that is troubled with small bunches on different parts of body and when curried or brushed they drop off, but the skin is itchy and in an irritated condition. I called the attention of our local veterinarian to this case and he told me that very little benefit could be derived from treatment. S. N. K., Canton, Pa.—An animal of this kind with rough coat should be clipped, a linen blanket applied next to body and a heavier blanket over it; but, if light coated, groom well twice a day, using a good bristle brush, and give ½ oz. doses of Donovan's solution in soft feed three times a day. It is also a good plan to feed her some roots and exercise her daily.

Scurvey.—I have several pigs that are twelve weeks old which were weaned four weeks ago, since then they have a scaly-like scabby condition of the skin, but their appetite is good. Two of this litter died. I feed them equal parts skimmed milk, water with some middlings and add a few oats. Would you advise me to use corn fodder for bedding? J. K. H., Quakertown, Pa.—Apply one part oxide of zinc and seven parts vaseline to irritated portions of skin every day or two. They should be kept in a dry, warm and clean place. Corn stalks make poor bedding for any kind of livestock.

Indigestion.—I have a cow that has periodical attacks of indigestion—these attacks seem to come on every four or five weeks. Since she had last sick spell her appetite has been poor and has lost flesh. She is not giving milk at present, but will come fresh about the middle of February. I am feeding her bran and oil meal, but she is hide-bound and her bowels are in bad condition. M. I. L., Lane, Pa.—I am inclined to believe that a change of feed, giving her more clover or alfalfa and ground oats would be better for her than bran and oil meal. Give her ½ oz. ground gentian, ½ oz. ground cinchona, one dram ground nux vomica at a dose either in feed or in a quart of water as a drench three times a day.

Rheumatism.—I have a four year old colt that I have worked for the past twelve months, but lately he went lame in right hind leg. His lameness is much more severe some days than others and it is quite puzzling to locate this trouble. His lameness comes on rather suddenly and seems to disappear about as quickly. On December 10th, I started for town to get him shod, showed no lameness until end of third mile, but after I got him shod he seemed much better. E. J. L., Meshoppen, Pa.—Give him a teaspoonful nitrate of potash at a dose in feed twice a day for a week, then give him one dram potassium iodide twice a day. It is possible while traveling that he strikes his shin with opposite foot. By close observation you will be able to soon locate his lameness.

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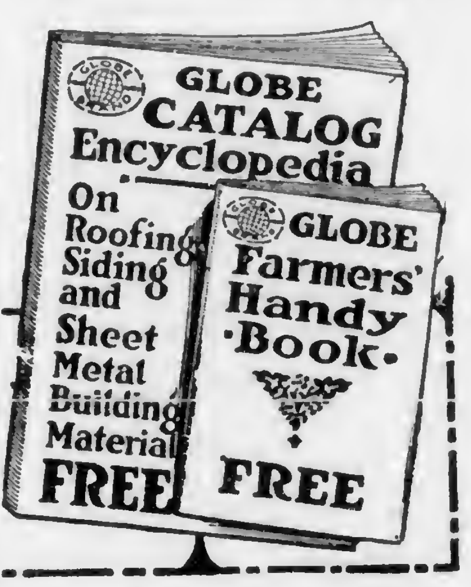
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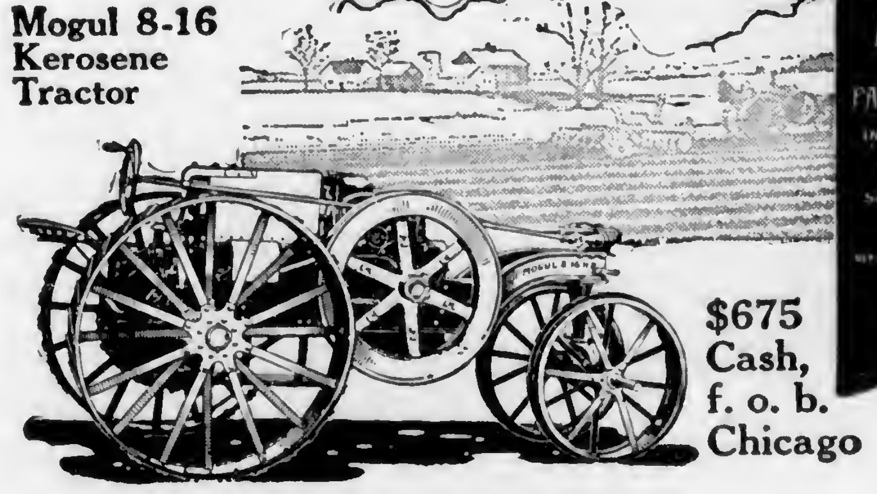
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Factors Affecting the Rural Church

By John H. Reisner
Fulton Co., Pa.

Let it be fully understood at the beginning that I believe the church is, or should be made the most important single institution, or enterprise if you wish, in any rural community. It is more important to my mind than co-operative commercial enterprise, than good transportation facilities, than quick and easy means of communication, than the most highly developed organization for community social intercourse. I make such statements because I believe that christian character is the only adequate foundation for permanent progress in the rural community as well as in any other community. I am on the side of those working for the betterment and the making possible of a greater and more effective functioning of the church in any rural community; and the following statements are made in the spirit of constructive and not destructive criticism. On the other hand, and at the same time, they represent the truth as I see it, and as experience and observation have taught. Let us reason together with open minds, relate the real facts in the matter, discuss frankly the relating factors and seek a logical and workable conclusion.

FIVE CHURCHES IN INDIANA CO., PA., TOWN, WHICH COULD BE SERVED BETTER BY ONE.

Let us not bring charges against any particular church or community, for there are more important considerations; but let us, rather, in a broad but comprehensive manner, discuss factors and conditions representative of rural communities in general. "If the shoe fits our community, then let us put it on and wear it."

These factors are, in order of relative importance, I believe: Church leadership, both ministerial and lay; the function of the rural church; denominationalism; church finances; church structures and population. Let us discuss them in the reverse order of their importance.

Population

Every church must have active church members, and they must have a sufficient number of members for effective service. The support of the church, moral and financial, depends upon its members. The members in the last analysis are recruits from the population of the rural community. Where the rural church problems are most acute one of two things or both have happened to the population: There has been an actual decrease in numbers due to emigration to the city or to other communities, to the death of the older citizens and to a smaller birthrate among the present generation; or the population has been divided into a number of units by denominationalism or sectarianism. Which of these two reasons is the more important is difficult to say.

When the population is besieged with different denominations, more or less competition is present, and consequently more active life among the churches. Where there is a gradual and seemingly natural decline in the population, the church or churches in the community have suffered in proportion. The old church patriarchs have died or are fast dying off, and the present generation lacks the zeal and interest with which the church was earlier vested. Changes in the number, character and division of the rural population, connotes in a way the status of the present-day churches.

CENTRE PRESBYTERIAN CHURCH LOCATED IN A RURAL COMMUNITY, YORK COUNTY, PA.

Church Structures

The present church structures are frequently the legacy of a past generation. They were built for the preceeding generations and answered their purpose well. Now, however, there are either too many for the total population or they are too large for the congregation, or they are so uncomfortable that they actually repel rather than appeal. They are neither modern nor comfortable. Home is more so in both respects, and the people prefer their own homes to the church as a consequence. Much could be written and said about church structures, but we must also be generous enough to consider that the structure represents community enterprise and money, is more or less stable property, and can not easily be removed and oftentime remodeled satisfactorily. The seats are straight and hard and uncomfortable; ventilation is usually poor; the temperature can not well be regulated, and the inside decorations are wholly unattractive and antiquated. Further, it is limited by tradition in the uses to which the church may be put. But this is certainly not one of the most important factors. Such undesirable external environment will be no serious handicap to a wide-awake and efficient congregation. Such a congregation will overcome difficulties of external appearances, and secure good results in spite of them. We are simply presenting conditions as they are and as they affect the general subject.

Church Finances

This problem is not, is there sufficient money in the community? But rather, is there sufficient interest, religious, social and personal, among the members of the church? Man can not serve two masters. Energetic and progressive churches, whose members are actively engaged in doing the work of the church, are not concerned with a financial problem. Where a man's interest is, there will be his money also. But the financial problem is nevertheless a distressing one in many communities.

There must be considered the support of the pastor, maintenance and repairs of the church property, special church contributions such as missions, aid societies, charities, etc. But it must be further considered that the country preacher's salary has not increased with the increase in the cost of living. In one of the denominations today there are over three thousand clergymen who receive less than $500 a year. It is not well to economize too greatly in matters religious. As community enterprises, churches certainly ought not to be penny wise and pound foolish. But the finances are not the limiting or determining factors in the life of a church or a community. The trouble lies still deeper.

Denominationalism

This is one of the important factors and serious barriers in the way of community church unity. But thanks to the power of the truth to triumph eventually this barrier is steadily but surely giving way to the more modern and certainly more Christian idea of unity. The question has often been reverently and opportunely asked, to what church would the great Teacher go if he were to come on the earth again. It is questionable whether He would find any fashioned after his own desires, and would have to decide between any two to eight different denominations in any community. But think what a change there would be if these two to eight churches had all united in one church, and called it the Church of Christ in this or that community. What do all the petty differences in church denomination and beliefs and creeds and teachings amount to, after all is said and done?

It is not necessary to abolish all of the different names of denominations, but let us be broad-minded enough to acknowledge our own limitations and generous enough to sympathize with limitations of our neighbors and work for unity, for in unity there is strength. Why should two congregations in the same community struggle along without a pastor half of the time, more or less, finances of each in a bad condition, property fast depreciating in value, interest in moral and religious matters waning, when by a simple act of union, one strong church could be built up that was able to perform a real service to the community at large?

The present problem of denominationalism has come about from two causes. In the first place there were too many sects originally in the community. With the decrease in population, each became weaker and each tried to struggle on. In the second place, new sects have been introduced from without by new incoming members of the community and possibly because of missionary activity. It increases the total cost to community in pastor's salaries, upkeep of property and charities. It inhibits community unity and encourages caste.

Function of the Church

What is and what shall be the function of the rural church? Is it wholly religious or spiritual? Is it social? Is it the birthplace for community betterment propagandas or is it functionless? Any community can answer these simple questions. What shall it be? Shall it be the social and recreation center as well as the religious center of community life? Shall the purpose of the church deal with the moral and religious betterment of the community? Shall it attempt to be an influence for progress and right in all community enterprise, commercial as well as social or moral? Can it not function more widely than at present without becoming too closely identified in organization and otherwise with other community enterprises and institutions?

Church Leadership

We have specially trained teachers for all grades of public schools, for domestic art and science, for manual labor. We have preachers trained for mission work, for city church extension work, for social work; and why not have a specially and correctly trained rural church leadership on the part of the ministry? Far be it from me to disparage the work of any country church minister, but other things being equal, a trained minister would be preferable to one untrained. On the part of the laiety, there is too often lack of enthusiasm and interest and leaders who will assume personal responsibility for the furtherance of the work of the church. It is just as essential that a minister have efficient co-operation on the part of the congregation as that the congregation shall have proper leadership on the part of the pastor. Each must compliment the other in undertaking the leadership of the church.

Solution?

No panacea is offered. Every community must work out its own salvation the best way it can. Suggestions to the solution may, however, indicate the general direction. In the first place, there must be adequate, trained leadership, both in the ministry and in the laiety. There must in many instances be consolidation and union of the churches now trying to eke out an existence in the face of financial, spiritual and numerical starvation. There should be a new functioning of the church which will find itself as an outcome of redirected leadership and consolidation. Finally, it must be a community and not a sectarian enterprise. The church must lose itself in service for the community before she will find herself in the high place of influence which must some day undoubtedly come to her. Such problems as finance, etc., will take care of themselves in the adjustment of church leadership, membership and community service. No one can be wholly interested in any community unless he is wholly interested in and in sympathy with the living rural church.

A Good Clover Catch

The accompanying illustration shows a field of clover which made a growth of two feet after the wheat was out. This crop of clover was seeded April 10th, 1915 and wheat was cut July 15th. Incidentally, it might be stated that the wheat in the field where the clover was grown, yielded at the rate of 40 bushels per acre and was raised with a heavy application of high-grade fertilizer. This picture of the clover field is ample proof that the use of plantfood on wheat increases the growth of the crop following.

CLOVER FIELD, ONTARIO CO., N. Y., SEEDED IN WHEAT IN APRIL, 1915.
Clover Grew to 2 feet after Wheat was cut.—2-8-10 Fertilizer used.

Attendance of Farmers at Important Meetings

Of what class of workers should an audience of a convention or the conferees of a conference called by the U. S. Department of Agriculture be formed?

Most everybody will answer—farmers!

A Nebraska farmer and breeder of beef cattle brought up this question at the recent conference called by the Secretary of Agriculture, Washington, and held in Chicago. It was held in one of the finest hotels in the city and drew one of the largest audiences ever held in this section of the country. The subject discussed was the foot and mouth disease among farm animals.

This Nebraskan claimed privately that he was unable to find any farmers, and afterward he made the statement in open house that he could find almost any other kind of business man in the halls or convention room.

Within the last five years a considerable number of meetings have been held at government expense, ostensibly in the interest of the farmers without having a farmers attendance. On other occasions the absence of practical soil tillers was a clearly apparent fact.

Then who are the people who fill up the room on such occasions?

Most of them belong to the various classes of business men and traders who make it their business to earn a livelihood in handling farm products.

In and around Chicago there is another class of men with considerable time on their hands. They are retired farmers who have made enough money to get off the farm and stay off. Some of them no longer own farms, they've sold out and moved to town. Many of these men go to agricultural meetings, and not a few participate in the debates and discussions. Many professional men, especially the veterinarians attend such meetings, but the farmers are on their farms. They are not present in any where near the number urged to be on hand.

Two or three years ago it was customary at these government meetings to appoint committees for the purpose of formulating resolutions appealing to legislative bodies for one thing or another. The resolution would either be adopted or voted down, in either case by a body of men in one way or another making their money off the farms they did not farm.

It is no fault of the department officials at Washington or of state officials that seats that ought to be filled by farmers at strictly agricultural meetings are held down by farm-product buyers and traders, sellers of professional services to the farm, and by bankers who lend money to farmers. Wide publicity is given to the holding of agricultural meetings and the real farmer may have all the advantages of such a meeting if he will only attend them.

Not long ago the officers of the Illinois State Farmers' Institute made a good and successful move in getting better farm attendance at the institutes. In some instances the place of meeting was considerably removed from a fine agricultural community without railway connection. In one place in particular in Kane county the farmers wouldn't drive to the meeting. Then the institute drove to the community, the largest vacant room to be obtained was hired, and it was filled to overflowing with the soil tillers and their families.

Agricultural demonstration trains operated on railroads of the west got and get the best kind of farm attendance. The trains equipped with exhibits, charts, sometimes with moving pictures stop at frequent intervals. The first that a farmer knows that he is wanted to attend a farm meeting at the nearest station is when the messenger of a station agent knocks at his door and invites him to the free show and there are farmers waiting when the train arrives.

It is not only what the farmer loses in education and actual demonstration by not attending such meetings, but it is what the conference loses by not having the farmer present. Not infrequently a plain spoken soil tiller gets on his feet and relates an experience, some experiment that he has tried on his own hook, that is of interest and actual value to every man who hears him, and in the instances when reports are made of meetings the farmers talk is reduced to shorthand notes, afterwards transcribed, printed and sent out to the agricultural world as a piece of worth-while information.

At the foot and mouth conference held in Chicago, which was presided over by Assistant Secretary of Agriculture Vrooman, the chairman refused to appoint committees to draft resolutions, he would accept nothing of the kind or put it to vote, he ruled that such reslutions must be formulated in the communities intended to be benefited. If a resolution concerning farm matters had been brought up at the conference it would have been disposed of by others than the men, women, and children most interested in the farm.—J. L. Graff.

Lindenhurst Farm Notes

By R. P. Kester

There is a better expression on the business farmer's face and a more optimistic tone in his conversation than there was at this time last year when business was at a standstill and mile-long bread lines stood in all the great cities. The sorrowful thought in connection with it is that a part of the present prosperity is due to the great calamity across the sea.

While prices are not as high as they have sometimes been, yet there is a good steady demand at fair prices for everything the farmer has.

The most important problem he may have to meet the coming year will be the labor problem. If manufacturing and the railroads keep up their present pace, labor for farms will be scarce and demand such wages as the farmer cannot pay. A state official gave out the information the other day that "farmers are behind other business men in increasing labor wages. While in other business wages have been quite generally advanced, the farm laborer is receiving the same as he did before the era of prosperity began." I wonder if he took into consideration that the value of farms, and the farm income had not jumped with stocks and products of other lines.

Not only will the activity in other industries tend to make farm labor scarce, but the number of immigrant laborers is the lowest now in years. Now is the time for farmers, individually and in combination, to study how they may conduct their farming operations at the least possible cost. First, study how to give the farm laborer steady employment. If he is a married man he must be provided with a comfortable home. Farmers must quit depending upon the telephone and the morning call when in a "pinch." When times are good, men are not standing around waiting for a few day's work, to be turned off when that task is finished. I want to mention again the possibility of a number of farmers in co-operation engaging a number of laborers and building for them homes in little groups on the colony plan, where they can have their homes, gardens, and the society of their own people.

Second, many if not most farms could be better equipped with machinery for doing much of the work that must now be done by hand. Machinery is often much more economical and dependable than human beings. A neighbor remarked the other day that he felt like a new man since he equipped his barn and dairy house with proper machinery. He keeps 40 cows and used to be in a continual sweat, especially on Sundays and holidays when his hired help would not "turn up", as to how he would get his milking and separating done. Now, with a gasoline engine, mechanical milker, and cream separator he can do the whole business in less time and he doesn't lie awake at nights worrying. This same engine pumps the water without attention that formerly took the time of a man for half a day.

The manure spreader is a labor saver. Some machinery, such as corn planters, potato planters, grain drills, reapers and binders, etc., are in general use on large farms, but in localities where small farms are the rule, they may be owned co-operatively to advantage. Then, there is coming the tractor—in fact it has come, and in all probability like the automobile which at first many farmers criticised and resented, I believe it will soon be found in favor with farmers generally. The fact that one man can do the work of three to five men and teams will appeal to the farmer when he is up against the labor problem. Let me repeat, if prosperity in the general field continues, the question of farm labor will be the biggest one the farmer will have to face in the near future.

Solving the labor question by the installation of machinery accents the first point mentioned, that of continuous help. A green hand hired for a few days at a time will not be satisfactory. He must become a part of the equipment. In order to provide such, it may be worth while for farmers to consider the question profit-sharing with permanent farm help. Personally, I believe this a legitimate and important question, one that will help both the farm hand and the farmer—but this is another and a bigger question.

The following letter from a subscriber comes in as I write:

"Editors Pennsylvania Farmer:

Having read in your paper that the people of Belgium, Poland, Serbia and Armenia are good agricultural workers, it seems to me that the best way to help them in this their hour of great need is this: Let Congress temporarily suspend the Contract Labor law so as to legalize the offering of these people jobs on our farms and in rural homes, and to assist their migration to this country by paying their passage. Don't you think we have many in our country who would make good farmers if they had assistance to start, and become able in time to pay back all they received?"—W. H. I., Dauphin Co., Pa.

22 Tons of Cabbage Per Acre

The accompanying photograph shows a field of cabbage which yielded at the rate of 22 tons per acre. In writing about this remarkable yield, the grower states that the crop was grown on timothy sod plowed last spring. About the 15th of May, the ground was well prepared and 150 pounds per acre of high-grade fertilizer was applied, and thoroly harrowed into the soil. The cabbage was set out on the 15th of June with a cabbage planter at which time another 150 pounds of high-grade fertilizer was applied, it being distributed thru the cabbage planter right in the row with the cabbage. The field was well cultivated and kept clean, and this remarkable crop is the result.

Queries and Comments

(This department is open to all of our subscribers. Queries and short comments are invited. Queries will be answered by best available authorities.)

Raw Rock Phosphate

"The price of acid treated phosphate will be out of sight the coming year owing to the big advance in the price of acid. I have read a little about the pulverized raw rock phosphate. How should it be handled to do the same good as acid phosphate? Will it act as quickly? I will appreciate any further information you can give me. Can you give me names and addresses of manufacturers of ground phosphate rock?—C. E. S., Adams Co., Pa.

CABBAGE FIELD, ONTARIO CO., N. Y., 2-8-10 FERTILIZERS USED.
GAVE CROP OF 20 TONS PER ACRE.

As our correspondent says, it is possible that the price of acid phosphate may advance considerably during the year owing to the difficulty of procuring sufficient sulphuric acid for treating the ground rock. It requires about one ton of acid to treat a ton of rock so as to make the phosphoric acid available. If this rise should occur it will be a good opportunity to try out the raw rock phosphate.

There has been considerable controversy over this matter between scientific men as well as laymen for a number of years, but there is sufficient agreement to warrant its use when bought at the right price, especially by men producing and applying large amounts of stable manure. It is agreed by all authorities that there must be organic (vegetable) matter in the soil, the decaying of which produces acids which convert the phosphorus of the raw rock into soluble form. This has been proven to be effective by experiments at a number of experiment stations, and also by a great number of practical farmers.

One of the most practical ways to use it is by mixing it with the stable manure—applying it in the gutters, on the manure pile, or in the yard daily. By applying it in this way it is benefitted by whatever decomposition and fermentation takes place in the manure previous to its application in the field. It also absorbs and holds a portion of the liquid manure thus preventing loss in this way.

Where there is plenty of humus-making material in the soil from sods, green crops, etc., the decay of these will help in making the rock soluble, but for best results good, fresh manure is preferable. The correspondent can secure names of manufacturers by consulting the advertising columns of Pennsylvania Farmer.

Sorghum for Forage

"Kindly inform me thru your paper if sorghum will cross with field corn if sown in adjoining fields. How and when should it be sown to supplement pasture?" E. J. C., New Jersey.

Sorghum is one of the most valuable forage plants. It is a stronger feeding plant than corn and will stand drouth better. Seed broadcast after the soil is well warmed up, say about corn planting time. Sow one and one-half to two bushels per acre and harrow in. A disk harrow does the work well. Some growers sow a half bushel of Canada peas with the seed, and that much less sorghum. This makes a better feed. The field should be free as possible from weed seed as the plants start slowly. Where this is feared, it is best to sow in drills 24 to 28 inches apart and cultivate two or three times. Do not turn stock onto field when they are hungry, nor for long time until they become accustomed to it. Do not pasture until dew is off in morning. Fatal results sometimes occur from overeating green sorghum. Some growers cut the first crop for hay and pasture it afterwards. We can not say as to the pollen mixing with corn, but sorghum grows no ear and we doubt if it will cross when grown and used as you desire.

Glazed Tile Curbing for Wells

Are farm wells ever walled with the glazed tile? If so, will you kindly give me a description of just how it is done? One point that puzzles me is which end of the tile would you put down first. I suppose the end with the bell on it would want to be up and the plain end down, as it should be cemented together. I am particularly interested because a well that I have is giving trouble from rats working rubbish into the well.—A. A. Colburn, Harford Co., Md.

Farm wells differ very materially in methods of construction and also in relation to sanitation. Dug wells are usually about three feet in diameter and are lined with brick or stone. The joints should be made water tight by cementing for at least 10 feet below the ground, and a water-tight (preferably concrete) platform should be provided. A dug well is usually considered the most difficult kind of a well to keep sanitary.

There is another well having all the characteristics of a dug well so far as pollution is concerned, but resembles tubular wells in the methods of sinking it. This is the vitrified-tile lined well. The diameter of the tile varies from 8 to 18 inches, and the method of drilling is that ordinarily used for tubular wells in loose material. The tile are let down into the well with the bell end up and are usually cemeted around the joints except for the upper ten to fifteen feet where a mixture of equal parts of cement and sand with enough water added to make it sloppy is used. The mixture is lowered a little at a time by means of a tool with a long wooden handle similar to a garden hoe. It is forced from this tool and into the joints by means of a long wooden stick. It is well to puddle the soil around the tile as an added precaution against the entrance of surface water into the well.—Richard A. Andree, Instructor in Farm Mechanics, Pennsylvania State College.

LIME AIDS FERTILITY

Lime is essential to the maintenance of fertility of practically all soils. Red clover fails when the lime requirement of a soil is 1500 to 1700 pounds of caustic or burnt lime (equivalent to 2700 to 3000 pounds carbonated lime or ground limestone) per acre seven inches of soil. A soil requiring 500 to 1000 pounds of burnt lime per acre to correct its acidity does not interfere seriously with clover growth.

Soil acidity seldom becomes sufficiently marked under ordinary farm conditions to affect noticeably cereals and grasses, altho these may be indirectly affected by the failure of clover.

Lime has been found to be most beneficial in promoting legume growth, thereby building up the nitrogen supply and the general fertility of the soil.

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The Standardized Automobile Upholstery

DU PONT Fabrikoid, Motor Quality, is used on more than half of all 1916 automobiles.

Several years' use on hundreds of thousands of cars has proved its superiority over coated splits, commonly called "genuine leather."

Popular motor car prices are low because every detail of their manufacture is of *standard guaranteed* quality and cost.

Coated splits, weak and irregular in quality, durability and price, cannot be standardized.

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Every Farmer needs these Grinding Plates

THEY save time and expense in grinding all kinds of grain. But here's the principal feature—*they grind green, soft corn rapidly and fine without choking.* This is made possible by our new improved grinding plates made for all styles of

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If you already have a NEW HOLLAND, we'll make it better than when new with a set of these plates. Or if you are thinking of buying a new mill, ask us about our proposition before you purchase some other mill.

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BLUE HEN HOT AIR COLONY BROODER

As big as any $30 brooder. Grate, 2 1-4 times the area of any other. Regulator, automatic and certain in action. Only brooder with special curtain attachments that prevent drafts without cutting off fresh air.

Guaranteed Satisfactory or Money Back

Shows HOVER RAISED

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Drawer 36
Lancaster, Pa.

Mfgr. of Blue Hen Brooders (Hot-air and Hot-water), Round Tray and Round Tray Mammoth Incubators. Get Special Makers' Prices and proposition to dealers or Agents

SHOEMAKER'S BOOK on POULTRY

and Almanac for 1916 has 200 pages with many colored plates of fowls true to life. It tells all about chickens, their prices, their care, diseases and remedies. All about Incubators, their prices and their operation. All about poultry houses and how to build them. It's an encyclopedia of chickendom. You need it. Only 15c. C. C. SHOEMAKER, Box 1109 Freeport, Ill.

Poultry

SHIPPING LIVE POULTRY

Coops should be high enough to permit the poultry to stand easily upright without bending their legs and with space enough between the slats to pass their heads thru. The coops should be strong, but light; heavy wood can be dispensed with if long nails are used. They should not be so large as to be awkward and cumbersome to handle. When large coops are used they should have partitions, so that when the coop is accidentally tilted the whole weight of poultry will not be thrown upon those at the side and end. The poultry should have plenty of room. Crowding too many into a coop causes loss by suffocation. Only one kind should be sent in a coop when the size of lot permits dividing the kinds. All poultry reaching here the following day after shipment should be fed lightly before being placed in the coop, so as avoid any infringement of the law regarding food in the crops of poultry. Western and southern poultry shipped here is generally sent in car loads, accompanied by a man to feed and water them. The first day or two after the car starts the poultry should be fed lightly; after they have become accustomed to their new quarters the quantity of food may be increased with good results. Over feeding on the start makes the poultry dumpish and sick, from which they do not recover on the journey. The custom of the trade here is to let the coops go with the poultry free. Where the patent wire car is used either new or second hand coops are furnished here at the shippers' expense. The principal market days are from Monday to Thursday inclusive. There is seldom much trade on Friday or Saturday. The demand for live poultry is much larger than usual during the Hebrew holiday and feast days.—Prod. Price Current, N. Y.

MARKETING POULTRY WITH A HOME-MADE AUTO TRAILER.

FATTENING FOWLS FOR MARKET

After having labored to bring young fowls to a marketable size it does not pay the producer to market fowls in a poor condition; neither is it profitable to market a lot of skinny old hens. Not only is the producer the loser in weight thereby, but if shipped to the cities they are graded at the commission houses, and paid for according to condition; hence the light weight fowls bring less per pound on account of their inferior condition.

It does not require long feeding to fit fowls for the market. However, one is likely to become too zealous and over-feed, so it is best to feed carefully at first lest the fowls tire of the ration and refuse to eat and as a result the fattening process is prolonged. The turkey is particularly affected by overfeeding on corn, and too much care cannot be taken as to the amount given, especially when the turkeys are confined to a small lot and fed liberally. Almost invariably it will cause bowel trouble and a loss of some of the finest birds, which is something the owner can ill afford. Rather light feeding of mixed grains with plenty of green stuff is best and safest for this grand bird, avoiding a heavy corn diet.

Feed ducks, geese and chickens rather sparingly for the first three days, afterwards give as much corn as will be eaten up clean. Sour milk may be given daily. Always keep plenty of clean drinking water before the fowls. Two weeks should suffice to properly fit them for market.—C. B. Williams.

SUGGESTIONS FOR PREVENTING DISEASE

During late autumn and early winter disease, and especially colds, are apt to appear in the poultry flock. Drafts in the houses should be prevented. Birds affected with colds should be closely watched and given prompt treatment. The practice at the Pennsylvania Agricultural Experiment Station is to isolate a sick bird and wash its head in some mild disinfectant, such as creosol.

Simple colds may be doctored but contagious diseases like roup, when severe, leave no alternative but the destruction of afflicted hens. Indications of colds are sneezing, a watery discharge from the nostrils and a swelling under the eyes. The discharge does not have a disagreeable odor as in the case of roup.

Potassium permanganate used in the drinking water in a proportion to turn the water to a deep wine color will prevent, in a measure, the spread of colds.

Before pullets on the Pennsylvania State College farm are placed in the winter laying houses, these houses are thoroly scrubbed with hot water and sprayed with some good coal-tar solution. Exercise should be provided by scattering grain feed in the litter, which should be clean.

Clean, sanitary quarters, sunshine, fresh air, freedom from drafts, exercise and good, wholesome feed, mean a minimum of disease and a happier, healthier more contented flock, all of which contribute to uniform production of winter eggs.

OVERCROWDING

Overcrowding is one of the most common faults of amateur poultry keepers. They figure that by adding a few more chickens to a given space the profits will be increased proportionately; but this is not so, it will simply cut the profit down in many cases.

One spring I was very axious to get a large number of spring chickens started so I placed one hundred and five in a brooder that really should have accommodated fifty. Out of the one hundred and five I raised about fifty and many of these showed the effect of crowding by their lack of vitality. The next time I place only fifty chicks in the brooder and I raised forty-seven strong healthy chicks. I simply wasted fifty chicks before by placing too many in the brooder. There is no advantage in hatching more chickens than you can take care of. Also the chickens that are partly grown should never be crowded in large flocks in a limited amount of space. Last fall I had two hundred young chickens that had ranged over the farm during the summer. They weighed from two to four pounds apiece. I wanted to sow grass seed in a field near the poultry yard in the early summer so I had to confine them, in limited runs that should not have contained more than fifty. The result was, I fed them all the fall and they never grew to maturity. They just seemed to stand still and many of them went light. I did not have fifty prime chickens to kill. The rest had to be marketed as culls. It would have paid me much better to have killed all but fifty of them when I shut them up and sold them for what I could get rather than crowd them and waste a lot of good corn and then sell them at a loss.—Everett H. Sheppard, New Jersey.

PREVENTING MOLDY OATS

Moldy sprouted oats is dangerous to feed to poultry as it will cause no end of trouble, in fact it is far better to leave the fowls go without green food than to feed moldy material. Moldy oats may come from a number of causes such as excessive wetting, moldy surroundings, failure to wash and sun the trays, etc. The oats should be kept damp but not soggy and the trays should be scrubbed thoroly with hot water and washing-soda and then laid out in the sun and air. If the racks or trays can be kept in quarters receiving some sunshine each day, a great deal less trouble will be had with mold.

A BRAHMA COCKEREL.

However, under the best of conditions mold will sometimes persist and in such cases the only thing to do is treat the oats. The following method of treating oats intended for sprouting purposes, developed by the Poultry Department of Cornell University, will be found very effective as a preventive of mold: To 30 gallons of water add one pint of formalin and sprinkle over the oats, using this amount of solution on 30 bushels of oats. The oats should be turned while being sprinkled until the liquid is all absorbed. The heap should then be covered with blankets for 12 hours to allow the solution to thoroly disinfect the grain. After this the heap of oats should be spread out thinly and allowed to dry. As soon as it is thoroly dry the oats should be put in bags that have been sterilized by dipping in the formalin solution and stored in a dry place. Oats treated in this manner will keep indefinitely after sterilization until needed.—J. Raymond Kessler, Chester Co., Pa.

THE WHITE EGG TRADE

The greater part of the egg trade of New York makes no distinction as to color of the shells. Only a small part of the demand gives preference to white shells and this preference applies almost exclusively to new laid eggs of fancy quality. There is no use in separating white eggs from brown unless they are of very fancy quality in the spring and of reasonably new laid quality in the fall. Nearby henneries in this section produce white eggs chiefly and in the season of smallest production it often takes so long to get a full case to ship that only a few are new laid when they reach market. Also, when the pullets begin to lay in the late fall and early winter these are often mixed with the larger eggs while their value is much less. Values of straight packages are therefore extremely irregular at this season. During the season of short production producers are advised to ship half cases whenever they get so few as to make this necessary to insure freshness. Buyers of white eggs at extreme prices are very fastidious and an amount of shrinkage that would pass muster in general trade throws the white egg out of its special class as a fancy article. It is useless to hold white eggs until they become stale and then ship them for fresh with the expectation of realizing top prices. Nobody is deceived by calling stale eggs fresh, for quality is examined closely before purchase at any high price. So far as possible small whites and otherwise defective qualities should be packed and shipped separately.

JEWISH HOLIDAYS

The Hebrew year 5,676 commenced September 8, 1915, and extends to September 27, 1916. Of the five million people in New York City about one-quarter are Jews and as the important holidays and feast days are nearly all closely observed they are an important factor in nearly all markets but especially so with live poultry.

Purim.—March 19, 1916. Best market days, March 14th to 17th. Kinds most in demand, fowls and prime hen turkeys.

Passover.—April 18 and 19, 1916. Best market days, April 12th to 15th. Kinds most in demand, turkeys, heavy fowls, fat ducks and geese.

Last Passover.—April 24th and 25th, 1916. Best market days, April 20th to 22nd. Prime quality of all kinds wanted.

Feast of Weeks.—June 7, 1916. Best market days, June 1st to 5th. Good fowls especially wanted.

Poultry Queries

Blackhead of Turkeys

My turkeys have what appears to be blackhead. They refuse to eat, have diarrhea and the droppings have a bad odor. Their heads seem to dry up. What can I do for them?—Mrs. B. L. D., East Waterford, Pa.

The disease is blackhead. There is no satisfactory remedy known. Kill and bury all sick birds and clean up the house and nearby ground. New roosting quarters, and range as distant from the old as possible, should be provided for the future flock. The disease may be introduced by birds or hatching eggs from infected flocks. Fowls, pigeons and sparrows have also been found to carry the organism.

8 H. P. Only 320 lbs.

Clutch Pulley

Pick It Up and Walk Off

Did you ever see any other 8 H. P. Engine two men could carry? Cushman engines are the lightest weight farm engines in the world—easy to move around and put to work anywhere. No longer necessary to put up with old-style, back-breaking, heavy weight engines, with their violent explosions and their fast and slow speeds. The Cushman weighs only about one-fifth as much, per horsepower, but with its modern design, accurate balance and Throttle Governor, it runs much more steadily and quietly.

Cushman Light Weight Engines
40 to 60 lbs. Per Horsepower

The 4 H. P. weighs only 190 lbs. Mounted on iron truck, as shown below, it may be pulled around anywhere. Besides doing all other work, it may be attached to moving machines in the field, such as grain and corn binders, potato diggers, etc., driving the operating part and leaving the horses nothing to do but pull the machine out of gear. 8 H. P. 2-cyl. weighs only 320 pounds. Sizes up to 20 H. P. Not cheap engines, but cheap in the long run. Book free.

Engine Weighs Only 190 lbs.

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Permanent Fertility
The Cost and The Profit

"Twelve years' use of Rock Phosphate at a cost of $1.00 per acre per year, with legumes, has so enriched my land that I have averaged 5 tons of alfalfa per acre for seven years, 20 tons of silage, 115 bus. of corn, 88½ bus. of oats, and 52 bus. of wheat per acre." You can enrich your soil and grow the same crops at the same cost. Write us for full particulars of the Permanent Fertility System.

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Heat Underneath

DUPLEX Central Heating Plant squarely underneath—heat ascends—takes up proper amount of moisture from X-Ray Generator, is carried to all parts of hatching chamber uniformly. No cold sides or corners. Put a gallon of oil in X-Ray tank, light lamp and forget. Only 1 filling of tank required for entire hatch

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Biggest Hatches

X-Ray Automatic Trip regulates the heat exactly.

Send for free X-Ray book No. 84. X-Ray Incubators and Brooders shipped to practically all points *express prepaid.*

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Dept. 84
Des Moines, Iowa

One Filling

"Rarva" Meat Meal

85 Per Cent Protein, 7 Per Cent Fat Is a

POULTRY FOOD

Free from preservatives, chemicals or foreign matter of any description. It is a meat builder, bone maker and **egg producer.** It is the lean fibre of beef, clean and pure, appetizing and odorless.

Thoroughly dry, ready to feed, or may be used in the mash, as you prefer. Sample on request. *Sack 100 lbs. $4.00.*

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Send for "Rarva" booklet

WRITE Your Name on a Postal

and get our 1916 Incubator Book FREE and postpaid. Shows why Prairie State Incubators "hatch most chicks that live." Contains chapter on Poultry Diseases, also one on hatching and rearing. PRAIRIE STATE INCUBATOR CO. 121 Main Street, Homer City, Pa.

Leaders for 35 Years

Tells why chicks die

E. J. Reefer, the poultry expert, 9401 Reefer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure it." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

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Here is the original and only truly low-down Grain Drill. Sows all kinds of grain and grass seed with minute accuracy, and has a non-clogging force feed fertilizer attachment.

By loosening a single thumb nut, the entire fertilizer feed can be taken apart and lifted out of the Hopper for cleaning. Our Grain Feeds are of the force fluted variety. Both the quantity of fertilizer and of grain is regulated by levers on the rear of the Hopper.

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Write, explaining your needs fully, and ask for our special circular No. 27.

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Get in touch with us.

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284 Washington St. and West Washington Mkt., New York.

60 BREEDS Valuable Poultry Book Free—New 100-page 22nd Annual Edition. Fine pure bred chickens, ducks, geese and turkeys—Northern raised, hardy, beautiful. Fowls, Eggs and Incubators, low prices. America's greatest poultry farm. Write today for Free Book.
R. F. NEUBERT CO., Box 819 Mankato, Minn.

S. C. White Leghorns 250 egg strain. The kind with long deep bodies, yellow legs and beaks and large combs that lop to one side. Cock birds, Cockerels, Hens and Pullets from $1 to $5. Am now booking orders for day-old chicks, eggs for hatching and 8-week old pullets.
A. R. GRAVES, Whitesville, N. Y.

Single Comb White Leghorns Baby Chicks $10.00 per 100. Hatching Eggs $6.00 per 100.
IMPERIAL PEKIN DUCKS. Baby Ducks $18.00 per 100. Hatching Eggs $10.00 per 100.
Write for circular.
CHESTERBROOK FARM, Berwyn, Pa.

Special Sale Breeders and Egg Producers
Mammoth Emden Geese, Imperial Pekin Ducks, White African Guineas. Barred, Buff and White Rocks, R. I. Reds, Campines, Minorcas, Leghorns, Wyandottes.
Maple Cove Poultry Yards, R 2, Athens, Pa.

100 White Wyandotte Cockerels
7 to 8 lbs. each, bred from winners and layers. $2.00 each.
A. J. FELL, West Point, Pa.

Leghorns Ours win and lay. We are booking orders for April delivery. S. C. W. Leghorn chicks, $11 per hundred and up. R. C. Reds, $14.50; Barred Rocks, $15; White Wyandotte hatching eggs. Free booklet.
E. R. HUMMER & CO., R. D., Frenchtown, N. J.

Turkeys 600 selected breeding turkeys for sale; Bronze, Black White, Slate, Narragansett and Burbon Reds; from the finest flocks in America. Special prices until December 20th. Write
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White Leghorns. Cockerels from stock direct from D. W. Young. Fine selected vigorous birds; best of quality; at farmers' prices. Stock limited.
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Breeding Stock for Sale Silver White and Partridge Wyandottes. Pekin, Rouen and Indian Runner Ducks $2.50 each up. World's Best Blood Lines.
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Barred Rocks Large, early cockerels, pullets. Fine breeders. Show birds for any competition. Priced to sell.
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60 Page Book Free Describing varieties Poultry, Pigeons, Ferrets, Dogs, Hares at lowest terms. Fancy colored catalogue 10 cents. J. A. BERGEY, Telford, Pa.

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If you are in the market for strawberry plants you should see our 1916 catalogue before buying. We have all the best standard and new varieties, including the fall-bearing kinds, that are guaranteed true-to-name. Chesapeak, Big Joe, Warren, or Ewells Early, $3.50 per M. Wm. Belt, Tenn Prolific, New York, Bubach, or Helen Davis, $3.00 per M. Klondyke, Missionary, Aroma, Gandy, or Sen. Dunlap, $2.50 per M. Write today for our new catalogue. Its free and worth dollars to you.
E. W. JOHNSON & BRO., Salisbury, Md.

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Three earliest vegetables in cultivation for 10c. One packet each, Robinson's Earliest Tomato, Earliest Round Red Radish, Earliest Lettuce, 10c to new customers. Regular price 30c. CATALOG FREE.
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Carload Shipments wanted of POTATOES.
Apples, Onions, Hay, etc.; small commission, no expenses, prompt returns. Also small lots of Produce and Poultry, get our prices and terms before selling.
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Send Sketch or Model for Search.
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Soy Beans Seed for sale (Pekin variety) grown in Erie County, Pennsylvania.
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Big Profit Growing Ginseng and Golden Seal. Reliable information and book on culture 10 cts.
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Sweet Clover seed, special scarified, hulled and unhulled. Circular and prices on request. John A. Sheehan, R. 4, Falmouth, Ky.

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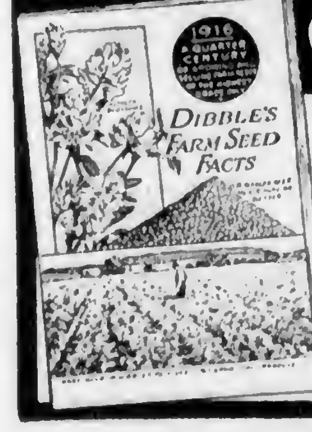

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Lessons from 1915

The Season in Orchard and Garden

The season just closed is one long to be remembered by the truck grower and fruit farmer. It has been one that will mark a mile stone in the progress of many a man who is farming along these lines. In years to come it will be referred to as one to be avoided, so far as the farmer is able to avoid a recurrence of the same. As the season of 1907 has been referred to many, many times as the one banner year that many farmers have not yet forgotten, so will the season just closed be remembered as one to avoid, so far as possible. But as farmers how are we to avoid a recurrence? What can the farmer himself do to help avoid such seasons? We, as farmers, must take our lesson from our failures as well as our successes.

Personally I feel that the best lessons I have learned thru life were learned thru my failures. When we succeed we are apt to think we know more than we really do and accept our successes as a matter of fact and let it go at that. But we fail, and that failure has cost us time, thought and money, we begin to inquire of ourselves what caused that failure and of course try to find a solution. This would not be so hard in many instances were it not for the fact that so many factors enter into a solution. That brings us to the solving of the problems of the season just closed. What shall we do to make the season of 1916 more profitable?

The closed season of 1915 began normally. The last half of April was seasonable but May cut up some capers quite unexpected with cold and wet. Many tender plants were set and seeds of many more tender ones planted. If they did not rot in the ground they came thru weak and spindling, only to meet cold winds and had to live or die in a cold lifeless soil. The plants did not grow as they should and many died. The lesson taught is, don't rush the planting of seeds of tender vegetables because the season is apparently rushing itself. Among my own operations first of all I covered my asparagus rows too early and too deeply for this kind of a season. I put the plants into cold storage, hence I did not cut as heavily as I might have done had I simply cultivated thoroly leaving the soil over the crowns shallow. Had this been done what warm sunshine that did come to the soil could have penetrated much nearer the roots, invigorating the root system to more rapid growth at a time when market conditions were good. The lesson is wait and see wha the weather has in store for us befor covering the asparagus crown ver deeply.

The peach crop comes in for some discussion too. I thought of planting another orchard in the spring but will not because after the experience of disposing of the crop this past season and looking over statistics and numerou young orchards yet to come into bearing I would not advise peach plantin extensively for the next two or thre years. Furthermore the past wet season has clearly demonstrated the inadvisability of having the fruitin branches too near the ground. I failed to see a single orchard that was fre from fly speck fungus where the frui was very near the ground. In man instances it was worthless. I am now trimming my trees on the outside t guard against that the coming year.

The lesson taught too is that those o us who are growing peaches, while w try to thin the fruit and think whe we are doing it we are taking off a tremendous amount of young fruit, i reality we are not taking off nearl enough. The lesson taught is to thi more. Never was it more clearly demonstrated than during this past peac season when growers found it impossible to sell second and cull peaches a any price.

A HANDY SPRAYER FOR HOME GROUNDS.

The past season has shown quit clearly too that when we growers hav an excessive wet season to contend wit like the one just closed we must spra more if we hope to have fruit withou blemish.

It is much easier for us to look bac and see our mistakes and realize whe we might have done better had w known what climatic conditions were t be thrust upon us. In other words "I our foresight was as good as our hindsight, we could do a blame sight better."

As I said in the forepart of this article, there are so many factors entering into farm operations it is hard t be prepared for all at all times. W have had for a number of years quit dry seasons hence most farm management was planned with a dry summer t contend with but every one was surprised. Still a fair volume of cro was produced. The partial failure amon truck and fruit growers was not s much because of lack of volume o crop as it was a selling market a paying prices. Neither was the volum of crop sufficiently excessive (peache excepted) to cause market depressio It was under consumption caused by lack of circulation of ready cash. Will next season be any better? Let us do our best and hope that it will.—C. C. Hulsart, Monmouth Co., N. J.

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Frost-proof cabbage plants are grown in the open in the states south of Virginia and Kentucky. The seed is planted at the proper time in the fall so the plants will attain a height of three or four inches before cold weather comes, after which the plants cease to grow and gradually accustom themselves to the winter conditions of the southern states.

Frost-proof cabbage plants can be grown much farther north than is usually supposed by covering the beds at the coming of cold weather, with cold frames. The plants should be three or four inches high before the protection of the frame is required. A location having a southern exposure should be chosen for the bed. As cold weather comes the frame should be placed over the bed and covered at first, while the weather is not yet severe, with canvas. When the plants have reached the desirable size for planting, growth should cease, and the plants held in a dormant state until early spring. If covered with the glass sash while the weather is only moderately cold, the plants would probably start to grow anew, which would destroy their usefulness. If the plants start to grow in the frame after having been dormant and are afterwards subjected to a low temperature, checking growth, it is likely that they will go to seed when transplanted in the spring.

When the weather becomes so cold that the cloth covering is not sufficient, the frame should be covered with glass. The frame, however, should be kept covered during the middle of the day in sunshiny weather in order that the temperature may be held low.

Cabbage plants grown in the [illegible] carried thru the winter in cold frames can be transplanted in the op[illegible] nd a month or six weeks earlier than plants grown in the spring. The fall plants are usually transplanted early in March and are not injured by frosts or the freezing weather that may be expected in the early spring. An advantage in planting fall-grown plants is that the crop can be marketed early in the season, while prices are high. Another advantage is that the cabbage crop is out of the way in time to plant the ground to something else.—T. Z. R.

CABBAGE VARIETIES

There are a great many varieties of cabbage on the market but, according to the Pennsylvania Experiment Station at State College, a few standard varieties will give satisfactory results for most purposes.

For early planting a good strain of Jersey Wakefield or Copenhagen Market is best. The Wakefield is slightly earlier than the Copenhagen, but the latter will produce a greater tonnage per acre under identical conditions. Following these, Early Spring, Early Summer, Succession or All Head may be used. If the seed of any of the varieties mentioned be sown in the greenhouse, between January 15 and February 1, they will give a succession of cropping.

For later planting Succession, Enkhuizen Glory and Danish Ballhead are general favorites. If seed of these be sown about the middle of May the first two varieties will mature before the Danish Ballhead. Succession and Enkhuizen Glory are excellent medium late varieties but are not as satisfactory for storage as Danish Ballhead.

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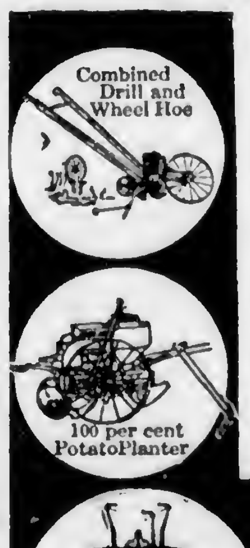
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MARKETING EXPERIENCES

We have heard from a number of leading agricultural writers and thinkers on what is the greatest need of Eastern agriculture. Frankly, we were suprised that the subject of marketing farm products received so little attention from these men. We feel certain that a vote of our readers, and perhaps a vote of all farmers, would designate better marketing methods as the greatest need not only of the East but of farmers generally. The claim has frequently been made, and appears to be fairly founded, that on combined farm products producers receive only about 35 to 40 percent of the consumers' price. Many assume to doubt these figures, but granting that they are only approximately correct, they present a problem in economic distribution which challenges the best efforts of both producers and consumers. It is a problem which neither class can solve alone, but which either may improve. Legislation alone can not materially improve matters. Sane laws impartially administered may establish standards, regulate storage and prevent control of commodities by any one class of dealers or middlemen, but there is much that producers must do for themselves. There are methods of marketing, practices in grading, packing and handling which will eliminate much of the present waste in distribution and selling. Discovery and application of these practices require education based upon experiene and study. We shall be glad to maintain a department for exchange of experiences in this work.

SQUARE DEAL TARIFF

On page 19 of this issue we publish an open letter to farmers from the president of the Tariff Commission League. This is not a political appeal. The object of the League is to carry forward a nation-wide campaign of education which will demand of Congress the creation and permanent maintenance of a non-partisan Tariff Commission of the highest personnel, which shall be given the broadest powers possible under the Constitution, to the end that tariff enactments shall be based upon ascertained facts and be for the interests of the people rather than for political expediency. In the furtherance of this object the League is carrying its appeal to the people; to the farmers, to the labor unions, to the tradespeople as well as to the manufacturers and financiers. It proposes a tariff for the people and not for political parties, and if its plan is to be adopted it must come thru the efforts of the people. The failure of the old system of tariff making by parties has been fully demonstrated. There have been five tariff acts passed in the last twenty-three years, and all have been repudiated by the people as soon as their full effect became apparent; all except the last upon which the people have not had opportunity for expression. The close of the European war is certain to bring up new conditions to be met by new tariff regulations. When the warring nations cease fighting and resume production a new and unparalleled industrial situation will develop. A readjustment of our tariff schedule by the old system will mean a change affecting all industries. A tariff revision based upon scientific investigation and full knowledge of existing facts can be made gradually to meet changing conditions. Agriculture will be one of the first industries affected by the resumption of peaceful labor in Europe. It will be one of the first affected in international trade. It will be in greatest need of representation and consideration in tariff revision. It may receive such recognition with a strictly non-partisan, impartial tariff commission, but it will not under the old system of tariff making by party leaders and political manipulation. The commission plan is right in principle and deserves the support of all classes. Write for full particulars. Study the plan and its purposes. Then write your representatives in Congress and let them know what you think about it.

RURAL CREDIT PROSPECTS

The term Rural Credits has been in such common use the past two or three years, and apparently so little head-way made that the average man has ceased to read or think much about the subject. It would seem that something concrete is now under way. The joint committee of the Senate and the House of Representatives of the last Congress to which the Hollis bill was referred, has reported a reconstructed measure to the two branches simultaneously. There has been a great number of ill-advised bills lately introduced, but the one referred to is likely to receive most serious consideration. This committee held joint hearings during the past two years and collected a mass of information. In the report it was stated that farm-mortgages in the United States aggregated over $2,000,000,000 and that the farmers are "paying annually for the use of this vast sum from 5 percent to 25 percent, largely in the guise of commissions, lawyers' fees and renewal charges." The object of the proposed measure was to "make money available on good farm loans anywhere in the United States, at a low interest rate, cutting out the middleman with his commission and fees." The bill was the joint work of Republicans and Democrats and is not a partisan measure. In a general way, it was stated, it follows along the general lines of the Federal Reserve Act. The purpose to which loans could be put are limited to four: to provide for the improvement of land; to provide for the purchase of a farm home; to liquidate the indebtedness of the owner and to provide for equipment and the purchase of livestock. The bill will in all probability meet with objection, largely on the grounds of constitutionality. Some newspapers already raise the question as to whether Congress can legally legislate in this way, claiming that banking operations are within the control of the several states, and that the general government's activities may extend only to national circulation, duties and imposts national credit, etc. However, it would seem that the Federal government should have the power to control in some way the activities of its favored children, the National Banks. President Wilson refused to sanction this bill last year on account of its Government aid feature.

THE "MOVIES"

We took occasion once before to speak against the trivial if not harmful nature of the average story as depicted on the screen by the film machine. We are aware that the readers of this paper, because of their rural residence, are not so greatly in need of caution as are the town and city people who have them flaringly displayed on every side, yet in so far as they are established in the smaller places, our observation is that the better pictures are still less frequently shown in small places. It is true we have official Censor Boards who are supposed to cull out anything that may be manifestly or grossly immoral, but it is evident that there is no well defined or finely drawn lines as to what is immoral. Public education and protest has, to a large extent, done away with the publication and circulation of the trashy, blood-and-thunder, paper-back novel, and while there is still room for great improvement, the harmful and vicious literature so common a generation ago is seldom seen. But the same kind of stories are dished up in the new form of the film play, and the public seemingly views without protest, if not with satisfaction, the kind of stories it banished from its reading table long ago. It is not enough that the picture shows, in the end, the punishment of wickedness and the reward of virtue. Psychology teaches that the one does not necessarily offset the other; that the mind may retain the impression of evil while forgetting the result. There is a too common tendency to show scenes depicting infidelity as a joke, leaving a sinister influence in the minds of the young that lapses in this direction are not particularly objectionable. We firmly believe in the usefulness and the possibilities of the moving picture as an educational force. There is no more justice in condemning it wholesale than in condemning the printing press because a wrong use of it is frequently made, but we would like to see the public protest against the trivial, useless and harmfully suggestive character of a great number of the films shown, and such protest can be most effectively made in the smaller towns.

THE RURAL ROUTES

We received the following letter from a subscriber in New Jersey: "I have read your editorial in issue of January 1, relative to rerouting and lengthening of the rural routes. Some of the routes may have been unduly lengthened, thereby causing some inconvenience to patrons, but when we consider the annual loss of $40,000,000 to the Department on account of the rural delivery system, we cannot blame the officials for trying to reduce the deficit. The rural route on which I am located, for instance, requires about three hours and 15 minutes' work per day for the carrier and he receives about $3.50 for it and 15 days vacation with pay per year. Don't you think there is some need for the government to give the carriers a little more work for the money they get? Take the farm laborer who works 9 full hours for $1.50, and contrast that with the carrier who gets $3.50 for a little over three hours."

We publish this letter because it contains the two criticisms common to the rural delivery service, viz: That the system is conducted at a loss, and that the carriers are over-paid. Neither of these criticisms offset the charge now heard on all hands that the system in many places is not giving satisfactory service. We hear frequently, and often with far less excuse, the demand made for the "inalienable rights of American citizens," and one of these is that they shall be served well. If the proper function of the government is to deliver mail to the door of its citizens, this includes the forty million farmers as well as the city and town people. It must be a service that is satisfactory and convenient. Mail is delivered to the door of the city dweller several times a day. Certainly the farmer is entitled to one delivery a day and that brought regularly and conveniently to him. Concerning the deficit, that has no proper place in the argument. What other bureau or department returns so large a proportion of its cost in cash? What income has the government, for instance, from the Department of Justice, the Department of War, the Agricultural Department? The function of government is to serve the people and the expenses are met out of its revenues. We are far from upholding extravagance, and there are many other places where economy might be rightly practiced rather than by crippling the farmers' mail service. Take for instance the "pork-barrel" practice of building expensive post office buildings in small places—buildings out of all proportion to the needs and the surroundings. Then there is the official postmaster in small cities and larger towns, a political appointment and, frequently a figure-head since the work of the office is performed by government-paid clerks. Concerning the pay of rural carriers, we do not believe that they are overpaid. We know some who have served their routes for the last ten to fifteen years and there is no evidence that they are getting rich. For a standard route it requires an equipment of two horses and vehicles, or an automobile, or both, and the up-keep is expensive. The average man will find the duties of serving a route 22 to 30 miles in length, year in and year out, about enough for his full time. Anyway, it breaks up the day so that little opportunity is offered for other productive labor. It seems to us that the duty of farmers is to keep a persistent demand for adequate service, and to leave the matter of rural carriers' pay as it is.

HARRISBURG NOTES

Big Increase in Automobiles.—In the rush for filing applications for licenses to operate automobiles during 1916 it has been found that many more dwellers in the country have been applying than ever known before. It is believed that there will be an increase of from 5 to 8 percent in the number of cars owned by farmers. Unfortunately, there is no means of ascertaining thru the Highway Department how many cars are actually owned by farmers as the information on license blanks relates only to data regarding car and residence of the owner. However, as many of the applications come from distinctly rural post offices or on rural free delivery routes a fair line can be secured on the number in use on the farm. Automobile agents say that the number of farm-owned cars has increased 10 percent in the last year. They say that the bulk of the increase has been in vehicles suitable for going to market.

The State Board.—The authorities in charge of the coming meeting of the State Board can make its discussions of much value if the themes which attracted so much attention at the general meeting of the State Grange and the Farmers' Week exercises at State College can be followed out. The State was represented at these meetings by the field men, who have resumed their institute lectures this month, and who can be of much assistance by presenting the views of the people as they find them. The State Board can be a clearing house for agricultural information and of much value this winter because of the discussions aroused by the recent meetings.

State Bee Inspection. — Reports on the state inspection of hives shows a considerable amount of foul brood still prevailing and need for continued support for the inspection work. In his final weekly news bulletin State Zoologist Surface says that in some northern and central counties bees were found affected, but that the treatment prescribed brought good results. He says that there is need for strict enforcement of the requirement that state permission be secured before bees can be moved from one locality to another.

Lime Analyses.—Under the terms of the lime inspection act manufacturers and importers were about the only ones who were to be given the privilege of having agricultural lime analyzed. Secretary Patton has announced that this privilege will be accorded to every one, and that any person may submit a sample for analysis on payment of one dollar. The state will require a special blank giving information about the material and where purchased. This privilege will enable a farmer not satisfied with the brand or guarantee to apply for checking up by the chemists in the state laboratory. The analysis privilege will not include air slaked lime, gas house lime, tanners' lime and kiln slacks, which are exempted, and it is not the intention to analyze limestone or its products or marl where sales are made at kiln or quarry, because it is to be presumed the buyers know what they are getting at such places. All manufacturers and importers will be required to file a statement with the secretary of agriculture giving trade names and chemical constituents, the state charging $5 for each brand in 1916, but rating licenses hereafter on the tonnage sold.

Put on Business Basis.—One of the most significant moves made by Secretary of Agriculture Patton is the formation of a bureau of accounts. This means that every cent expended on behalf of the department, all pay rolls, all expenditures for postage and the like will go thru one office. Heretofore, the department has been operating thru its various bureaus and divisions which have taken up their finances with the auditor general. All mail matter is to be handled in one way and it is likely that uniform hours will prevail.

State's Huge Funds.—There is striking contrast between condition of the 498 trust companies, state banks and savings institutions under supervision of the State Banking department and the state's own finances. These financial institutions show resources of a billion and a third dollars, with a big gain over a year ago and a great advance in the number of deposit accounts and the size of deposits. The state of Pennsylvania shows the lowest cash balance in 20 years and there is not much hope of any advance being made because the big rush of payments is over. Payments which should have been made months ago to school districts are behind and the charities so lavishly aided by the legislature must be taken care of.

Helping Nature.—It is stated that the Forestry department is about to give away a million and a half trees to those who will agree to take care of them, that the Department of Fisheries has put out hundreds of thousands of trout and that the Game Commission is buying quail and wild turkeys to turn loose. It is to be hoped that the advance in this work may be maintained and not curtailed by the next legislature in order to create new jobs which are said to be in prospect.

Increase in Farm Automobiles. — According to what can be learned at the State Capitol the number of automobiles owned by farmers thruout the State has shown an increase that will be notable. In some counties as high as one tenth of the farmers are said to have motor vehicles. Incidentally, they are coming in for licenses at the Capitol in spite of the winter time indicating that the car has supplanted the team for going to market. The State income from anomobile licenses has climbed up around the million and two-thirds mark, and it is expected that the new year will show something like $2,000,000, all of which can be devoted to road maintenance.

Giving the State a Show.—From all accounts the action of Highway Commissioner Cunningham and Chief Engineer Uhler in ordering revision of specifications for construction of the highways was needed. Under the former specifications it is understood that the contractors were given too much latitude and that conditions which prevailed some years ago have changed so materially that new safeguards were essential. The new specifications are said to be pretty stiff, but were needed.

The Farmers' Institutes. — Farmers' institutes are to be given special attention by the Department of Agriculture in the next two months and it is likely that a survey will be made which will be the basis of some recommendations for change of the general plans. The reorganization of the farm bureau service will be next in order.

Range of Prices.—The wide range of prices of farm products indicated in Department reports is being given close attention. Officials want to know why prices of some articles should run almost double in different parts of the state.—Hamilton, Harrisburg, Jan. 10.

FARMERS' WEEK AT STATE COLLEGE

The eleventh annual Farmers' Week at the Pennsylvania State College was held from December 27 to January 1. About 1,000 farmers, representing over 60 counties in the state and sections outside the state, were in attendance. Over 160 lectures and demonstrations on subjects dealing with every division of agritural activity were delivered by members of the faculty of the School of Agriculture and the staff of the Experiment Station, as well as individuals from other state institutions and those engaged in practical work.

Possibly the greatest interest of those present was centered in the lectures and demonstrations covering phases of live stock work, altho those on fruit growing, vegetable growing, fertilizers and soils, farm engineering and the various other topics were well supported by farmers engaged in these lines.

An excellent program was carried out during the week for the benefit of the farm women. The several phases of cooking and domestic art received attention at the hands of Miss Pearl MacDonald and Miss M. Jane Newcomb, of the home economics extension staff; Miss Sara Lovejoy, Miss Anne Perry and Miss Margaret J. Bacon, of the Home Economics Department of the College, and Miss Jessie Field, Miss Myrtle Allen and Miss Anna MacDonald representing various lines of club work in the state and country. A special round table session of those interested in club work among women and girls was held on Friday afternoon, at which helpful discussions and conferences took place.

For the entertainment and profit of the many boys and girls who were present from at least a dozen counties, as a reward for faithful work in different lines of club work, a well organized program was carried out. Exercises in selecting and testing seed corn, judging beef and dairy cattle, horses, hogs and sheep, testing milk for butterfat, sowing and transplanting vegetables, pruning and grafting for boys and girls; and table service, cutting and making garments, and bread making for girls, were conducted by county agricultural representatives and members of the faculty of the School of Agriculture. Corn and potato products raised by the boys and girls in the clubs were on exhibition and excited the highest praise.

A College program for the advancement of Pennsylvania Agriculture was given Tuesday evening, when Dean R. L. Watts of the School of Agriculture, outlined the history and the aims of the school; Prof. M. S. McDowell, Director of Agricultural Extension, the relation of the extension work to the Agricultural School and the aims of the work in agricultural extension; Miss Pearl MacDonald the work and objects of the home economics extension; and Mr. E. K. Hibshman, State leader of the county extension movement, the work pertaining to that line of extension endeavor.

If there is any one subject in which the American farmer of today is interested and upon which he is looking for information it is that of methods of marketing and distribution. Mr. S. H. Fulton, a large commercial fruit grower, of Virginia, and president of the Virginia State Horticultural Society, explained the methods used on his farm for the marketing of peaches. Carlot shipments in co-operation with other growers has proven most successful with Mr. Fulton. Howard M. Selby, of Philadelphia, outlined some valuable phases of advertising and publicity in the marketing of farm products, discussed some of the principles of marketing and gave some interesting information and instances in connection with a lecture on Co-operation.

Among lectures of special note by speakers from other institutions and sections of the country, were those by Dean Curtiss, of Iowa State College of Agriculture, on various phases of live stock farming; of Prof. J. W. Hammond, of the Ohio Experiment Station, on sheep; of Prof. A. G. Philips, of Purdue University, on poultry; of Dr. C. F. Marshall, State Veterinarian of Pennsylvania, on animal diseases; of Dr. G. W. Cavanaugh, of Cornell University, on dairying; of H. W. Jeffers, manager of the Walker Gordon Milk Farms at Plainsboro, N. J., on dairy farming; of J. G. Mosier, Chief of Soil Physics, University of Illinois, on farm crops; and those of S. J. Cook, a practical vegetable grower of New York State, on vegetable culture.

An inspiring and uplifting lecture by Mrs. Rose Morgan, of New York City on "Songs that Live," was a feature of the program Wednesday evening. An informal reception in the College Armory followed the lecture.

The attendance, the interest manifested in the program and the spirit of satisfaction exhibited in connection with the Farmers' Week Sessions were most gratifying.

TWO STATE SOCIETIES TO MEET

The annual meeting of the State Horticulural Association, and also the Pennsylvania Vegetable Growers Association will be held in Reading, Pa., January 18, 19, and 20, 1916. The sessions will be held in the Berkshire Hotel, and will begin Tuesday afternoon, January 18. Good programs have been arranged for both meetings and speakers of prominence and authority will discuss questions that are foremost in importance in the minds of producers of fruit and vegetables. The officers of the associations are anxious to have a large attendance of people from the different parts of the state, and they feel sure that the discussions and exhibits will be well worth the time and expense incurred in attending.

In addition to the program as printed, there will be some very interesting demonstrations given by Miss Pearl MacDonald, State College, Pa., on January 18. Methods of canning the various vegetables including the "cold pack method" will be shown. Miss MacDonald is also planning to demonstrate the advisability and the economy of using high-grade, well-grown fruit and vegetables instead of cheaper, poor grades. These demonstrations should attract a number of the wives and daughters of the Pennsylvania Growers to these meetings. Ladies are welcome at all sessions.

DEATH OF W. H. BOWKER

William H. Bowker, the dean of the American fertilizer industry, died at his home in Boston, January 4, at the age of sixty-five. Mr. Bowker was one of the first manufacturers of commercial fertilizers in this country. He began work when there was no established industry and very little knowledge of the functions and uses of fertilizers. The introduction of his goods required instruction and education of his patrons in the use of his products. No man in the fertilizer trade, if in the entire of field of agricultural education, has worked more earnestly and efficiently in teaching the principles of better farming and greater prosperity thru greater production of high quality crops. He was a forceful speaker, a powerful writer and a clear thinker. Some of the most convincing articles on practices in the use of commercial fertilizers coming to this office have been from his pen, written as personal letters or comments on current discussions. He had been called the best informed and best loved man in the fertilizer industry. He was also an educator of high rank and an agricultural leader with broad vision. His death is a loss to farming and to all agricultural science.

POLLED JERSEY CATTLE CLUB

The twentieth annual meeting of the stockholders of the American Polled Jersey Cattle Company will be held at the Bookwalter Hotel, Springfield, Ohio, at 10.30 A. M., Wednesday, January 26, 1916.—Chas. S. Hatfield, Secretary.

FARM MEETING CALENDAR

N. Y. Agri. Society, Albany, N. Y.	Jan.19
N. Y. Assn. of Co. Agricultural Societies, Albany N. Y. ..	Jan.20
Liverpool Sale and Pedigree Co. Sale, Syracuse, N. Y. ...	Jan.17-18
Liverpool Sale and Pedigree Co. Sale, Earlville, N. Y. ...	Jan.19-20
Penna. Hort. Society, Reading, Pa.	Jan.18-20
Penna. Vegetable Growers' Assn., Reading, Pa., ...	Jan.18-20
Steuben-Alleghany Poultry Show, Hornell, N. Y., ...	Jan.17-21
Delhi Farmers 'Week, Delhi, N. Y.	Jan.24-27
Newark Poultry Show, Newark, N. J.	Jan.24-29
National Poland-China Record Association, Dayton, O., ...	Jan.26
Western N. Y. Hort. Society, Rochester, N. Y.	Jan.26-28
Penna. Board of Agri. Harrisburg, Pa.	Jan.26-28
N. Y. Tobacco Growers' Association, Baldwinsville, N. Y.	Jan.29
N. Y. State Grange, Jamestown, N. Y.	Feb. 1- 4
N. J. Board of Agri.. Trenton, N. J.	Feb. 2- 4
N. Y. Farmers' Week, Ithaca, N. Y.	Feb. 7-12
N. Y. Vegetable Growers, Ithaca, N. Y.	Feb. 8-12
Alfred University Farmers' Week, Alfred, N. Y., ...	Feb.22-25
N. Y. Holstein-Friesian Club, Syracuse, N. Y., ...	Mar. 1
American Jersey Cattle Club, New York City.	May 3
Holstein-Friesian Association of America, Detroit, Mich.	June 6
International Apple Shippers' Association, New York ...	Aug. 2

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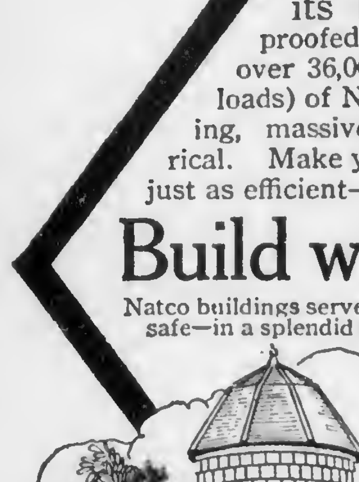

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Corn for Dairy Cows
Its Forms and Uses

By Prof. F. S. Putney, Pennsylvania State College

"Corn is king" is literally true as regards acreage and value of the grain produced in the United States. In 1914, over 100,000,000 acres were grown, which produced over two and a half billion bushels. We have no records as to how much of this grain was fed to dairy cows. This we can be sure of, however, that dairy cows every year eat a large percentage of the entire corn crop. Our last census showed that the number of dairy cattle in the United States increased 20 percent while the total number of all other farm cattle actually decreased. Since the dairy cow is able to convert plant food into human food with the greatest economy of all farm animals, this percentage of increase will likely continue.

The following table will show the dry matter, digestible protein and energy values in 100 pounds of material.

	Total dry matter pounds	Digestible true protein pounds	Energy Value Therms
Corn fodder—green	20.7	.41	12.44
Corn silage	25.6	.88	16.56
Corn stover	59.5	1.80	26.53
Corn and cob meal	84.9	4.53	72.05
Corn meal	89.1	6.79	88.84

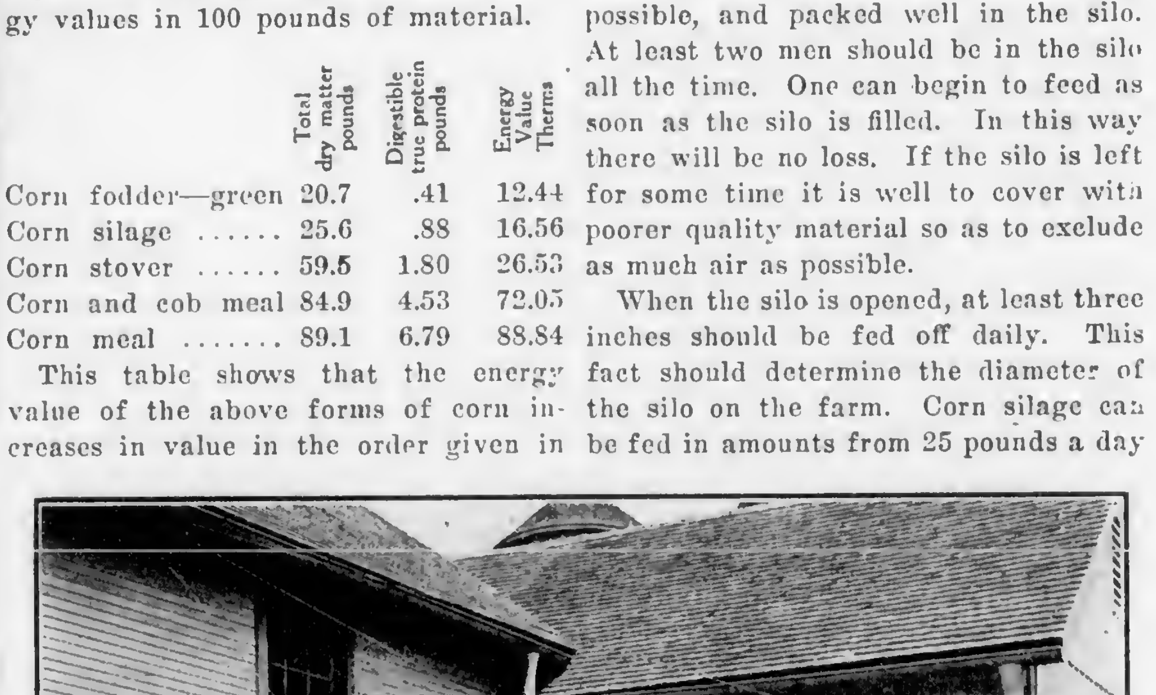
This table shows that the energy value of the above forms of corn increases in value in the order given in the table. Each one, however, is used in different condition, as will be seen from the following descriptions:

Corn Fodder.—Green corn fodder is used for soilage; i.e., it is a soiling crop. It is one of the most popular crops for partial soiling. The fact that in August, when the pastures as a rule are drying up, this plant is doing its best, making it especially valuable. A cow can be fed all the green corn fodder that she will clean up. The less mature the plant, the more this will be, by weight. When very green, a cow will eat 50 lbs. or so a day. In beginning to feed, care must be taken to see that the cows do not scour. In some sections where soilage or partial soilage is practiced, the sweet corn varieties are planted. Corn is a good crop for soilage in that one can cut it for two days at a time and in addition it can be cut when very green with fair results, and when nearly ripe with still good results. It can be fed in the barn or fed in racks or spread on the ground in the pasture.

Silage.—Corn silage is the best silage we have. There are several reasons for this. Corn gives a heavy weight per acre of material. Twelve tons per acre is not uncommon in Pennsylvania. I once helped to weigh the champion yield acre in New England; it gave 39 tons per acre. The quality of the silage from this yield would be very poor. Corn silage will pack well in the silo and since the stems are not hollow, the air is more easily excluded.

The corn should be cut when the kernels have begun to glaze, and in dent varieties, have dented. The leaves should still be green. In case the corn has been frosted, water should be added to the corn when put into the silo and it should be put into the silo just as soon after the frost as possible. The silage should be cut fine, ½-inch lengths if possible, and packed well in the silo. At least two men should be in the silo all the time. One can begin to feed as soon as the silo is filled. In this way there will be no loss. If the silo is left for some time it is well to cover with poorer quality material so as to exclude as much air as possible.

When the silo is opened, at least three inches should be fed off daily. This fact should determine the diameter of the silo on the farm. Corn silage can be fed in amounts from 25 pounds a day to 50 pounds or more. When feeding over 25 pounds a day, it should be given at two feeds. Silage should always be fed after milking or three hours before, so as not to impart a taste to the milk. Silage is the cheapest source of succulent feed on the farm.



DUMPING LITTER INTO MANURE SPREADER SAVES DOUBLE HANDLING.

Stover.—Corn stover is the name given to the corn stalks dried and with the ears removed. The term corn fodder indicates that the ears have not been removed. Corn fodder is better for dairy cows than corn stover, but not much is grown because it pays better to plant so that ears will develop in quantity to warrant a harvest. Pound for pound, corn stover has nearly as much value as timothy hay. The feeder who feeds liberally underrates the value. The poor feeder overrates its value. In a state like Pennsylvania, where corn grows well, nearly every dairy farmer must feed some corn stover. The amount to be fed will depend somewhat upon the supply. A good way to feed, if mixed hay is available, is as follows: Feed 3 to 5 pounds of the mixed hay to the cows per day per head, and then give them enough shredded corn stover so that the refuse will be enough to bed them on. In this way, if the cows are fed grain, one pound for each 3 pounds of milk that they give, they will probably average to eat 3 to 5 pounds of the stover, provided they are receiving also about 30 pounds of corn silage. In any case feed all of the corn stover that they will eat.

Cob Meal.—Corn and cob meal is a good source of energy in the grain mixture and furnishes bulk at the same time. The amount to be fed will depend upon the feeds to go with it. The cob should be ground reasonably fine, but need not be ground too fine. In order to have a grain mixture digest the best, it must have bulk so that the digestive juices can act to the best advantage. The cob part helps in producing this bulk. If the prices are right and the nature of the roughage warrants the nutritive ratio, the following grain mixture is a good one: 200 lbs. corn and cob meal; 150 lbs. cottonseed meal; 175 pounds distillers' grains; 100 pounds gluten feed.

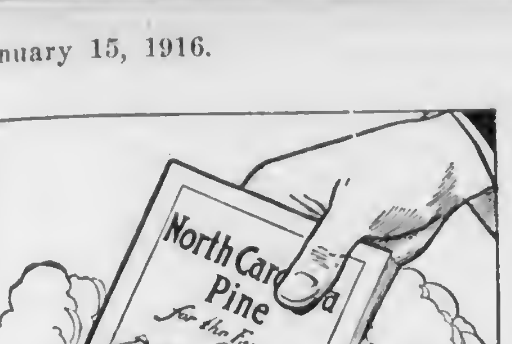
Corn Meal.—This is always relished by the cows. It is generally the cheapest source of energy. The farmer can grind his own corn and cob meal, but as the cob makes expense in shipping, corn meal is usually bought. Mix it with feeds rich in protein and mineral matter, since it is deficient in both. Corn meal is liked by the cow better than any other one feed. A good mixture for cows is made up as follows: 275 pounds corn meal; 150 pounds cottonseed meal; 200 pounds distillers' grains; 100 pounds gluten feed and 50 pounds oil meal.

The mixture of feeds in a grain mixture depends, however, upon the roughage and the cost of materials available. It must be worked out for each farm. One thing we can be sure of; the eastern farmer makes no mistake in raising corn.

COW TESTING ASSOCIATIONS IN NEW YORK STATE

Edward VanAylstine, New York State Director of Farmers' Institutes, presented a discussion of Cow-Testing Association work before the recent meeting of the New York State Dairy Association. He pointed out that there are practically the same number of milk cows in New York State today that there were 25 years ago, but the average product per cow has been increased at least 1,500 pounds, with an increase in butterfat which has enabled the dairyman to continue in business. Were the average production no more per cow than in former years, under the present high cost of producing milk, Mr. VanAylstine thought the dairymen would certainly "go to the wall." That this increase in milk production per cow may continue to increase, the State Department of Agriculture has been actively promoting the organization of cow-testing associations thruout the state. Thru the efforts of Professor Wing a cow-testing association was formed near Ithaca in 1908. Today New York has 45 active associations, with over 25,000 cows under test. Of these, 7 have been running three years or more. New York now has one quarter of the entire number of associations in the United States.

Many important problems have been solved by these cow testing associations, some of which were noted by Mr. Van Aylstine. It appears from the records of the Delhi association that the cost of roughage per cow varied from $15.81 to $22.13, but the cost bore no relation to yield of milk or butter fat. On the other hand, the cost of grain and yield of milk and butter fat increased together. It was found that the average time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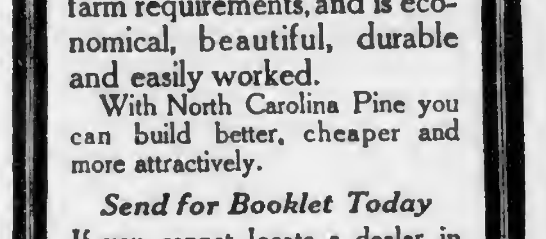

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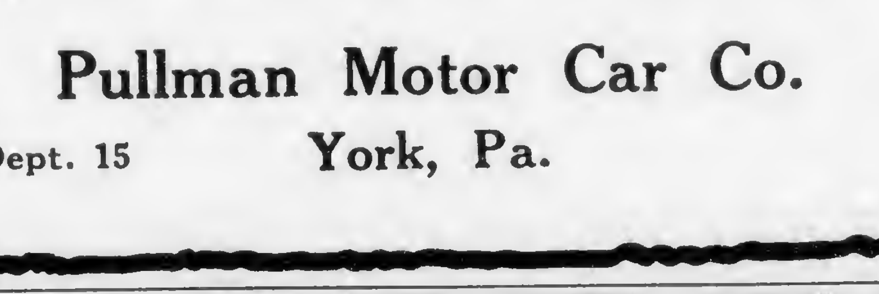

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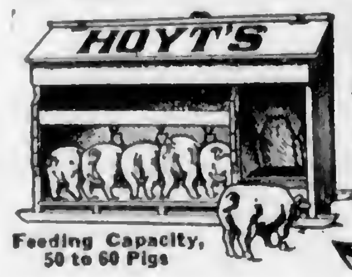

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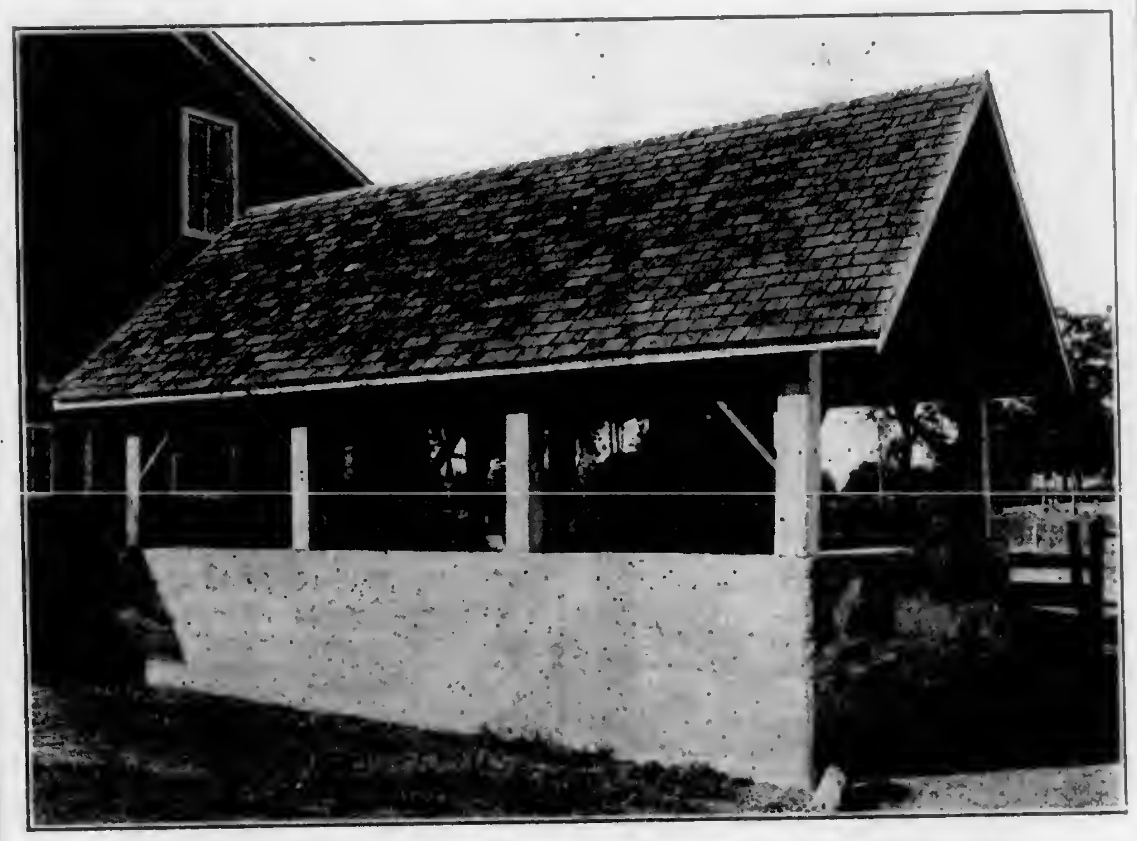
spent in milking cost $12.61 per cow per year. The time spent in caring for the cow in the barn for 210 days cost $6.86, and while in pasture 155 days, $1.37, making a total of $20.84 for labor. The depreciation at 13 percent, the average value of the cow being placed at $65.45, which is lower than it should be today, would be $8.45. This makes a total cost of $29.29. The manure and calf more than offset the hauling of milk and barn charges.

Twenty dairies with 712 cows were selected at random from two associations. Records show that by selecting 10 best cows in each herd there was an increase of 887 pounds of milk and 90 pounds of butterfat per cow over the average of the entire herd. If all the cows in the 20 dairies had been as good as the 10 best ones, the profit over the feed for the year would have been increased $19,402, or $27.25 per cow. The gain in milk from 11 herds in Jefferson county in three years was 75,969 lbs., which was worth at the selling price for the products of those herds $1,146.37. The butterfat production was increased over 4,000 pounds. The cost of testing these eleven herds was $825 for the three years. This did not include the board of the tester and his horse. The additional milk production the third year paid the money cost of testing and left a balance of $331.37.



AN EFFICIENT AND DURABLE CONCRETE MANURE PIT.

After explaining in detail the methods of forming and conducting cow testing associations, Mr. VanAylstine said that in co-operation with the director of Farm Bureaus the State Department of Agriculture proposed to take a few of the best associations and reduce the number of dairies and consequently the days' work in order that from four to six days each month may be devoted to demonstration work in feeding and in computing records, many of which have heretofore been done at the expense of the Bureau of Farmers' Institutes. Arrangements have been made with the Ayrshire Breeders' Association and the American Jersey Cattle Club whereby the directors of the secondary schools of agriculture may authenticate the records of cow testers in whose associations there are purebred cows doing advanced registry work. This will increase the number of such cows because it will make it possible for the poor man at slightly increased cost to have the work done.

We are planning to obtain a record of all the purebred bulls and cows in the various associations and make a special record of all such reaching the standard set for advanced registry work, even tho they are not doing it officially. The cow testing association makes an excellent nucleus for co-operative buying and selling of stock.

In conclusion, Mr. VanAylstine referred to a matter of vital interest to New York dairymen. Unless the institute appropriations are increased this year by $4,000 in the supply bill to offset a like sum taken from the appropriation for inspection of the state institutions, the cow testing work of the Bureau must stop on April first. A resolution was adopted by the convention in favor of an appropriation to enable the Bureau of Farmers' Institutes to continue this work.—H.

OLEOMARGARINE LEGISLATION

It may not be amiss for me to call the attention of your readers to an organization that has for its object a better agriculture. The National Dairy Union is an organization incorporated under the laws of the State of Illinois and was organized to protect the dairy industry from the fraudulent sale of any substitute for the product of the dairy; to protect the interests of the consumers of dairy products; to disseminate dairy knowledge and in every way further the interests of dairymen and others engaged in the handling of dairy products.

The great contention between the manufacturers of oleomargarine and the dairy people is the coloring of oleomargarine. The natural color of oleomargarine is white, and the natural color of butter is yellow, and when oleo is colored in imitation of yellow butter it brings from 5 to 20 cents a pound more than when it is uncolored. The coloring yellow of any imitation, or substitute, for butter, is done for the purpose of using this trade-mark, and to make deception possible. The dairy cow cannot stand against this unfair competition, for 'where substitution is possible, competition is impossible.'

It has been proven conclusively that where oleomargarine is sold uncolored, it is of a better grade and sells for less money than when colored. For the protection of the consumer, and the producer of honest dairy products, the National Dairy Union contends that each product should stand on its own bottom; that oleo shall not be made in imitation of butter of any shade of yellow.

When the present law was put into operation and interpretation was placed upon it that all oleomargarine should pay one-fourth of a cent a pound tax, unless the government showed it was subject to the ten cents per pound tax. Less fraud would have been committed had the government placed a reverse interpretation upon it, that all oleomargarine pay ten cents a pound tax, unless it was shown by the manufacturers that it was only liable to the one-fourth of a cent per pound tax, and this interpretation we really believe would have been in line with the interpretations of similar laws. This wrong-end-foremost-way of enforcing the law made it more easy to defraud the government

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out of some 27 millions of dollars.

The Secretary of the Treasury in his report to Congress a few weeks ago recommended a change in the present oleomargarine law. The National Dairy Union champions legislation that will prevent the frauds which have always prevailed in the sale of yellow oleo, by fixing a limit of color for it, which conforms to that which is now known in the trade as white oleo, and by changing the present tax to one cent a pound. Your help is necessary to make these efforts a success. Can we count on you?
—Wm. T. Creasy, Secretary, N. D. U.

PENNSYLVANIA OLEO LAW EFFECTIVE

The Pennsylvania law prohibits the coloring of oleomargarine, and how the law works out is briefly stated by Hon. James Foust, Dairy and Food Commissioner of the state, in which he says:

''The oleomargarine sold in Pennsylvania now is practically white, and everyone who sells the product sells it for oleomargarine and at oleomargarine prices. All packages are marked, the places of business are placarded, and the consuming public know just what they are getting. The practice which was conducted years ago by some unscrupulous dealers with wagons claiming to be farmers and selling dairy butter, is a thing of the past.

''The product is more pure and more wholesome than it was when all sorts of schemes were devised to impart to it color or a tint by adding cottonseed oil and other oils, which depreciated its flavor and quality. This manipulation was only carried on by some manufacturers and was for the purpose of escaping the 10-cent tax on colored goods. We are having practically no trouble in Pennsylvania now, and the consuming public is better satisfied with the flavor and quality of the product.

''I desire to further add that we charge $100 a year for the privilege of selling oleomargarine at retail, and it is sold just as cheap in Pennsylvania as it is in any state in the Union, notwithstanding the license fee paid; and the product is better than it is in states that permit the goods to be sold having a shade of yellow or that are tinted.''

MARYLAND MEETING OF GUERNSEY BREEDERS

Mr. Louis McLane Merryman of Gerar Farm, Baltimore Co., Md., had as his guests, December 11, the Guernsey Breeders' Association and the members of the Junior Gunpowder Agricultural Club. The president of the association, James Robertson, superintendent of Burnside Farm, presided. M. P. Phillips, of Pomeroy, Pa., member of the executive committee of the American Guernsey Cattle Club, spoke on ''The Foundation of a Herd of Guernsey Cattle.'' Mr. Merryman owns a fine herd of Guernsey cattle.—J.

PURITY OF DAIRY PRODUCTS

In discussing the transmission of tuberculosis from cattle to man, the danger has been so exaggerated as to lead many to believe that no one could escape the disease. Milk for the cities is being pasteurized, and the butter sold in our large cities is made from pasteurized cream, so if the danger was as great as has been often stated, there would be no danger of transmitting the disease.

An eminent bacteriologist writes that: ''So far as I am aware, there is no case on record where it has been conclusively proved that butter infected with tubercle bacilli has been the means of producing the disease in the human.'' Another eminent bacteriologist says: ''That while it is possible for pathogenic bacteria to maintain their viability in butter for a considerable period of time, so far as I know, no case of the transmission of disease of any kind thru butter has been reported. My personal opinion is that the danger from butter is very slight on account of the very small number of pathogenic bacteria which would be likely to occur in butter even if made from unpasteurized cream and the comparatively small amount of butter which is consumed.''

In fact, never in the history of the country has there been such good butter, milk, cream and cheese sold as there is today, and no products are as healthful, nutritious and cheap as are those from the dairy cow.

INCREASING SILAGE CAPACITY

Making Better Silage

Insufficient silage capacity is troubling many men each fall. When only one or two silos are available with a large herd of cows, this is very frequently insufficient. W. F. Whittemore, Sussex Co., N. J., this year filled two silos with a rated capacity of 135 tons each, cutting good corn from 28.5 acres into them. He estimates that there are at least 150 tons in each silo which would average 10.5 tons per acre. This was done by cutting the corn ¼ inch long instead of ½ to ¾ inch as is usually done. It required 7½ days of solid running to fill the silos, where heretofore only four days were required. More corn was cut into the silos, the silage was finer, packed better and will keep better, and the cows will eat every bit of it. No whole sections of cob or stalk can be found in this silage. More power is of course required, but where this is available, it will no doubt pay to cut silage in this way.—P. B.

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33 cents worth of UNICORN plus 26 cents worth of roughage made 100 lbs. Milk in Official Holstein Tests made by Bayliss Griffin, Sylvania, Ohio. 1 pound of UNICORN made 4½ lbs. of milk. Hundreds of UNICORN feeders are doing as well. YOU CAN TOO. - - - - -

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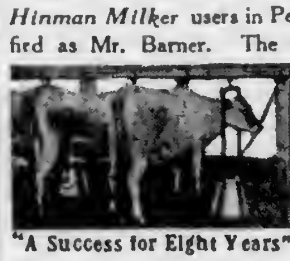
'I have used my *Hinman* two years and am frank to say the machine is a successful milker. I get fully as much milk and the cows stand much better than for hand milking. The machines don't and can't injure the cows. I wouldn't milk without a *Hinman*."
—Clyde Barner, Mercer, Pa. There are hundreds of *Hinman Milker* users in Pennsylvania just as satisfied as Mr. Barner. The Hershey Farm Co., of Hershey have equipped eight of their barns with *Hinmans*. At Union City there are 7 *Hinman* owners, 13 at Erie. Each *Hinman Milker* outfit helps to sell many more because they do the *work*, do it right and give satisfaction. If none of these are near enough for you to go and see, write us and we will send you the names of some near you.



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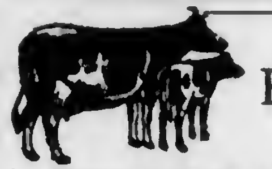

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7-8 holstein heifer calves 1 week old $15 each. 8 registered heifer calves 2 to 10 months old $100 each. Registered bull calves $25 to $50. Express paid in lots of 5. 2 ready for service $60 to $75 each. Registered cows $125 up, high grade cows $50 up. 1 carload of 3 year olds $55 each. We are in the heart of the Holstein section, see us before you buy.
J. C. REAGAN, Tully, N. Y.

A Bargain

Dean Pontiac De Kol, born February 25, 1915, is a pure bred young bull but has not been kept as well as he should, sired by Spring Farm King Pontiac, one of the best sons of King of the Pontiacs. Dam is also by a son of the King. Has making of a great sire. Will sell immediately at big sacrifice. Look him up *quick*.

Stevens Brothers Company, Liverpool, N. Y.

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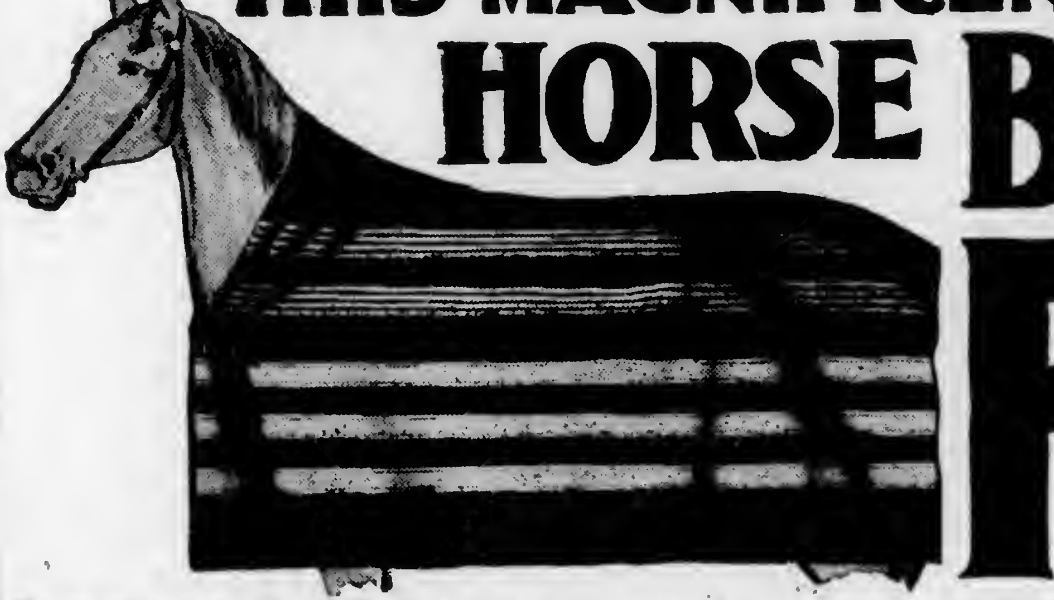

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To introduce my Stock Tonic to just a thousand more readers of this paper I am going to give away one thousand beautiful Wool Horse Blankets—Absolutely Free—I'll send them at once—to the first thousand readers of this paper who send in the coupon below. With this blanket I will also agree to send a big trial feeding of

WILBUR'S STOCK TONIC

the greatest of all live stock conditioners. What is more, I will send this Stock Tonic with the distinct understanding that it is to be used for two months at my risk—that if at the end of the two months feeding the Stock Tonic has not been entirely satisfactory—no charge is to be made.

I Will Prove to You

at my risk, that my stock tonic will positively rid your stock of worms, fatten them up and keep them in the pink of condition. I will prove to you that with my tonic you will actually get more milk from your cows, that you will fatten your hogs, steers, sheep and poultry for market in one-third less time—that you will save grain, prevent disease and make more money from each animal you own. I will prove these things to you and I'll do it all at my own risk. And as a special inducement, to the first one thousand persons who send for this free trial feeding—I will give one of the magnificent $5.00 Horse Blankets shown above.

I Take All the Risk I have such absolute faith in Wilbur's Stock Tonic that I take all the risk in this trial feeding. I know what it has done for others. I have made and sold this tonic for over thirty-two years. Over a million of the best stock raisers in America are feeding it every day to their live stock—many of them have for over thirty years—I have thousands upon thousands of the finest kind of letters from all parts of the country telling me of the wonderful results from feeding this Stock Tonic. And now all I want is to show you that what it will do for others it will do for you

The Blanket is Yours—FREE

It never costs you a cent. It is yours—forever—to keep and use every day—whether you ever pay for the trial feeding of Tonic or not. It is a big, warm, soft, wool blanket—84 x 90 inches—never sold for less than $5.00 to $6.00 anywhere. It's a blanket you'll be proud to own—and remember—IT'S FREE.

Simply Fill Out the Coupon

SEND NO MONEY. Just find out by actual test on your own stock—that my Tonic will make money for you. Just one thousand of these blankets will be given away. I have one for you if you send that coupon right away. You can't possibly lose anything—you have everything to gain. Isn't it worth a postage stamp?

Do it now—at my risk—fill out the coupon and mail it to me at once.

E B Marshall
President

276

WILBUR STOCK FOOD CO., 928 Huron Street, Milwaukee, Wis.

Application for Free Blanket

E. B. MARSHALL, Pres.
Wilbur Stock Food Co., 928 Huron St., Milwaukee, Wis.
Please send me at once one of your beautiful $5.00 Wool Horse Blankets. Also send me 100 pounds of Wilbur's Stock Tonic. I agree to feed the tonic for two months, and if it does what you claim, I will pay you for it at the rate of only $2.00 per month until I have paid $14.00. If it fails and I so report in sixty days, you are to cancel the charge and I will owe you nothing. You are also to ship me—Free—enough Wilbur's Poultry Tonic—your guaranteed egg producer—to offset all freight charges on the shipment. It is understood that the $5.00 Horse Blanket and this pail of Poultry Tonic are to be mine—Absolutely Free—whether I pay for the Stock Tonic or not.

Name ______________________________

P.O. ____________________ State ____________________

Freight Office ____________________ State ____________________

I own ______ cattle ______ horses ______ hogs ______ sheep ______ poultry.

I own ______ acres of land. I rent ______ acres of land. I am ______ years of age.

NOTE:—This liberal offer only open to responsible farmers or stock raisers over 21 years of age.

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This low-down Lime, Ground Limestone and Fertilizer Spreader will save the work of 10 men.
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Our patented shifting clutch operated from seat and spreading attachment will spread evenly or sow in rows. Nothing to get out of order. Lasts a lifetime. Fully equipped. Special prices. WRITE FOR CATALOGUE.
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Headed by the following great boars:
Lee Premier's Rival
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Hopeful Lee's Successor

We are now making room for 1916 Spring litters, and offer over 100 head, including tried brood sows (open) and gilts ready to breed for Spring litters, service boars, including Hopeful Lee's Successor. Spring and Fall pigs at surprisingly low prices.

We will contract to breed a number of the sows to be sold, to Lee Premier's Rival and Branford Artful Rival, the latter used in the A. J. Lovejoy herd.

Buy a son or daughter of Lee Premier's Rival, the greatest boar we ever owned, bred, raised and owned by Branford Farms. When writing, specify what you desire us to price you. Everything high-class. Satisfaction guaranteed. Visitors always welcome.

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Satisfied with "Woodrow Farm" Berkshires
All fashionable families; outstanding individuals. Open orders given especial care
P. F. BUCKLEY, Woodrow Farm, Broad Axe, Pa.

Choice Poland-Chinas Best registered large type stock. Sows Bred and young boars ready for use. Also young pigs. All healthy and thrifty. Bargain prices. Write me. G. S. HALL, Farmdale, Ohio.

Registered Berkshires Blood of Masterpiece 77000, 6 boars 6 mos. old, $20 to $30 each. Archer B. Mifflin, Mine Run Farm, Audubon, Montgomery Co., Penna.

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Oldest breeder in the State. Pedigreed stock for sale. SAMUEL JOHNS. Wilmington, Ohio. Sec. D.

For Sale Registered Chester Whites and Poland Chinas. All ages. Recording free. J. A. HOAK, Route 4, Newcastle, Pa.

O. I. C. Silver strain fall pigs, none better. Write for catalog. WHITE HOMESTEAD, F. C. White. R. D., Cincinnatus, N. Y.

Thoroughbred Mule-foots, Born Aug. 5th. **$10.** H. H. Stuart. Beacon, N. Y.

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Berkshires A limited number of boars and gilts from spring litters. ATKINSON BROS. Wrightstown, Pa.

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Percheron Stallion for sale. Monarch No 44152, black, about 1600 lbs., eight yrs. old. Fisher Welles, Jr., Wyalusing, Pa.

Farm Manager Young married man wishes position as working farm manager. Experienced with hogs, sheep and dairy cattle. Best of reference as a milk producer. As present employer is planning to sell is free to take position at any time. Address Box 3R, care Pennsylvania Farmer, Phila., Pa.

Live Stock

NEW YEAR FAVORABLE TO HORSE INTERESTS

Draft Horse Future Especially Bright

The year 1916 ushered in what promises to be one of the most favorable seasons horse breeders have ever faced. Draft horse producers have especial reason to feel optimistic. The marked improvement in the industrial world has brought transportation facilities into active service and all transportation agencies,—railroads, motors, and teams—are being used more freely than for two years past. Draft geldings have been in good demand at higher prices, and the farm demand for useful draft mares is already so strong that horse dealers are being eliminated as buyers of good draft mares.

Purebred draft horses are also in keen demand. The elimination of imports since August, 1914, has resulted in a marked stimulus to horse breeding in this country, and more satisfactory prices have been paid to the breeders and raisers of good American-bred draft colts than at any time in our past history. The total number of horses on farms, April 1st, 1910, was 19,833,113 head, and the Government estimates for January 1st, 1915, credited this country with 21,195,000 head—an increase of 6.86 percent over 1910.

AN AFTER-DINNER VISIT.

The fifteen states on which we have definite data as to stallions in service are Illinois, Iowa, Kansas, Nebraska, Wisconsin, Minnesota, North and South Dakota, Michigan, Pennsylvania, New Jersey, California, Washington, Oregon and Montana. These states had, January 1st, 1915, a total of approximately 11,085,352 horses, assuming the same rate of increase for these states as for the United States as a whole. They also had, according to the latest available Stallion Board reports, 47,697 stallions, all told, in service, 23,671 of which were purebred draft stallions.

If this proportion holds good thruout the United States, it would give us a total of 91,357 stallions in service, approximately half of which could be classed as purebred drafters. As a matter of fact, however, the number is probably somewhat less, as all the important horse-producing states, except Indiana, Ohio and Texas, are included in our figures and the proportion of stallions in use in other states is unquestionably lower, as less attention is given there to horse production. Assuming, for the sake of argument, that these percentages hold good, however, we have about 40,000 purebred draft stallions and approximately the same number of stallions of other kinds, most of which are grades and mongrels. Any well informed horse breeder will admit that at least 10 percent of the stallions in service are annually being retired because of age, death, unsoundness, or other cause, and it therefore follows that about 8,000 stallions are annually being retired from the breeding ranks. To make good on wastage alone, therefore, we must replace 4,000 purebred draft stallions annually, and as the other stallions, grade and otherwise, should for the most part be replaced by purebred draft sires, we actually need around 7,000 good draft sires annually to fill the places of horses dropping out of service.

During the fiscal years of the various draft horse record associations ending in 1915, approximately 12,000 American-bred draft horses were recorded. This includes both sexes and all ages of Percherons, Clydesdales, Belgians, Shires, French Draft and Suffolks. Less than half of these were stallions so that we are producing annually now, less than 6,000 draft stallions. It is recognized by all horsemen that at least one-fifth of the stallions that are recorded are not good enough to be of any real service in improving the draft horse stock of the country. It therefore follows that we are really producing less than 5,000 good purebred draft sires annually, when we need at least 7,000 per year, at the lowest calculation.

These are facts which thinking farmers will ponder well. Horse buyers have scoured the United States as never before. More than half a million horses and over 100,000 mules have gone for war purposes. Demands from abroad will continue as long as the war lasts, and will be strong for years afterward, for the battling nations must call on us for horses for industrial purposes. Country sales already reflect the feeling of conservative farmers, who are reported good buyers at strong prices, on first class mares weighing 1,600 pounds or over, whether grade or purebred.

The recent cable from President Aveline, Percheron Society of France, that the Government there has agreed to allow the exportation of 200 stallions, foaled in 1912 or earlier, only serves to emphasize the extent to which war has curtailed supplies abroad. Good blood and liberal feeding will pay better in draft horses than in any other class of stock, always providing that a man buys no more mares than he needs in his farm operations, and exercises good management—essential to success in any line.—Wayne Dinsmore, Secretary Percheron Society of America.

THE WOOLGROWER AND THE WOOL TRADE

The United States ranks as one of the principal wool-producing countries of the world. The amount of wool imported by American manufacturers is equal to more than one-half of the home-grown clip. American and foreign wools are often offered for sale at the same time in the warehouses of Boston and other wool marketing centers. Some American wools are equally as valuable as the best foreign wools of the same class. On the whole, however, the appearance of American wools compares quite unfavorably with that of most of the foreign wools. The difference is due nearly altogether to the growers' methods of preparing the wool for shipment. Foreign wool-growers, and Australians in particular, maintain a uniformly high standard in the handling of their wools. This care in preparation and the certainty as to the character of the contents of the bales has given their wools a high reputation that insures their bringing full value at the time of selling to the manufacturer.

Persons familiar with the buying and manufacturing of home-grown and foreign wools assert that on account of poor preparation American wools net the grower from 1 to 3 cents a pound less than their actual value. This is due to the failure to classify the wool before selling and to defects from the use of improper twine, branding paints, and other minor causes. Most American-grown wool is sacked just as the fleeces come from the sheep and sold at home to dealers.

A couple of years ago the Animal Husbandry Division of the Bureau of Animal Industry, Department of Agriculture, made a canvass of a number of sheep owners in Western States to determine the extent to which growers follow the best practices. Because of the way in which the names were secured it is probable that the 383 replies received were from men whose methods are superior to those generally followed in the same localities. Practically half the correspondents separated ewes', lambs', and bucks' wool when sacking; 59 percent put up the black wool separately; and 53 percent sacked the tags separately. The American wool clip is sold by the growers unclassified and in the main very poorly handled. These defects have come to constitute a fixed charge against American wool, which does not apply to wools coming to this country from Australia and some other countries.

Rules for the Wool Growers

The Department of Agriculture has framed the following rules for growers on either farm or range. Adhere to a settled policy of breeding the type of sheep suitable to the locality. Sack lambs', ewes', wethers', and all buck or very oily fleeces separately. If the bucks or a part of the ewes or wethers have wool of widely different kind from the remainder of the flock, shear such separately and put the wool in separate sacks so marked. Shear all black sheep at one time, preferably last, and put the wool in separate sacks. Remove and sack separately all tags, and then allow no tag discount upon the clip as a whole. Have slatted floors in the holding pens. Use a smooth, light, and hard glazed (preferably paper) twine. Securely knot the string on each fleece. Turn sacks wrong side out and shake before filling. Keep wool dry at all times. Make the brands on the sheep as small as possible and avoid tar brands. Know the grade and value of your wool, and price it accordingly. Do not sweat sheep excessively before shearing. Keep the floor sweepings out of the wool. Do not sell the wool before it is grown. When all these rules are followed place your personal brand or your name upon the bags or bales.

Some printed statements convey the impression that the entire fleece goes into the production of a garment, so that the amount of finished cloth is equal to the amount of scoured wool. This impression is erroneous. A number of tests reported by different mills show that for woolen goods from 4 to 4.64 pounds of grease wool were required to make 1 pound of cloth. For worsted cloths from 2.56 to 4.55 pounds of grease wool was required.

SILAGE FOR HORSES

Is ensilage good to feed horses? Should it be fed to horses on hard work or only those that have little exercise? W. F., Newfoundland, Pa.

Silage has been fed to horses with varying success. There is considerable prejudice against it because of some reports of fatalities. It is generally conceded that silage must be of good quality and entirely free from mould to be safe for horses, and even then should be fed in moderate quantities, from 10 to 20 pounds per day. It may be fed under these conditions to both idle and working horses and to growing colts, but hard-working horses should not be required to gain a large proportion of their sustenance from silage, as they must consume too much to get sufficient nutrients to supply much energy. With both idle and working horses it is advisable to feed silage as a supplemental or conditioning feed rather than as a maintenance feed. Never feed mouldy silage to horses.

LIVE STOCK NOTES

Scalding Hogs.—I have read with interest the recent article on killing and dressing hogs. I have followed the practice of rubbing powdered rosin into the hair of the hog before scalding and I find that the hair comes off easier than in any other way. The suggestion may be of some help to other readers.—F. A. Smith, Anne Arundel Co., Md.

Hog Ration.—I have 20 shoats ranging from 40 to 70 pounds. Also six brood sows that I am wintering. I am feeding corn and I have about 100 lbs. of skim milk per day that I can feed. Will the milk be sufficient to balance the corn? If not, what ought I to add to give a balanced ration? J. B., Richland, Pa.

Reader does not say whether or not he is feeding the shoats for an early market. We assume that he will keep them until early spring. The brood sows being wintered over will not require as rich a ration as the shoats. About 2 lbs. of milk to one pound of corn would give a ration fairly well balanced for the brood sows, while with the shoats it would require more nearly 7 pounds of milk to one pound of corn. The shoat ration would be improved by adding tankage and perhaps some middlings to the feed. With tankage alone added the ration would call for a mixture made at the rate of about 20 pounds of milk, 7 pounds of corn and 1 pound of tankage. Adding both middlings and tankage a very good ration could be compounded at the rate of about 20 pounds of milk, 6 pounds of corn, 3 pounds of middlings and one pound of tankage.

Do Your Horses Earn Their Board?—Statistics in Minnesota on a number of farms indicate that the horse is a costly item of equipment on the farm. Assuming average state yields of grain and hay for the last five years and considering the amount of feed fed annually to a horse it is apparent that the average farmer is giving close to 4.5 acres of his best land to each work horse. This is besides the straw consumed and the pasture, which also may be very productive land. Be sure the horse is giving you back an equivalent in productive work on a sufficient acreage.—Francis W. Peck, Minnesota Experiment Station.

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A Free Trial Package is Mailed to Every-One Who Writes.
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Write to Mr. A. L. Rice, Manufacturer, 156 North St., Adams, N. Y. and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.

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LETZ FEED MILL Self-Sharpening Silent-Duty
All sizes. 10 days free trial. Money back if not satisfactory.
Free Book on Feeding
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Sweeter smell and taste than meat tankage, and animals like it better. Mix with other grain or feeds, or feed it pure.
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Meadowview Berkshires and Jersey Cattle. Bred Sow. Circular ready. Also pricing a few young boars ready for service and 4 unusually good bulls 1 to 3 years old. VALLIE HAWKINS, Fawn Grove, Pa.

Chester White pigs, either sex; also a few bred sows. Write or better come and see them. ELMER D. WHISLER, Twin Brook Farm, Newville, Pa.

Shropshire Sheep Rams and ewes from noted English and American flocks. Quality high, prices reasonable. NUTWOOD FARMS, R. D. No. 4, Syracuse, N. Y.

Berkshires Splendid lot of large improved gilts and young boars, all Dukes of Sussex 6th strain that will breed on. L. T. DAVIS, Frankford, Del.

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Large Berkshire Swine Registered High Grade. Prices reasonable; write HOME FARM, Center Valley, Pa.

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YOU might as well make up your mind *right now* to plant *cleaned* and *graded* seed grain or pay a fearful penalty in loss of crops at harvest time—particularly *this* year when farm seed everywhere is reeking with foul weeds and sickly grain (due to last summer's heavy rains).
In this latest book of mine, "A Harvest of Gold" I prove the need of cleaned, graded seed so conclusively that you will never plant another bushel of *ordinary* seed grain.
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This remarkable book explains the cheapest; quickest, easiest way to clean any kind of farm seed. **Wheat or Rye**—how to remove wild oats, chess, cockle and wild buckwheat. How to grade wheat or rye. **Oats**—how to remove mustard, kale, wild peas, quack grass, cockle, straw joints, thistle buds; and how to separate timothy, wheat and vetch from oats; how to grade out all twin oats, pin oats and hull oats; how to get perfect oats for drill. **Barley**—how to get brewers or seed grain free of wild oats, mustard and all other weeds. **Beans and Peas**—how to clean, grade and remove splits and defectives from 18 varieties, including cow peas. **Corn**—how to remove cobs, chaff, silks, broken grains, shoe pegs, tips, butts and uneven kernels; how to get perfectly flat, even grains that insure 98% perfect drop. **Clover**—how to remove buckhorn and 62 other weeds without waste. **Timothy**—how to remove plantain, pepper grass and 33 other weeds; how to save volunteer timothy from oats and wheat. **Alfalfa and Flax**—how to remove dodder and fox-tail, heads, stems, fibres, wild oats, mustard, barnyard grass, false flax, broken wheat; shrunken, frozen and droughted seed. This is just a sample of the priceless information contained in the book here pictured — easily worth $100.00 to any farmer.
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This Big Book also tells you how you can get my latest model Chatham Grain Grader and Cleaner at an **astoundingly low price;** how you can try the machine **30 days free;** how you can buy on **easy credit terms.**
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hastens growth—promotes health—reduces feed costs—swells profits.
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It puts vitality into your stock, makes them healthier and insures better and quicker growth. But be sure your tankage is the best. You can't afford to feed them inferior quality.
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PEERLESS FEED MILL
is easy running, noiseless, requires but little power. Will grind 10 to 45 bushels per hour. Machine-cut or cast plates can be used; **plates are interchangeable. Machine-cut plates can be recut when dull.**
The best home mill ever made.
If your dealer cannot show you, write us for full information. Booklet "How to Save Money on Corn" FREE.
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has enormous strength and power. Until you see a Kirstin at work you cannot realize what wonderful power is developed by our system of compound leverage. The work positively is easier, to say nothing of being quicker and cheaper than with the cumbersome hand power pullers or the big horse-power pullers that require a team and two or three men to operate.
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Maryland Oyster Ways

A recent government bulletin, entitled "Oysters: The Food That Has Not Gone Up," tells 100 ways to eat an oyster, besides something about its habits and habitat. But Mrs. McCabe, who dwells where oysters are best and most abundant, and who knows what it is to go out and pick the oysters from their beds as inlanders go out and pick strawberries from their own beds, has sent us some ways to prepare oysters that the government cooks evidently do not know about, and what a Marylander knows about an oyster is certainly worth mentioning.

Food Value of Oysters. — Oysters have a little less fuel or energy value than whole milk. The protein or tissue building material is slightly greater than in milk; their fat content only about one-fourth that of rich milk; their energy or heat-making elements about three-fifths as much as in milk. Served in a milk stew, their nutritive value is doubled; as escalloped oysters, they form a dish that constitutes a well-balanced combination of tissue-building and heat- and energy-making food. The energy-making elements of the oyster are contained in a substance called glycogen, which is the substance in animal food that corresponds with starch in grains and vegetables.

Mineral Salts.—Oysters are richer in phosphorus than any other food, only frogs' legs approaching them in this respect. As phosphorus is a very essential mineral in the formation of new tissues, because it affords a certain power to force nutriment in solution thru cell walls, it can readily be seen that oysters are excellent food for invalids, provided they are supplemented by the starches of grains and vegetables, by meats and fats and fruit. However, it should be pointed out that oysters do not yield nearly so much calorie or energy value per pound as beef, pork, fowl, cereals, nuts, cheese; they rank as energy or heat makers about the same as such fruits as apples, and as green vegetables. Therefore as a food for downright hard physical labor they have not the required "staying" quality afforded by beef, pork, cereals, etc. But they afford a pleasing variety, and where they are as readily available as in our Jersey and Maryland sections are a comparatively inexpensive food. Now let us fix some to eat.
—The Editor.

The Recipes

The following recipes are tested and found thoroly good, and at the same time comparatively inexpensive.

Good Oyster Soup.—Measure out 1 quart milk, 1 tablespoon butter, 2 tablespoons flour, 1 teaspoonful salt, ½ saltspoon white pepper, and a speck of cayenne. While your milk is coming to a boil cook together the flour and butter until smooth but not browned, then pour this into milk and add your seasoning. Put 1 quart of oysters into a bowl and pour over them 1 cup water, take out one oyster at a time being sure that no shell sticks to them, then drain. Strain the oyster liquor thru fine strainer, put on to boil and skim well, add oysters and simmer until they grow plump and edges curl. Add oysters to milk foundation, and as much liquor as will make of right consistency. Add more salt and pepper, if needed, and as much butter as it will take. Serve with toast or crackers.

Oyster Paddies.—Take 1 pint mashed potatoes, 1 beaten egg and a little minced onion, form into cakes; then split the cakes with a sharp knife and lay two or three oysters on lower part and replace top. Bake in a moderately hot oven until a nice brown. Garnish with parsley.

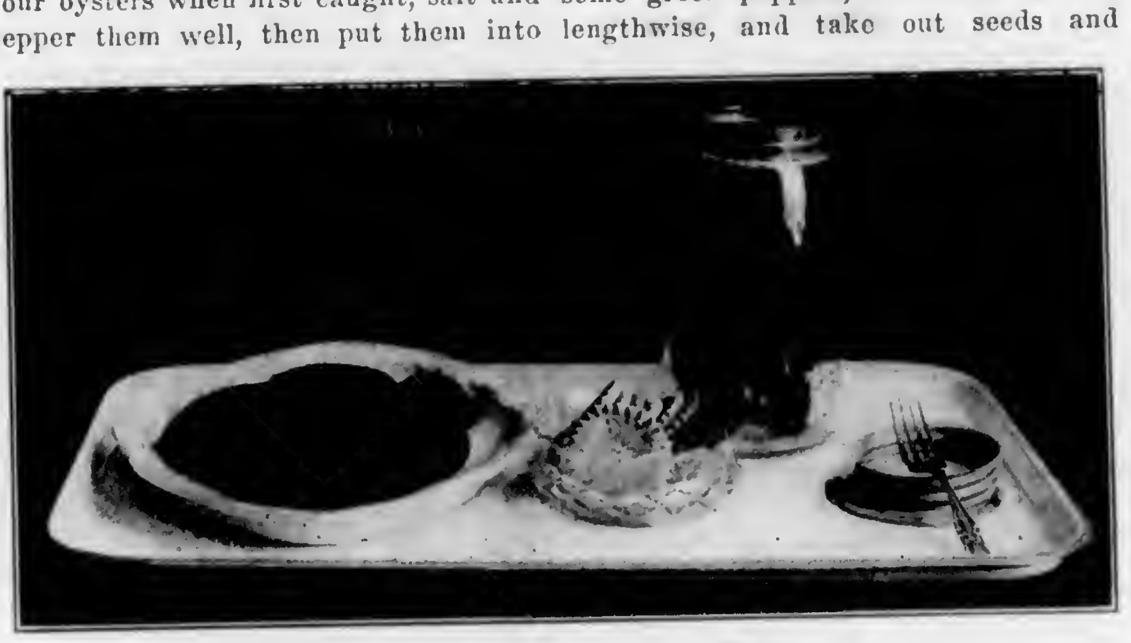
Stewed Oysters. — Melt 1 heaping tablespoonful butter, then add 1 cup milk, ½ cup cream, ½ teaspoon salt, ¼ teaspoon pepper. When boiling hot add 2 dozen oysters, cook until they look plump, then add ¼ cup cracker crumbs, and serve.

Fried Oysters.—Pick over, scald and drain dry 2 dozen oysters, sprinkle with a very little red pepper, roll in cracker dust, dip in egg mixed with an equal quantity of thick cream, drain and roll in fine bread crumbs, press gently, and fry six at a time in a wire basket lowered into clear fat hot enough to brown them in one minute. As soon as you lift out the first basketful, have ready some thin slices of raw potato to drop into the fat while changing the oysters, for the potato will keep your fat from burning. Proceed in this way until all your oysters are done. If care is taken the same lard may be used repeatedly. Drain the oysters on soft brown paper. The potato may be served as French fried potato if handled carefully, and is very tasty. Serve the oysters at once, for a fried oyster is not good if kept waiting.

OYSTER PIGS IN BLANKETS.

Philadelphia Fry.—Same as above, only after the oysters are rolled in crumbs the first time, dip them in cold thick mayonnaise, then into egg, and roll in crumbs again before frying. These are delicious.

Canning Fried Oysters for the Unexpected Guest or a Hastily Planned Excursion.—(See Illustration.) If you fry your oysters when first caught, salt and pepper them well, then put them into a sterilized can and seal tightly they will keep good several weeks. Warm them in a little water when ready to use.



CANNING THE FRIED OYSTERS.

Oysters on the Half Shell.—Keep on ice until time to serve. Have small plate half full of crushed ice and lay the oysters in the deep half of the shell on the plates. Salt, pepper and a slice of lemon is served with each helping.

Broiled Oysters.—Take 2 dozen large oysters, cleaned, drained and dried on a soft cloth. Sprinkle with salt and pepper. Melt 2 ounces butter in a large frying pan, lay in 1 dozen oysters. As soon as the last one is in, turn the first one, and when all have been turned begin taking out and laying them on a large buttered oyster broiler; cook over a moderate fire to a light brown. While these are browning lay the others in the butter. Have toast on a hot platter, place about 4 oysters on each piece, pour over them the butter from the frying pan, and serve with thin slices of lemon.

Deviled Oysters.—One heaping saltspoon of dry mustard, ½ saltspoon each of pepper and salt, and yolk of 1 egg. Mix to a smooth paste and coat oysters with it. Roll them in fine crumbs and broil.

Oyster Shortcake.—Boil 1 quart oysters in their own liquor, skim, drain and return ½ pint of liquor to the sauce-pan. Mix 1 tablespoon flour with 2 of butter; when light and creamy, gradually turn into it the boiling liquor, and season with salt and pepper. Boil up once, then stir in 3 tablespoons of cream and the oysters. Stir over the fire one-half minute. Have the short-cake baked ready to fill.

Creamed Oysters.—Clean 1 pint oysters and cook until plump. Drain and strain liquor, add milk to make 1½ cups. Melt 3 tablespoons butter, add 5 tablespoons flour, beat until smooth, pour the liquid on them gradually, add ½ teaspoon salt, ⅛ teaspoon pepper and celery salt; put in the oysters and as soon as heated pour over slices of toast.

Oyster Bouillon.—Chop 1 pint oysters fine and steam in their own liquor 5 minutes, then add 1 pint water, ½ teaspoon celery seed, a blade of mace, ¼ teaspoon salt and a dash of paprika. As soon as it boils strain thru double cheesecloth, and serve with a little butter or whipped cream on top. This is delicious for afternoon tea.

Oyster Cocktails. — Wash and dry some green peppers, cut them in two lengthwise, and take out seeds and white fibre. Put into the half pepper 6 small or 5 large oysters for each person. Chill the oysters before using. Make a sauce of 1 teaspoon of the oyster liquor, 1 saltspoon tomato catsup, ½ teaspoon lemon juice, salt, paprika, and a level saltspoon grated horseradish.

Escalloped Oysters.—For 100 oysters take four eggs boiled hard and chopped very fine; mix with 1 pint bread crumbs, add pepper and salt to taste. Put some of this mixture in the bottom of a pie dish, then a layer of the oysters previously drained and a few bits of butter; then cover with a layer of the crumb mixture, add another layer of oysters and cover the top with bread crumbs and bits of butter. Bake 45 minutes.

Panned Oysters.—Put 1 tablespoon butter in a covered saucepan with ½ saltspoon white pepper, 1 teaspoon salt and a dash of cayenne; when hot add 1 pint washed and drained oysters, cover closely and shake pan to keep from sticking. Cook until plump. Serve on toast or crackers.

Oysters Panned in the Shell.—Wash shells and wipe dry. Put in a pan with round shell down. Set in a hot oven for 3 minutes, then take out and remove the upper shell. Put 2 or 3 oysters in each one of the round shells, season with pepper and salt and add small piece of butter, cover with cracker or bread crumbs, return to the oven and brown.

Oyster Fritters.—Allow 2 eggs well beaten, 1 cup flour, ½ teaspoon baking powder, ½ cup milk, 1 teaspoon salt, 1 tablespoon salad oil and beat well till smooth. Pick over and parboil some oysters, drain well and add to batter, adding more salt and pepper, if needed.

Oyster Pancakes.—Mix equal quantities of milk and oyster juice together. Add to 1 pint of the liquor 1 pint of flour, 2 eggs, some oysters and a little salt. Drop by large spoonfuls onto a hot greased griddle.

Oyster Pie.—Line a deep pan with pie crust, fill with dry pieces of bread, cover with puff paste, and bake till a light brown in a quick oven. Have some oysters just stewed by the time the crust is done, take off upper crust, remove pieces of bread, put in the stewed oysters, after seasoning with salt, pepper and butter, put on top crust and serve.

Oysters and Macaroni.—Make a sauce of 1 tablespoon butter, 2 tablespoons flour, 1 cup milk, 1 teaspoon salt and [illegible] teaspoon pepper. Break ½ pound macaroni in inch pieces and boil 25 minutes in water, then pour over cold water and drain. Put a layer of boiled macaroni in a pudding dish, then a layer of oysters and cover with a layer of sauce. Repeat until all ingredients are used, finishing with a layer of crumbs, dot with butter and bake 25 minutes in a hot oven.

Pigs in Blankets.—(See illustration.) Wash and dry some large oysters. Have as many pieces of breakfast bacon as you have oysters. Place a strip of bacon lengthwise of your left hand, lay an oyster across the wrist end, and begin to roll toward the tips of your fingers. When the oyster is enclosed in the bacon, skewer the bacon together with a toothpick. When all your oysters are thus prepared, sprinkle them with pepper, dip in melted butter, and broil. Serve on hot toast with celery. Garnish your platter with lemon and white leaves of celery.

Oysters Roasted in the Shell.—Wash shells clean and wipe dry, place in baking pan and put in a hot oven for about 20 minutes. Serve at once. The oysters can be taken out of the shell, put into a hot dish, seasoned with butter, salt, pepper and lemon juice.

Boiled Cod with Oysters.—Put the fish into slightly salted boiling water, adding a few white cloves and peppers and a bit of lemon peel. When the fi[illegible] come out easily, the fish is done. Arrange neatly on dish, garnish and serve with oyster sauce, made thus: Take [illegible] oysters to each pound of fish, scald them in ½ pint hot oyster liquor, take out the oysters, and add to the liquor salt, pepper, a bit of mace and 1 oz. butter. Whip into it 1 gill of milk containing ¼ tablespoon flour. Simmer a moment, add the oysters, and send to table in sauce-boat.

Stewed Fish with Oysters.—Cut your fish in pieces for serving, removing the skin and bones. Butter the bottom of a stew-pan, lay in your fish, season each layer with salt and pepper, pour on boiling water to cover well, add 1 tablespoon lemon juice or vinegar, and simmer 15 or 20 minutes, or till the fish is done but not broken. Add 1 tablespoon flour cooked in 1 tablespoon hot butter, mix well, but do not break the fish. Add enough oysters to equal the amount of fish, and simmer until the oysters are plump. Serve very hot.

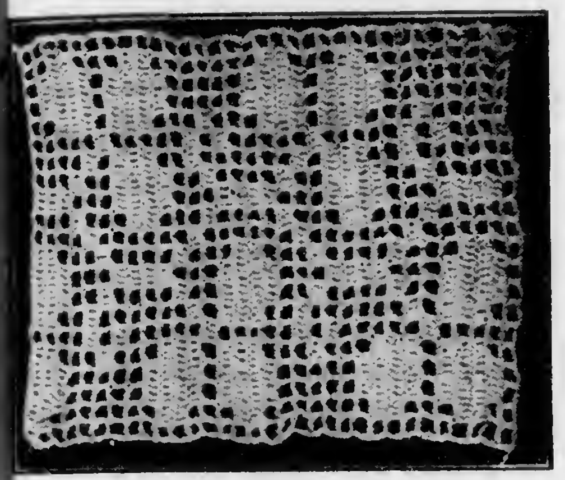
Roasted Oysters on Toast.—Take 18 large oysters and 30 small ones, 1 teaspoon flour, 1 tablespoon butter, salt, pepper and 3 slices toast. Have toast buttered on a hot dish, put the butter in a saucepan, and when hot add flour, stir until smooth, but not brown, add 2 tablespoons cream and seasoning. Put the oysters in their own liquor in hot oven for three minutes, then add to the cream. Pour over the toast. Garnish with slices of lemon.—Mrs. Minnie McCabe, Baltimore Co., Md.

SHAMROCK LACE

Ch. 69, 1 dc in eighth st from needle; ch 2, skip 2, 1 dc. Continue in this way to end of ohain, when there will be 21 holes. Turn.

1st Row.—Ch 5, skip 2, 1 dc in next dc of preceding rows; ch 2, skip 2, 7 dc; 3 holes, 7 dc, 3 holes, 4 dc, 8 holes. Turn.

2nd Row.—Ch 5, skip 2, 1 dc in next stitch; 8 holes, 4 dc, 2 holes, 13 dc, 1 hole, 13 dc, 1 hole. Turn.



3rd Row.—Ch 5, skip 2, 1 dc in next stitch; 12 dc, 1 hole, 13 dc, 2 holes, 4 dc, 8 holes. Turn.

4th Row.—Ch 5, skip 2, 1 dc, 4 more holes, 4 dc, 2 holes, 4 dc, 3 holes, 10 dc, 1 hole, 10 dc, 2 holes. Turn.

5th Row.—1 hole, made in the same way as first one in all others has been made; 4 more holes, 4 dc; 5 holes, 4 dc; 1 hole, 4 dc; 2 holes, 4 dc,4 holes. Turn.

6th Row.—5 holes, 7 dc; 3 holes, 4 dc; 3 holes, 4 dc; 1 hole, 10 dc, 2 holes. Turn.

7th Row.—1 hole, 13 dc; 2 holes, 4 dc; 1 hole, 4 dc, 11 holes. Turn.

8th Row.—2 holes, 7 dc; 3 holes, 7 dc; 3 holes, 4 dc; 3 holes, 13 dc, 1 hole. Turn.

9th Row.—2 holes, 7 dc; 4 holes, 4 dc; 2 holes, 13 dc; 1 hole, 13 dc, 1 hole. Turn.

10th Row.—1 hole, 13 dc; 1 hole, 13 dc; 2 holes, 4 dc, 8 holes. Turn.

11th Row.—5 holes, 4 dc; 2 holes, 4 dc; 3 holes, 10 dc; 1 hole, 10 dc, 2 holes. Turn.

12th Row.—5 holes, 4 dc; 5 holes, 4 dc; 1 hole, 4 dc; 2 holes, 4 dc, 4 holes. Turn.

13th Row.—5 holes, 7 dc; 3 holes, 4 dc; 3 holes, 4 dc; 1 hole, 10 dc, 2 holes. Turn.

14th Row.—1 hole, 13 dc; 2 holes, 4 dc; 1 hole, 4 dc 11 holes. Turn.

15th Row.—2 holes, 7 dc; 3 holes, 7 dc; 3 holes, 4 dc; 3 holes, 13 dc. Turn.

16th Row.—Like 9th; 17th like 10th; 18th like 11th. And so on until the lace is the desired length.

Terms.—Each hole is made by ch 2, skip 2, 1 dc in next stitch. The first hole at the beginning is always made by ch 5, 1 dc in dc of former row.—Ruth McSparran, Lancaster Co., Pa.

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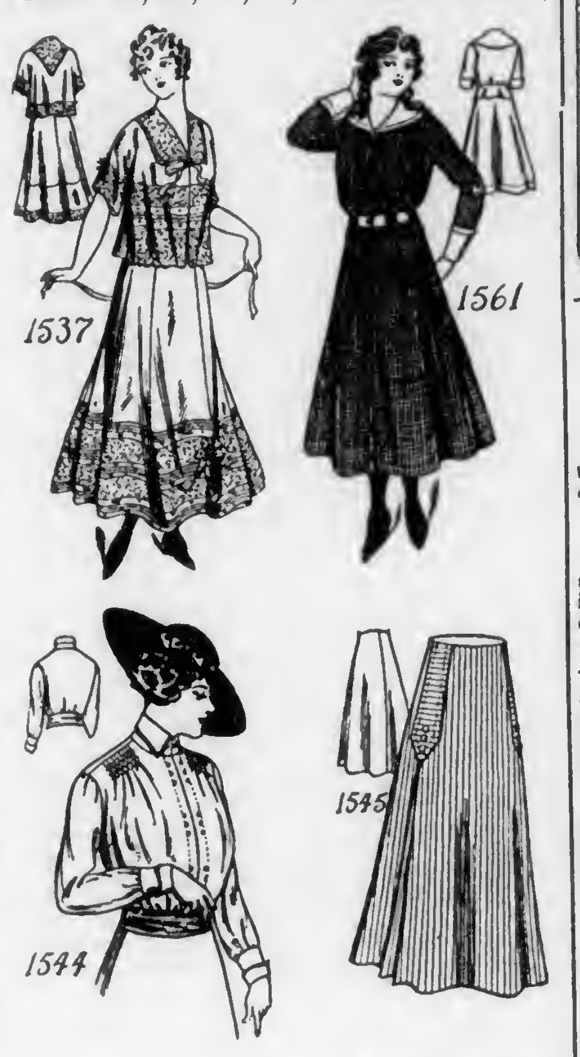
1561.—Dress for Juniors.—Cut in 3 sizes: 12, 14 and 16 years. It requires 4⅜ yards of 44-inch material for a 14-year size. Price, 10 cents.

1544—Ladies' Shirt Waist.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 2⅛ yards of 44-inch material for a 36-inch size. Price, 10 cents.



1545.—Ladies' Three-piece Skirt.—Cut in 6 sizes: 22, 24, 26, 28, 30 and 32 inches, waist measure. It requires 3⅜ yards of 44-inch material for a 24-inch size, which measures 3¼ yards at the lower edge. Price, 10 cents.

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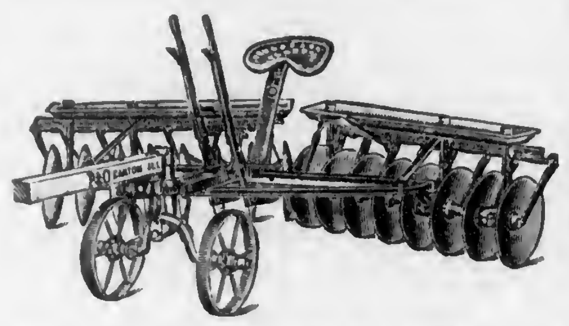

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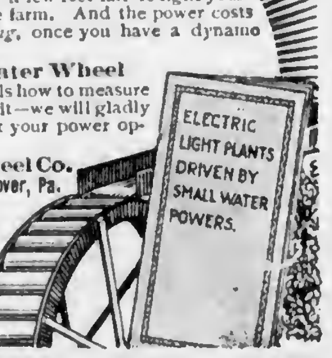
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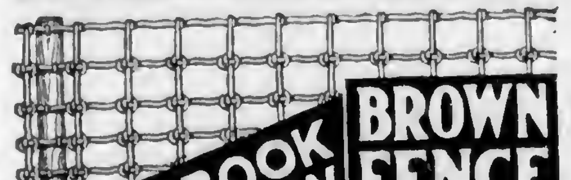

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Grange

Among the Granges

Elk County, Pa.—In an attempt to revivify the interest which has of late been lagging insofar as attending the meetings, it was suggested to change the time of meeting of Summit Grange from the first and third Saturday to the first and third Wednesday of the month. The change will be tried as an experiment during the months of January and February and if it tends to increase the attendance the constitution will be modified accordingly. It is thought by some that in many cases the hired help wants Saturday nights off, and as the younger folks like to avail themselves of many social diversions usually extant on this night, it falls to the lot of the older members to remain at home and that by having the meeting on Wednesday it would give them a better chance to attend. The other side contends that as the following day is a working day Wednesday is not a good night upon which to meet. The experiment will be watched with great interest by both sides of the controversy. The following were elected to serve as officers for the ensuing year: Master, George J. Markert; Lecturer, Albert G. Brehm; Secretary, E. M. Samick; Director of Insurance, Geo. J. Markert.

. . . . .

The various subordinate Granges of Elk County have been asked thru the Pomona Grange to take up two very important topics during the winter month. One of these is the study of the proposed Rural Credits System and National Marketing Organization laws and the other is the discussing of the advisability of organizing a Farm Bureau in this County in the near future. Both of those questions are to be well considered and are well worth the time any grange may give them. Under existing local conditions the latter of the two may really be considered the greater as it would mean much to agriculture in Elk County to have a Farm Bureau with a practical agriculturist in charge for farming is all too little understood here. There are so many instances of failure, due to ignorance of agricultural science, which could be avoided under the County Agent plan of modern farm co-operation. If the question can be thoroly dissected in the subordinate grange meetings there is some chance of ultimately accomplishing the end to which our more progressive farmers are striving.—A. G. B.

Washington County, Pa.—Washington County Pomona No. 16 held an all-day and evening session in the town hall at Washington, Pa., Tuesday, December 7. This meeting was well attended and representives from many of the subordinate granges were present.

Attorney J. M. McBurney, of the Washington Grange, gave the address of welcome and Mrs. Agnes Vankirk responded.

Washington County has thirty-six subordinate granges and the majority of these are doing splendid work, there are some however that need arousing and encouraged to do better work.

The Davis and Ginger Hill granges are both building new halls. These two granges are doing splendid work now and with new halls properly equipped we will hear good news from these in the near future no doubt. The Ginger Hill is but a young grange but in numbers is second in the county.

Many of the other granges in the county are doing work worthy of note. One of the granges whose meeting place is in a small town, spoke of their experience in buying salt. They had ordered the second car load and this was not quite sufficient to supply the demands and they went to the various stores in the town inquiring for salt. "Didn't have any". "Well, when would they have any?" 'Didn't know. You Grangers have been supplying the farmers and we don't have any demand for it." This grange has and still is buying extensively thru the Keystone Grange Exchange and otherwise.

The recent change in the rural mail delivery service in Washington County was taken up and discussed at length and the following resolution was finally adopted.

Whereas—During the present year, the U. S. Post Office Department has made two readjustments, or reroutings of the rural mail routes of Washington County for the purpose so claimed, of improving the service therein, which changes have resulted not in the least improvement but rather in a positive impairment and a chaotic condition of this important branch of the postal service, and

Whereas, Following the first so-called readjustment and the many complaints made to the Department that were examined into in a cursory and superficial manner by a subordinate of the Department, a second readjustment was made that has resulted in still greater impairment and confusion; notwithstanding it was intended to remove the causes for complaint consequent to the first change made; therefore

Be It Resolved, That Pomona Grange No. 16 Patrons of Husbandry respectfully request the Post Office Department to make a full and proper investigation of the unsatisfactory conditions surrounding the rural mail service in Washington County with the view of furnishing prompt relief, that our representatives in Congress, Senators Boise Penrose and Geo. T. Oliver and the Hon. H. W. Temple, be asked to present this request and insist on prompt consideration of the same by the Post Office Department.

The meeting was interspersed with music and reading. The afternoon session being so full, Rev. Jos. Hamilton's address was held over for the evening session. His subject was "The Position of the Washington County Farm." A lecture and reading by Dr. Jos. H. Bausman, of W. & J. College, was most highly enjoyed.

Bucks County, Pa.—Monday evening, December 20th, an open meeting was held in Richland Grange Hall which was called to order by the overseer, J. M. Landis. After a few songs from the "Grange Melodies," the audience had the pleasure of listening to a very interesting lecture on "The Science of Farming," given by W. E. Garis, superintendent of the Richland Manor Farms. Mr. Garis' instructive talk pointed out the necessities of the farmer for being better educated in the sciences in order that he may know, or discover the deficiency of his soil, and thereby realize the best returns for his labor. Aside from the Grange members there were quite a number of neighbors and friends present, who availed themselves of this opportunity and felt repaid for coming out. The grange is always glad to welcome strangers, so that they may obtain a portion of the benefits derived from such occasions.

The main object of the Grange is to better the conditions of the farmers financially, socially and intellectually, in order that they may keep up with the progress of other occupations or business. If only more farmers would see this need and help along in the good work they would reap great benefit.—J.

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Farmer Agents write for 1916 agency for Diddie-Blitzen Rods. Best Lightning Rod sold. L. F. DIDDIE CO., Marshfield, Wis.

Marketing Department

Owing to the great interest in the subject of better marketing methods, we have decided to reserve a column when circumstances warrant, and we invite our readers to make use of it by giving their views and experiences in this line. Questions on this subject are welcome also. Since our space is limited we must ask correspondents to be as brief as possible. Will you not help us to make this a valuable feature?

THE GREATEST NEED

A Greater Share of Consumers' Price

I have been much interested in the articles in your paper on "The Greatest Need of Eastern Agriculture." They gave many good suggestions and ideas, but none of them struck the vital spot. There is an idea quite prevalent among city people that the Farmer is making all the money. Then there is a rush "back to the land," nearly always to end in disaster.

If the farmer could realize a reasonable proportion of the profit from his farm, there would be no "kick" coming from the farmers. There is such a difference between the price received by the farmer and that paid by the consumer that there is plenty of room for complaint, and there is little wonder that we are a set of chronic grumblers.

To illustrate, a few years ago I had a neighbor who raised a nice crop of potatoes. Having no local market for the crop he shipped them to Baltimore to a commission man. He received a fair price, according to quotations. But what was his surprise on learning a few days after that the man who owned one-half of the potatoes (he being a tenant farmer) was paying sixteen times as much for the potatoes that he was buying; perhaps the same potatoes, as he lived in Baltimore.

Again, a few years ago I was selling milk to a local creamery, receiving less than six and one-half cents a gallon. That same milk was retailing in Baltimore at 10 cents a quart.

Last fall I was walking thru Lexington Market, Baltimore. Passing a stall with a nice display of Kieffer pears, I asked how he sold them. He said 20 cents a half peck, how many did I want? I said none, as I only asked out of curiosity as I had bushels and bushels of them which I would be glad to deliver to the railroad station at 20 cents a bushel. The proposition did not interest him in the least, as he probably was getting his pears for less money.

Now I have no fault to find with the high wages. We like to pay good wages and get good help, and we could do it if we got a fair deal at the other end. Nor have I any fault to find with the credit system. The average farmer has too much credit now, for his good. If he would keep a loaded shotgun to drive off the many worthless agents who are forever running after him he would be better off. These agents are forever trying to sell him some worthless article for which he has no use and too many buy because they can have all the time they want to pay for it. They just give a note. But notes all have to be paid, sooner or later, or else there is trouble.

The statesman who can bring the producer and consumer closer together will be doing more for both than any other benefactor that has been raised up to benefit eastern agriculture for many years.—J. H. B., Harford Co., Md.

TO THE FARMERS OF THE COUNTRY

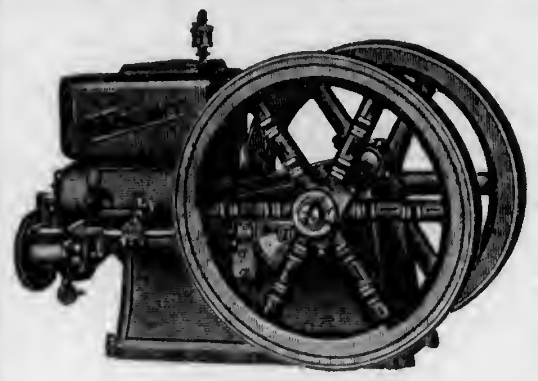
The farmers of our country collectively own over forty-billion dollars' worth of property. This is forty times as much as the combined capital-stock of all the national banks in the country. This sum is much greater than the combined value of all the railways and of all the manufacturing plants in the land. Agriculture is the oldest and the most important industry in the world, and the one upon which all other business depends. By reason of its importance it should have first consideration, yet, so far as the tariff goes, agriculture has never had a square deal—and the farmers know it. No argument is necessary. It ought to be clear to any far-seeing man, that the country will never have settled conditions and enter upon a career of permanent progress and prosperity until politics, with its log-rolling and lobbying, is taken out of tariff-making. Tariffs should be based upon the economic needs of the country, and not upon political necessity; they should be based upon facts instead of upon theory. It is a very big and a very complex subject; and to get all the facts relating to tariff, and bring them out fully and honestly, is an enormous undertaking, but it must be done if the tariff is to be handled in a sane and businesslike manner. The practical way of doing this is the creation of a permanent non-partisan Tariff Commission composed of big men, that shall fairly represent all the people and all the industries, and upon such Commission, certainly agriculture must be represented. This is what ought to be done. Things do not do themselves, so after a long and paintaking study the writer worked out a plan along somewhat new lines; it is the only plan ever proposed that gives agriculture a definite voice in tariff-making. The plan has been presented to hundreds of leading men in every line of industry, including agriculture, and it has been enthusiastically approved by them. Hundreds of leading publications indorse it. The National Grange went on record unanimously for such a Commission. Nearly every farm paper favors it, and many leading members of Congress say it is the only way to put tariff-making upon a fair, business-like basis.

In a word: The plan gives the Tariff Commission full powers to investigate, to gather information at home and abroad, to study and bring out all the facts and conditions relating to the subject of tariff, whether revenue or protective, and employ such investigators, scientists and experts as may be necessary for the purpose. It will be their duty to revise the classification, extract the "jokers," sweep away the mystery and subterfuge that has accumulated, and bring the whole subject down to plain understandable English, regardless of whether it helps or hurts any party or any tariff theory. No honest man can object to this; and others need not be considered. We shall never have a permanent solution of the tariff question and settled conditions, until this is done. Think of it! Within twenty-three years we have had five tariff revisions. We have switched back and forth from one theory to the other, and every time business has been upset and hundreds of millions of dollars needlessly lost. In tariff-making we must take out pull, politics and greed, and substitute statesmanship and a square deal.

Mr. Reader: If you wish to help, you can do so in a very effective manner. Tell your members of Congress, by letter, and your senators,—that you and your neighbors want a real nonpartisan Tariff Commission and have agriculture represented upon it. This is your opportunity to end the injustice to which agriculture has been subjected for many years. Do your part; do it quickly; and get your neighbors to join.

Full information with a copy of the bill will be sent to anyone upon application—a postcard is sufficient.—H. H. Gross, Pres. Tariff Commission League, Chicago, Ill.

SEARS, ROEBUCK AND CO. CHICAGO.



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Shipped immediately from a warehouse near you. Satisfactory service guaranteed.
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If you are interested in gasoline engines, write for our special January and February Engine Proposition No. 84P16.

If you are interested in buggies, write for our special January and February Proposition on American Beauty Buggies No. 84P16.

Don't buy a buggy or engine until you have seen this special proposition, as it means a big saving to you.

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Our American Beauty Buggies have won the lead on account of high quality and low price. We ship them from a warehouse near you. Send for our Special Proposition during January and February, as explained above.

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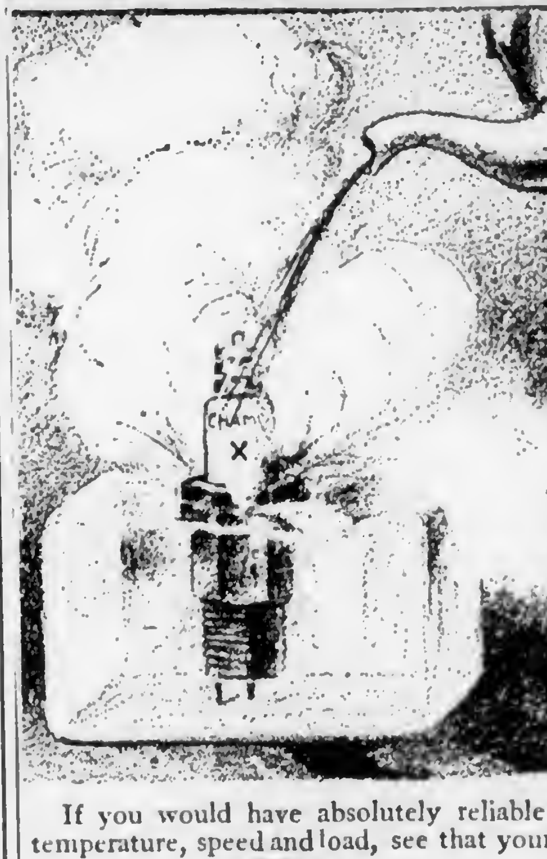

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Unless the parts are accurately tooled and fitted—

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This season our output is *doubled* compared with last.

The spark plug which we designed to serve your motor we know, by actual comparative tests will serve that particular kind of motor with greater efficiency than any other kind of plug you can buy.
Your dealer knows which one it is and will gladly supply you.
Be sure the name "Champion" is on the porcelain—not merely on the box.

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N & W RY

Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., Jan. 10, 1916.

With the high prices that are prevailing on potatoes, an erroneous report has been circulated to the effect that the ban has been lifted by the government on all foreign potatoes. This, of course, has caused some little stir among the potato men. So far as we can learn, however, the potato shippers have nothing to fear from potato imports from European countries. The quarantine is still on and affects England and the British Isles, Germany and Austria Hungary. The only foreign country upon which there is no embargo is Denmark, and only a very limited number can be brought from that country. An authentic report from Washington last week was to the effect that the quarantine would positively not be raised on potatoes from any of these territories showing disease. The market is now ruling very firm, and choice stock is in good demand at $1.10@1.25 per bushel, with the outside figure being paid for best Pennsylvania and Maine stock.

Receipts of sweet potatoes continue moderate, and under a very good demand the market is firm at 50@60c per basket, while hampers bring 80@ 90 cents.

Vegetables

On account of the extremely light receipts the onion market has been very firm, and best stock has been selling quickly at $2.75@2.85 per sack, while poorer grades bring from $2.25@2.50, and No. 2's from $1@1.50. It is believed that by this week end receipts may be liberal, but no break in prices is anticipated.

Altho under lighter supplies last week, the cabbage market advanced to $11@$12 per ton. The movement is now rather slow, and the market is quiet and easier. The cold weather prevailing at the close of last week stopped practically all shipping of Norfolk spinach, and with only 200 barrels here on Monday, prices jumped up to $2.25 per barrel. There were about 800 barrels of kale in, which sold at 65 @ 75 cents per barrel. With warmer weather now prevailing, the supplies of spinach will again increase and prices will be lower by the end of the week. Pennsylvania celery has been finding a steady sale at 8@12 cents per bunch, and it looks as tho it might do better, as both New York state and California celery is in very light supply and selling for high prices. Best New York state celery is bringing 65 @75 cents per bunch, while best California brings 90 cents to $1 per bunch.

Root crops with the exception of parsnips are showing quite some improvement. Beets are in strong request and supplies clean up every day at $2@2.25 per barrel. It is now believed that the crop of white turnips is not as heavy as first reported, and an advance of 25 cents per barrel is noted, sales being made at $1.25@1.50 per barrel. Yellow turnips have held steady at 60@65 cents per bushel. Parsnips are draggy at about $1@1.25 per barrel.

The cranberry market is very firm with the finest Howes selling around $11 per barrel, and $2.50@2.75 per crate. Prices on the medium grades are from $8@9 per barrel, and $2.25@2.40 per crate. There is now very little of the crop left at Cape Cod or New Jersey points, and the prices at shipping stations are about on a par with these prices.

Hot house mushrooms are arriving in moderate supply and selling all the way from 25 @45 cents per pound.

Southern Vegetables

With the exception of lettuce and peppers, which have been in heavy supply, all southern vegetables have been in rather moderate supply. All lines, however, will show up more freely from this time on. Florida lettuce has sold at $1@1.50 per hamper, and peppers from $2@2.75. There is a wide range in the quality of these southern vegetables, which makes a corresponding wide range in quotations. Beans have brought all the way from $2.50@4; cucumbers from $2 @5; peas from $2.50@5; egg plants from $2 @3.50; okra from $2.50@3.50, and squash from $1.50@2.50 Tomatoes are now showing much better quality than they have at any previous time this season. The growers seem to be packing better, and discarding their poor stuff. Sales have been made of tomatoes from $1.50@3.50 per crate. The receipts of strawberries today were the heaviest of the season to date and prices took quite a drop, with best berries selling at 30 to 35 cents per quart.

Apples

While the supplies of apples were fairly heavy this week, there being 40 cars unloaded Monday, which included 5 cars out of local storage, there was a little better movement, and the market more active, altho prices were unchanged from last week. There was, however, a much better undertone, and the market appears to be in better shape than at any time for a month past. Kings and Gills brought from $2.75@3.50 per barrel; Hubbarsons, $2@2.50 mostly, with a few sales up to $2.75; Spys, $2.50@3.25; Greenings, $2.75@3.25; Baldwins, $2.50@3.50; Grimes Golden, $2@3; Black Twigs, Stayman Winesaps, Rome Beauty, Ben Davis and Winesaps from $2.50@3.25; Ganos, $2.25 @2.75, while No. 2 apples of all varieties brought from $1.50@1.75 as to quality.

Poultry

As is usual right after the New Years, receipts of all kinds of live poultry are light, and the market is firm on every thing. Both fowls and chickens have moved freely at 16@18 cents, and old roosters at 12@13 cents. Very few turkeys are now coming, but at the same time only a few are wanted. They bring 20@22 cents per pound. Ducks and geese bring from 15@18 cents, as to quality.

The market is also very firm on all kinds of dressed poultry. Fine fowls and chickens are in light supply and sell from 16@20 cents. Turkeys are in limited supply and bring from 27@28 cents if fancy, while fair grades sell at 25@26 cents. Dressed ducks sell at 18@20 cents, and near-by geese from 16@18 cents.

It might be well to call to the attention of shippers that poultry intended for Philadelphia should be dry picked with head and feet left on, and entrails in. Scalded poultry is not wanted in this market and has to be sold at prices ranging 2 and 3 cents per pound lower than dry-picked.

Supplies of new laid eggs are light but the demand is slow and there was a decline of 5 cents per dozen thi sweek. Selected eggs, 35 cents; Pennsylvania and near-by extras, 33½ cents; firsts, 30 cents, and current receipts, 28 cents.

—Selmarad.

NEW YORK PRODUCE

New York City, Jan. 10, 1916.

No change of importance in either the butter or the cheese market this week. Egg market opened somewhat weaker. Receipts of dressed poultry are light and dealers holding prices firm. Apples in firm demand but most of the fruit lacks quality. Prices steady for fancy fruit. Potatoes quiet but prices remain firm. Sweet potatoes plenty and weaker. Onions still in good demand and prices higher. Cabbage plenty and weaker.

Butter. — Creamery extra, (92 score) per pound, 33c; higher score, 34c; thirds to firsts, 24@32c; state dairy, 27@31c; packing stock, 16@20c.

Cheese. — Whole milk specials, 17¾@18c; Daisies, 18c; skims, fresh choice, 15¼c.

Eggs. — Fresh gathered, extra, 37@38c; firsts, 35½@36½c; thirds, 27c; dirties, 20 @23c; nearby whites, fine to fancy, 41@43c dozen; ordinary to good, 33@40c; browns, 39@40c.

Dressed Poultry. — Chickens, 28@30c; fancy roasters, 24@25c. Capons, 25@30c. Fowls, 16@18c. Old roosters, 13c; squabs, $2.25@4.75 dozen. Spring ducks, per lb. 14 @20c. Turkeys, dry picked, 22@25c.

Apples.—These prices show the range from "B" to "A". Jonathan, bbl., $2@4.25; York Imperial, bbl., $1.75@3.50; Winesap, bbl., $2.25@4.25. Twenty Ounce, bbl., $1.50 @2.50; Greening, bbl., $2@3.25; King, bbl., $1.75@3.25; Northern Spy, $1.75@4; Baldwin, bbl., $2@3.25; Hubbardson, bbl., $1.75 @3; Ben Davis and Gano, bbl., $1.50@2.25; Common, bbl., $1.50@3.

Vegetables.—Beets, per bbl., $1; Carrots, bbl., $1@1.25. Cabbage, nearby, per ton, $3 @6. Danish, $6@9. Cauliflower, bbl., $1@$7.00. Celery, choice, crate, $3@4. Turnips, bbl, $1@1.50. Onions, white, $2@4.50 basket; do., yellows, $1@2.25 bag. Squash, Hubbard and Marrow, $1.50@2 bbl. Potatoes, Jersey, $2.50@3.25 bag. Long Island, $3.75 @4 bag. Sweets, $2@2.50 barrel.

Country Dressed Veals.

Choice	15½@16
Prime	14½@15
Fair to good	13 @13½
Coarse, heavy	13 @13½
Common	12 @12½
Buttermilks	10½@11½
Grassers	9½@10½

YORK PRODUCE MARKET

York, Pa., January 10, 1916.

Butter is slow since the holidays. Eggs fell off from 4 to 8 cents per dozen and the demand is light. Home-raised celery is high and of very poor appearance, the remnant of the season. Potatoes are quiet. The hog market is nowhere. Feed was from 10 to 25 percent higher the past year than, we believe as a whole, ever before in the history of our county, and yet hogs were lower than for the past ten years, selling as low as 6 cents per pound dressed. According to government figures they should be lower yet this month, but they should be lower yet this are still going upward.

Eggs.—30 to 36 cents per dozen.

Butter.—Country, 32@34c lb; separator, 34@36c lb. Milk 6 cents per quart.

Poultry.—Hens, 12@13c lb.; dressed, 45 @90c each. Turkeys, 22@25c retail.

Vegetables.—Potatoes, 8@10c ½-pk.; 65 @75c per bu. Cabbage, 2@6c. Lettuce, 5 @10c per head. Beets, 3@5c bunch. Radishes, 5@6c bunch. Onions, 3@5c bunch; 10@12c ½-pk. Lima beans, 25c quart. Soup beans, 12@14c quart. Cucumbers, 3@5c each. Turnips, 10@12c ½-pk. Spinach, 10@12c ½-pk. Sauer kraut, 8@10c quart. Lard, 12@14c lb.

Fruit.—Apples, 15@30c ½-pk; 75c to $1.50 per bu. Pears, 10@15c ½-pk. Grapes, 12@15c per basket.

Retail Grain Market. — Wheat, $1.26; corn, 90c; oats, 55c; rye, 90c; bran, $1.30 cwt.; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.16; corn, 73c; oats, 44c; rye, 84c; bran, $26 per ton; middlings, $28 to $32 per ton.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., Jan. 10, 1916.

Receipts for the week ending Saturday evening, January 8:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	2,817	6,074	6,853
Previous week	2,482	7,252	7,229

Calves. — Total receipts of calves for this week were 1,369 against 1,137 last week.

Beef Cattle.—Nearby Western and Southern cattle were on sale, the market closing firm, with the offerings under fair disposal. Bulls, cows and calves that were choice commanded full rates.

Best steers	$8.75@9.00
Choice	8.50@8.75
Good	8.25@8.50
Medium	7.75@8.00
Common	7.00@7.25
Bulls	5.00@7.00
Fat cows	5.20@6.75
Thin cows	2.75@3.25
Veal Calves—	
Exceptional lots	$11.50@11.75
Good to choice	11.00@11.25
Medium	8.50@ 9.00
Common	6.00@ 7.00
Southerns and barnyards	4.00@ 5.00

Sheep and Lambs.—The top of the lamb market was a trifle stronger, with sheep keeping steady in every grade. Inquiry was fairly satisfactory.

Wethers, extra	7.00@7.25
Choice	6.50@6.75
Good	6.00@6.25
Medium	5.50@5.75
Common	4.00@4.50
Ewes, heavy, fat	5.75@6.25
Lambs, extras	10.50@10.90
Good to choice	10.00@10.25
Medium	9.00@ 9.50
Common	7.00@ 7.50

Hogs.—There was a feeling of strength prevailing in line with outside conditions, which hardened prices somewhat. Quotations: Westerns, as to size and quality, $10@10.50.

City Dressed Stock.—Meats of all kinds that were prime and choice commanded firm values under seasonable demand.

Steers	10 @14
Heifers	9 @13
Cows	8 @11
Veal calves	14½@15½
Extra calves	16½@
Southerns and barnyards	9½@12½
Country dressed	14½@15½
Extras	16½@
Sheep	9½@10½
Extra wethers	11½@
Lambs	14½@15½
Hogs	10¼@10¾

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., Jan. 10, 1916.

Cattle.—The supply on sale Monday was 90 loads compared with 70 loads the week before. On the weighty cattle the prices ruled about steady, while the lighter, fat tidy weight grades sold higher. The good medium weight grades sold steady to strong. Heifers in fair supply and sold stronger on all grades. Cows in demand and sold higher on all grades, from bolognas to choice. Bulls higher on all grades. Best fresh cows stronger, springers slow sale. There were 90 loads of cattle on hand today; market steady to strong on all gradea.

Good to choice	$8.50@8.75
Good, 1300 to 1400 lb.	8.15@8.50
Medium to good, 1200 to 1300 lb.	7.75@8.10
Tidy 1050 to 1150 lb.	7.75@8.10
Fair to medium, 1000 to 1150 lb.	7.00@7.50
Fair 900 to 1000 lb.	6.25@6.75
Common, 700 to 900 lb.	5.00@6.00
Rough, half-fat, 1000 to 1300 lb.	6.00@7.00
Common to good fat oxen	4.00@7.00
Common to good fat cows	4.50@6.50
Common to good fat bulls	4.75@7.00
Heifers, 700 to 1100 lb.	4.75@7.50
Bologna cows	3.50@4.35
Fresh cows and springers	$40@85

Calves. — Veal calves in light supply and market closed the highest of season. There were 600 head of calves received on the market today; market steady.

Veal calves	$9.00@12.00
Heavy and thin calves	4.50@ 8.00

Hogs.—The supply of hogs during the early part of the week ruled considerably higher but with a liberal supply the latter part of the week the advance was lost and prices closed steady with Monday. The supply of hogs today totaled 125 double-deck loads; market lower on all grades.

Prime heavy	$7.05@
Heavy mixed	7.05@
Prime medium weights	7.05@
Best heavy Yorkers	7.00@
Light Yorkers	6.90@
Good pigs	6.50@6.75
Stags	5.00@5.25
Common to good roughs	6.00@6.35

Sheep and Lambs.—The supply of sheep and lambs has been liberal all week and with a good demand the market ruled active and 25 cents per cwt. higher on sheep and the same advance on the handy weight lambs, while the heavy lambs are only steady, selling $1 per cwt. below handy weights. Twenty-five double-deck loads of sheep were received today; demand good, and market active and higher on sheep and choice lambs; other grades of lambs steady.

Prime wethers	$7.75@ 8.00
Good mixed	6.75@ 7.00
Fair mixed ewes and wethers	5.75@ 6.50
Culls and common	3.00@ 5.00
Spring lambs	7.00@10.85

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., Jan. 10, 1916.

Hay and Straw.—Offerings of hay of desirable quality are moderate and the market rules steady with fair trade. There is no change in quotations on active grades. Considerable low-grade hay coming to market, which is slow and not wanted. Straw is steady but quiet.

Grains.—The wheat market rules steady under moderate offerings and a fair demand from both millers and exporters. There is more or less daily fluctuations in price following the trend of the speculative market. The week closed firm at an advance of 1 cent per bushel over last week. Offerings of corn are moderate and the market rules steady. Trade is quiet. There is comparatively little trading in oats but offerings are moderate and values rule steady. Offerings of feed are moderate but ample and the market is quiet at quoted rates.

Hay.—No. 1 timothy, $20.50@21; No. 2 do., $19@19.50. No grade, $10@15. Clover, light mixed, $18.50@19. No. 1 do., $18@18.50; No. 2 $15@16.

Straw.—No. 1 straight rye, $13.50@14; No. 2 do., $12.50@13. No. 1 wheat straw, $9.50@10. No. 2 do., $8.50@9. No. 1 oats straw, $9.50@10; No. 2 do., $8.50@9.

Feed.—Car lots, in 100-lb. sacks; winter bran, $24.50@25. Spring bran, $23.50@24.

Wheat.—In round lots, No. 2 red, $1.23@1.25. No. 3 red, $1.23@1.25. Rejected A, $1.20½@1.22½. Rejected B, $1.19@1.21.

Corn.—No. 2 yellow, 82½@83½c; steamer yellow, 81½@82½c; No. 3 yellow, 80½ @81½c. New ear corn, 73@75c per 70 pounds.

Oats.—No. 2 white, 50½@51c bu.; No. 3 do., 47½@48½c; sample, 44½@45½c; standard white, 49½@50c.

Flour.—Car lots, winter clear, $5.40@5.65; patent, $6.25@6.50. Favorite brands, $6.75 @7.15. City mills, choice, $6.75@7.15. Rye flour, $5.25@5.50 as to quality.

NEW YORK HAY AND GRAIN

New York City, Jan. 10, 1916.

Hay and Straw.—The hay market is rather strong thru-out, especially on large bales of timothy, supplies of which are inadequate to meet the demand. Sales of this grade are reported at 50 cents above quotations. The top qualities of small baled timothy hay are also scarce and wanted at full quotations. Lower grades of small hay have worked up in sympathy with the general situation and at some harbor points sales are reported 50 cents above general quotations. There is a fair call for light clover mixed, but heavy mixed is slow sale and straight clover drags except to special trade. There are only a few cars of alfalfa here, and they are not wanted, with selling prices uncertain. Rye straw is in liberal supply and weaker. Oats straw selling slowly at quotations.

Grains.—The wheat market is uncertain, following speculative activity. Quotations are up from 1 to 2 cents above last week's figures. Exports have been light of late, but it is reported that foreign bids are improving and a larger movement is looked for. It is claimed that British boats in trade with South American ports are required to carry at least 75 percent of their cargo in grain, indicating an urgent need at least so far as England is concerned. The growing crop is reported as affected with the green bug in many sections. Corn is steady. Receipts continue small but are ample to meet the demand. There are rumors of export business, but none is actually reported. Oats are weak and lower. The domestic demand is not very good, altho exports of 100,000 bushels are reported.

Hay.—Large bales—No. 1 $24.50@25.50; No. 2, $22@23.50; No. 3 $19.50@21; fancy clover, $22@23; No. 1 $20.50@21.50; No grade, $14@18.

Straw.—Per ton, No. 1 rye, $14@14.50. Oat straw, $9.

Wheat.—No. 1 Northern, $1.42¾; No. 2, $1.40¾; No. 3 $1.36¾.

Corn.—No. 2 yellow, 85½c.

Oats.—No. 3 white, 49@50½c; No. 4, 48@49c.

Rye.—$1.04@1.05.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $22.75. Standard middlings, $22.75; flour, do., $26.80 to arrive. Red dog, to arrive, 140-lb. sacks, $28.75. Oil meal, $40@40.50. City feed, bulk bran, $22.60. Heavy feed in bulk, $22.60. Red dog, $32. Flour middlings, $31.50. Middlings, $22.60@31.50.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., Jan. 10, 1916.

Hay.—Receipts of hay have decreased within the last few days. Since Monday receipts were very light, yards are rapidly cleaning up and a better market on all grades is looked for next week. This does not apply to No. 2 and no grade clover, of which there is a surplus lying around and which is very difficult to dispose of. No. 1 timothy, $18.75 @19; No. 2 timothy, $16.25@17.25; No. 3 timothy, $13@14; No. 1 light mixed, $16@17; No. 1 clover mixed, $14.75@15.75; No. 2 clover mixed, $12@13; No. 1 clover, $14@14.50; No. 2 clover, $9@12; No. 3 prairie, $11@11.50; No. 4 prairie, $8.50@9.

Straw.—Receipts, while not heavy are ample for requirements; market quiet but steady. No. 1 oat, $8.50@8.75; No. 2 oat, $7.75@8; No. 1 wheat, $8.50@8.75; No. 2 wheat, $7.75@8; No. 1 rye, $9.50@10; No. 2 rye, $8.25@8.75.

Ear Corn.—Demand a little better while receipts are normal; market a little stronger. New No. 2 yellow, 70@71c; No. 3 yellow, 67@69c; No. 2 high mixed, 68½@69½c; No. 2 mixed, 67@68c.

Oats.—Market dull, buyers holding off anticipating lower prices. No. 2 white, 49@ @50c; Standard, 48½@49c; No. 3 white, 47½@48c; No. 4 white, 46@47c; No. 4 white, 46@47c; Rejected, 39¼@42¾c.

NEW YORK MILK MARKET

New York City, Jan. 10, 1916.

The market is close with not a quart to spare, and business is fair. Dealers attribute this condition, so unusual for January to the demand in Europe for milk powder and condensed milk. This utilizes the surplus. The market value is approximately 4⅛ cents a quart for Grade B in the so-called 26-cent zone. The receipts of milk last week as compared with those of the previous week fell off 9,498 cans. This reduction is partly accounted for by the increase of 728 cans of cream.

The receipts of milk and cream in 40-quart cans for the week ending January 8, were as follows:

Railroad	Milk	Cream
Erie	42,941	2,302
Susquehanna	9,282	100
West Shore	14,975	890
Lackawanna	52,625	1,025
N. Y. Central (long haul)	79,742	1,309
N. Y. Central (short haul)	20,790	31
Ontario	35,862	2,090
Lehigh Valley	39,554	988
Homer Ramsdell Line	3,450	31
New Haven	8,146	70
Pennsylvania	6,344	223
Other sources	1,130	18
Totals	314,841	9,077
Same week last year	309,565	8,496

PHILADELPHIA BUTTER MARKET

Philadelphia, Pa., Jan. 10, 1916.

There was a decline of 2 cents a pound in the local butter market last week. Wholesale trade is quiet but offerings of strictly fancy creamery grades are very light and values on these goods are held steady at last week's decline. Lower grades are plentiful and hard to move except at buyers' terms. Ladles are quiet and unchanged. Strictly fancy prints rule firm, with supplies well cleaned up. Under grades are dull. The cheese market rules firm under light offerings and a fair demand.

Butter. — Fresh, solid-packed creamery, fancy specials, 36c; extras, 34c; firsts, 31 @32c; seconds, 25@27c; near-by prints, fancy, 37c; firsts, 28@32c; seconds, 25@27c; special ,fancy prints, 40@43c.

Cheese.—N. Y. full cream fancy 17¾@18c; fair to good, 17@17½c; part skims, 9@14c.

ELGIN BUTTER MARKET

Elgin, Ill., Jan. 8, 1916.

Butter sales were made today at 30 and 31 cents. One hundred and sixty tubs sold at 30 cents and 250 tubs at 31 cents.

TOBACCO MARKET

Practically the whole of the new crop has been sold in an almost record time of somewhat less than ten weeks. It has been some time since it was so easy for sellers and buyers to agree, this resulting, we think, from the disastrous selling experience of former years on the one hand and the general good quality on the other. We may repeat that the general price paid for the crop was about $10 for wrappers and $3 for fillers. Growers are much encouraged with results and think the present crop will make amends for the rather unsatisfactory quality of several past years. Growers are now turning toward the production of another crop and it is predicted that the acreage will be increased some 20 percent as compared with 1915. It should be said that while the bulk of crop was bought by outside concerns, local packers bought small amounts and doubtless will buy the unsold residue, which, together with their holdings of former crops, puts them in position to do at least a limited amount of business. Reviewing the cigar tobacco market at large, a prominent tobacco journal is inclined to look unfavorably upon the somewhat sudden manner in which the Pennsylvania as well as the Ohio crop was bought up. It is held that both sellers and buyers were blind folded and that when the crop is delivered there will be an almost endless amount of dissatisfaction; also that such a movement has greatly curtailed the opportunities of packers and that Government reports as to the quantity of tobacco on hands do not justify such a movement which, it is claimed, looks more like an effort to corner the supply than an effort to procure tobacco to replenish factory supplies.—H. E. Tweed, January 10, 1916.

Hepsey Burke

By Frank N. Westcott

SYNOPSIS OF PRECEDING CHAPTERS

Donald Maxwell, a young minister, has spent several months in his first ministerial charge at the little town of Durford, at a salary of $600 per year. Hepsey Burke, a widowed member of his flock, has proved his most faithful and efficient helper. The Senior Warden, Sylvester Bascom, is an important, if not the most loved, factor in dictating the affairs of the church. Miss Virginia Bascom is a busy, but not always the wisest, worker with an unusual interest in the young minister. Interest in unmarried ministers is a habit with Virginia and she showered attentions on Mr. Maxwell as long as he remained single. When he brought his young wife, Mrs. Betty, to Durford, there was a decided change in Miss Virginia's sentiments as well as her activity in the church. While all of Durford accepted Mrs. Betty as a welcome addition to the community life, Miss Bascom sought every opportunity to snub her. Jonathan Jackson, the Junior Warden, becomes Mrs Betty's faithful supporter, and she in turn advises him for his own good on the subject of matrimony. She startles him with the suggestion that he propose to Mrs. Burke. Jonathan takes the matter under advisement for a time. Stirred by the events of a circus put on by Nickey Burke, or perhaps prompted by the thought that Nickey needs a sterner foster parent, Jonathan finally proposes and receives some good advice for his pains, but a rather doubtful reply to his important question. Nickey makes his entry into the social life of Durford. He also makes an effort to raise money among his associates for a missionary fund. His method is highly successful but unfortunately is condemned as a species of gambling. Nickey is discouraged until Mr. Maxwell suggests the organization of a Boy Scout Corps with Nickey at the head.

CHAPTER XV (Concluded.)

Mr. Maxwell's suggestion of a Boy Scout Corps delighted Nickey. "We're out to welcome all comers. I've got the books that we shall need upstairs. Let's go up to my den and talk it all over. We shall have to spend evenings getting thoroly up in it ourselves,—rules and knots and first-aid and the rest. Mrs. Burke will allay parental anxiety as to the bodily welfare of the recruits and the pacific object of the organization, and Mrs. Maxwell will make the colors. Come on!"

With sparkling eyes, Nickey followed Donald out of the room; as they disappeared Hepsey slowly shook her head in grateful deprecation at Betty.

"Bless him!" ejaculated Hepsey. "Mixin' up religion, with a little wholesome fun, is the only way you can serve it to boys, like Nickey, and get results. Boys that are ever goin' to amount to anything are too full of life to stand 'em up in a row, with a prayer book in one hand and a hymnal in the other, and expect 'em to sprout wings. It can't be done. Keep a boy outside enough and he'll turn out alright. Fresh air and open fields have a mighty helpful influence on 'em. The way I've got it figgered out, all of us can absorb a lot of the right kind of religion, if we'll only go out and watch old Mother Nature, now and then."

CHAPTER XVI

Practical Temperance Reform

The small town of Durford was not immune from the curse of drink: there was no doubt about that. Other forms of viciousness there were in plenty; but the nine saloons did more harm than all the rest of the evil influences put together, and Maxwell, tho far from being a fanatic, was doing much in a quiet way to neutralize their bad influence. He turned the Sunday School room into a reading room during the week days, organized a gymnasium, kept watch of the younger men individually, and offered as best he could some chance for the expression of the gregarious instinct which drew them together after the work of the day was over. In the face of his work in these directions, it happened that a venturesome and enterprising saloon-keeper bought a vacant property adjacent to the church, and opened up an aggressive business — much to Maxwell's dismay.

Among the women of the parish there was a "Ladies' Temperance League," of which Mrs. Burke was president. They held quarterly meetings, and it was at one of the meetings held at Thunder Cliff, and at which Mrs. Burke presided, that she remarked severely:

"Mrs. Sapley, you're out of order. There's a motion before the house, and I've got something to say about it myself. Mrs. Perkins, as Mrs. Maxwell was unable to be present, will you kindly take the chair, or anything else you can lay your hands on, and I'll say what I've got to say."

Mrs. Perkins took Mrs. Burke's place as the president, while Mrs. Burke rubbed her glasses in an impatient way; and having adjusted them, began in a decided tone from which there was meant to be no appeal:

"The fact is, ladies, we're not gettin' down to business as we ought to, if we are to accomplish anything. We've been singing hymns, and recitin' lovely poems, and listenin' to reports as to how money spent for liquor would pay off the national debt; and we've been sayin' prayers, and pledging ourselves not to do things none of us ever was tempted to do, or thought of doin', and wearin' ribbons, and attendin' conventions, and talkin' about influencin' legislation at Washington, and eatin' sandwiches, and drinkin' weak tea, and doin' goodness knows what; but we've not done a blessed thing to stop men drinkin' right here in Durford and breakin' the town law; you know that well enough."

Mrs. Burke paused for breath after this astounding revolutionary statement and there was a murmur of scandalized dissent from the assembled ladies at this outspoken expression on the part of the honorable president of the Parish Guild.

"No," she continued emphatically, "don't you fool yourselves. If we can't help matters right here where we live, then there's no use havin' imitation church sociables, and goin' home thinkin' we've helped the temperance cause, and callin' everybody else bad names who don't exactly agree with us."

Again there was symptoms of open rebellion against this traitorous heresy on the part of the plain-spoken president; but she was not to be easily silenced; so she continued:

"Men have got to go somewheres when their work is over, and have a good time, and I believe that we won't accomplish anything until we fix up a nice, attractive set of rooms with games, and give 'em something to drink."

Cries of "Oh! Oh! Oh!" filled the room.

"I didn't say whiskey, did I? Anybody would think I'd offered to treat you, the way you receive my remarks. Now we can't get the rooms right off, 'cause we can't afford to pay the rent of 'em. But there's one thing we can do. There's Silas Bingham—the new man. He's gone and opened a saloon within about a hundred feet of the church, and he's sellin' liquor to children and runnin' a slot machine besides. It's all against the law but if you think the village trustees are goin' to do anythin' to enforce the law, you're just dead wrong, every one of you. The trustees are most of 'em in it for graft, and they ain't goin' to close no saloon when it's comin election day 'for long, not if Bingham serves cocktails between the hymns in church. Maybe the trustees'd come to church better if he did. Maybe you think I'm using strong language; but it's true all the same, and you know it's true. Silas Bingham's move is a sassy challenge to us: Are we goin' to lie down under it?"

"I must say that I'm painfully surprised at you, Mrs. Burke," Mrs. Burns began. "You surely can't forget what wonderful things the League has accomplished in Virginia and——"

"Yes," Mrs. Burke interrupted, "but you see Durford ain't in Virginia so far as heard from, and it's our business to get up and hustle right here where we live. Did you think we were tryin' to reform Virginia or Alaska by absent treatment?"

Mrs. Sapley could not contain herself another moment; so, rising to her feet excitedly she sputtered:

"I do not agree with you, Mrs. Burke; I do not agree with you at all. Our meetings have been very inspiring and helpful to us all, I am perfectly sure; very uplifting and encouraging; and I am astonished that you should speak as you do."

"I'm very glad you've found them so, Mrs. Sapley. I don't drink myself, and I don't need no encouragin' and upliftin'. It's the weak man that drinks who needs encouraging' and upliftin'; and he wouldn't come near one of our meetin's any more than a bantam rooster would try to hatch turtles from moth-balls. We've got to clear Silas Bingham from off the church steps."

"Well," Mrs. Burns inquired, "what do you propose to do about it, if I may be allowed to inquire?"

"Do? The first thing I propose to do is to interview Silas Bingham myself privately, and see what I can do with him. Perhaps I won't accomplish nothin'; but I'm going to try, anyway, and make him get out of that location."

"You can, if anybody can," Mrs. Sapley remarked.

"Thank you for the compliment, Mrs. Sapley. Now Mrs. President, I move sir—that is, madam—that the parish League appoints me to interview Bingham."

The motion was duly seconded and passed, notwithstanding some mild protests from the opposition, and Mrs. Burke resumed her place as presiding officer of the meeting. Then she continued:

"Excuse me; I forgot the previous question which somebody moved. Shall we have lettuce or chicken sandwiches at our next meeting? You have heard the question. Those in favor of chicken please say aye. Ah! The ayes have the chicken, and the chicken is unanimously carried. Any more business to come before the meetin'? If not, we'll proceed to carry out the lit'ary program arranged by Miss Perkins. Then we'll close this meetin' by singing the 224th hymn. Don't forget the basket by the door."

. . . . .

Silas Bingham was an undersized, timid, pulpy soul, with a horizontal forehead, watery blue eyes, and a receding chin. Out of "office hours" he looked like a meek solicitor for a Sunday School magazine. One bright morning just as he had finished sweeping out the saloon and was polishing the brass rod on the front of the bar, Mrs. Burke walked in, and extended her hand to the astonished bar-keeper, whose chin dropped from sheer amazement. She introduced herself in the most cordial and sympathetic of tones, saying:

"How do you do, Mr. Bingham? I haven't had the pleasure of meetin' you before; but I always make it a point to call on strangers when they come to town. It must be awful lonesome when you first arrive and don't know a livin' soul. I hope your wife is tolerable well."

Bingham gradually pulled himself together and turned very red, as he replied:

"Thanks! But my wife doesn't live here. It's awful kind of you, I'm sure; but you'll find my wife in the third house beyond the bakery, down two blocks—turn to the right. She'll be glad to see you."

"That's good," Hepsey responded, "but you see I don't have much to do on Thursdays, and I'll just have a little visit with you, now I'm here. Fine day, isn't it?"

Mrs. Burke drew up a chair and sat down, adjusted her feet comfortably to the rung of another chair, and pulled out her knitting from her work-bag, much to the consternation of the proprietor of the place.

"How nice you've got things fixed up, Mr. Bingham," Hepsey remarked gazing serenly at the seductive variety of bottles and glasses, and the glare of mirrors behind the bar. "Nothin' like havin' a fine lookin' place to draw trade. Is business prosperin' now-a-days?"

Silas turned three shades redder, and stammered badly as he replied:

"Yes, I'm doing as well as I can expect—er—I suppose."

"Probably as well as your customers are doin', I should imagine? You don't need to get discouraged. It takes time to work up a trade like yours in a nice decent neighborhood like this."

Silas stared hard at the unwelcome intruder, glancing apprehensively at the door from which several customers had already turned away when, thru the glass, they had caught sight of Mrs. Burke. He was desperately ill at ease, and far from responding cordially to Hepsey's friendly advances; and his nervousness increased as his patrons continually retreated, occasionally grinning derisively at him thru the glass in the door.

"If you don't mind my sayin' it, Mrs. Burke, I think you'd be a lot more comfortable at my house than you are here."

"Oh, I'm perfectly comfortable, thanks, perfectly comfortable. Don't you worry a bit about me."

"But this is a saloon, and it ain't just what you might call respectable for ladies to be sittin' in a saloon, now, is it?"

"Why not?"

The question was so sudden, sharp and unexpected that Silas jumped and almost knocked over a bottle of gin, and then stared in silent chagrin at his guest, his nervous lips moving without speech.

"I don't see," Hepsey continued, "just why the men should have all the fun, and then when a woman takes to enjoyin' herself say that it isn't respectable. What's the difference, I'd like to know? This is a right cheerful place, and I feel just like stayin' as long as I want to. There's no law against a woman goin' to a saloon, is there? I saw Jane Dwire come out of here Saturday night. To be sure, Jane ain't just what you'd call a 'society' lady, as you might say; but as long as I behave myself I don't see why I should go."

"But, ma'am," Silas protested in wrathful desperation, "I must ask you to go. You'll hurt my trade if you stay here any longer."

"Hurt your trade! Nonsense! You aren't half as polite as I thought you were. I'm awful popular with the gentlemen. You ought to be payin' me a commission to sit here and entertain your customers, instead of insinuatin' that I ain't welcome. Ah! Here comes Martin Crowfoot. Haven't seen Martin in the longest time."

Martin slouched in and reached the bar and ordered before he caught sight of Mrs. Burke. He was just raising the glass to his lips when Hepsey stepped up briskly, and extending her hand, exclaimed:

"How do you do, Martin? How are the folks at home? Awful glad to see you."

Martin stared vacantly at Mrs. Burke, dropped his glass, and muttered incoherently. Then he bolted hastily from the place without paying for his drink.

Bingham was now getting a bit hysterical over the situation, and was about to make another vigorous protest, when Hiram Green entered and called for some beer. Again Hepsey extended her hand cordially, and Hiram jumped as if he had seen a ghost—for they had been friendly for years.

"Hepsey Burke, what in the name of all that's decent are you doin' in a place like this?" he demanded when he could get his breath. "Don't you know you'll ruin your reputation if you're seen sittin' in a saloon?"

"Oh, don't let that worry you, Hiram. My reputation 'd freeze a stroke of lightnin'. You don't seem to be worryin' much about your own reputation."

"Oh well, a man can do a lot of things a woman can't, without losin' his reputation."

For an instant the color flamed into Mrs. Burke's face as she retorted hotly:

"Yes, there's the whole business. A man can drink and knock the seventh commandment into a cocked hat; and then when he wants to settle down and get married he demands a wife as white as snow. If he gets drunk, it's a lark. If she gets drunk, it's a crime. But I didn't come here to preach or hold a revival, and as for my welfare and my reputation, Mr. Bingham and I was just havin' a pleasant afternoon together when you came in and interrupted us. He's awful nice when you get to know him real intimate. Now, Hiram, I hate to spoil your fun, and you do look a bit thirsty. Suppose you have a lemonade on me, if you're sure it won't go to your head. It isn't often that we get out like this together. Lemonades for two, Mr. Bingham; and make Hiram's real sweet."

Mrs. Burke enjoyed hugely the disgust and the grimaces with which Green swallowed the syrupy mixture. He then beat a hasty retreat down the street. For two hours Hepsey received all who were courageous enough to venture in, with most engaging smiles and cordial handshakes, until Silas was bordering on madness. Finally he emerged from the bar and mustered up sufficient courage to threaten:

"Mrs. Burke, if you don't quit, I'll send for the police," he blustered.

Hepsey gazed calmly at her victim and replied:

"I wouldn't if I were in your place."

"Well then, I give you fair warning. I'll put you out myself if you don't go peaceable in five minutes."

"No, Silas; you're wrong as usual. You can't put me out of here until I'm ready to go. I could wring you out like a mop, and drop you down a knot-hole, and nobody'd be the wiser."

The door now opened slowly and a small girl, miserably clad, entered the saloon. Her head was covered with a worn, soiled shawl. From underneath the shawl she produced a battered pail and placed it on the bar with the phlegmatic remark, "Pa wants a quart of beer."

Mrs. Burke looked at the girl and then at Bingham, and then back at the girl inquiringly.

"Are you in the habit of gettin' beer here, child?"

"Sure thing!" the girl replied, cheerfully.

"How old are you?"

"Ten, goin' on eleven."

"And you sell it to her?" Hepsey asked, turning to Bingham.

"Oh, it's for her father. He sends for it." He frowned at the child and she quickly disappeared, leaving the can behind her.

"Does he? But I thought you said that a saloon was no place for a woman; and surely it can't be a decent place for a girl under age. Now my friend, I've got something to say to you."

"You are the very devil and all," Silas remarked.

"Thanks, Silas. The devil sticks to his job, anyway; and owin' to the likes of you he wins out, nine times out of ten. Now will you clear out of this location, or won't you?"

"Another day like this would send me to the lunatic asylum."

"Then I'll be around in the mornin' at six-thirty sharp."

"You just get out of here," he threatened.

"If you promise to clear out yourself within three days."

"I guess I'd clear out of Heaven itself to get rid of you."

"Very well; and if you are still here Saturday afternoon, ten of us women will come and sit on your steps until you go. A woman can't vote whether you shall be allowed to entice her menfolk into a place like this, and at the very church door; but the average woman can be mighty disagreeable when she tries."

Silas Bingham had a good business head: he reckoned up the costs—and cleared out.

CHAPTER XVII

Notice to Quit

Before the year was over Mrs. Betty had become popular with Maxwell's parishioners thru her unfailing good nature, cordiality and persistent optimism. Even Mrs. Nolan, who lived down by the bridge, and made rag carpets, and suffered from chronic dyspepsia, remarked to Mrs. Burke that she thought the parson's wife was very nice "'cause she ain't a bit better than any of the rest of us,"—which tribute to Mrs. Betty's tact made Mrs. Burke smile and look pleased. All the young men and girls of the parish simply adored her, and it was marvelous how she managed to keep in touch with all the guilds, do her own housework, and learn to know everyone intimately. Hepsey warned her that she was attempting too much.

"The best parson's wife," she said, "is the one who makes the rest work, while she attends to her own household, and keeps her health. Her business is not to do the work of the parson, but to look after him, keep him well nourished, and cheer him up a little bit when he is tempted to take the next trolley for Timbuctoo."

The retort was so tempting that Mrs. Betty could not help saying:

"There's not a person in this town who does so much for others as you do, and who makes so little fuss about it. It's the force of your example that has led me astray, you see."

"Hm!" Hepsey replied. "I'm glad you called my attention to it. I shall try to break myself of the habit at once."

As for Maxwell, his practical helpfulness in forwarding the social life of the place, without in the least applying that phase of his activities as a lever for spiritual upheavals, and his ready sympathy for and interest in the needs and doings of young and old, irrespective of class or caste, gradually reaped for him the affection and respect of all sorts and conditions. In fact, the year had been a pleasant one for him, and was marred by only one circumstance, the continued and growing hostility of his Senior Warden, Mr. Bascom. From the first, he had been distinctly unfriendly towards his rector; but soon after Maxwell's marriage, his annoying opposition was quite open and pronounced, and the weight of his personal influence was thrown against every move which Maxwell made towards the development of the parish life and work.

To those more "in the know" than the Maxwells themselves, it was evident that a certain keen aggressiveness evinced by the Senior Warden was foreign to his phlegmatic, brooding character, and it was clear to them that the actively malicious virus was being administered by the disappointed Virginia. That she was plotting punishment, in revenge for wounded amour propre, was clear to the initiated, who were apprehensive of the bomb she was evidently preparing to burst over the unconscious heads of the rector and his wife. But what could her scheme be?

Gradually Mrs. Burke noticed that Betty began to show fatigue and anxiety, and was losing the freshness of her delicate color; while Donald had become silent and reserved, and wore a worried look which was quite unnatural to him. Something was going wrong; of that she felt sure; but observant tho she was, she failed to trace the trouble to its source.

Matters came to a crisis one day when Maxwell was informed that some one was waiting to see him in the parlor. The visitor was dressed in pronounced clothes and walked with a self-assertive swagger. Maxwell had seen him in Bascom's office, and knew who was waiting for him long before he reached the parlor, by the odor of patchouli which penetrated to the hall.

"Good morning, Mr. Nelson," said Maxwell. "Did you wish to see me?"

"Yes, I did, Mr. Maxwell, and I am sure it is a great pleasure."

The man seated himself comfortably in a large chair, put the tips of his fingers together, and gazed about the room with an expression of pleased patronage.

"Very pretty home you have here," he remarked suavely.

"Yes," Maxwell replied. "We manage to make ourselves comfortable. Did you wish to see me on business?"

"Oh yes," the lawyer replied, "a mere technicality. I represent the firm of Bascom & Nelson, or rather I should say I am Mr. Bascom's legal agent just at present, as I have not yet been admitted as his partner——"

The man stopped, smirked, and evidently relished prolonging his interview with Maxwell, who was getting impatient. Maxwell drew his watch from his pocket, and there was a look in his eyes which made the lawyer proceed:

"The fact is, Rector, that I came to see you on a matter of business about the rectory—as Mr. Bascom's agent."

"Will you kindly state it?"

"It concerns the use of this house."

"In what way? This is the rectory of the church, and the rental of it is a part of my salary."

"You are mistaken. Mr. Bascom owns the house, and you are staying here merely on sufferance."

For a moment Maxwell was too astonished to speak; then he began:

"Mr. Bascom owns this house? What do you mean? The house is part of the property of the church."

"You are mistaken, my friend."

"You will kindly not repeat that form of address, and explain what you mean," replied Maxwell heatedly.

"Come, come; there's no use in losing your temper, my dear rector," retorted Nelson offensively.

"You have just two minutes to explain yourself, sir; and I strongly advise you to improve the opportunity, before I put you out of this house."

Nelson, like most bullies, was a coward, and evidently concluded that he would take no risks. He continued:

"As I said before, Sylvester Bascom practically owns this house. It does not belong to the church property. The Episcopals made a big bluff at buying it years ago, and made a very small payment in cash; Bascom took a mortgage for the rest. The interest was paid regularly for a while, and then payments began to fall off. As you have reason to know, Bascom is a generous and kind-hearted man, who would not for the world inconvenience his rector, and so he has allowed the matter to go by default, until the back interest amounts to a considerable sum. Of course the mortgage is long past due, and as he needs the money, he has commissioned me to see you and inform you that he is about to foreclose, and to ask you to vacate the premises as soon as you conveniently can. I hope that I make myself reasonably clear."

In a perfectly steady voice Maxwell replied:

"What you say is clear enough; whether it is true is another matter. I will see Mr. Bascom at once, and ask for his own statement of the case.' '

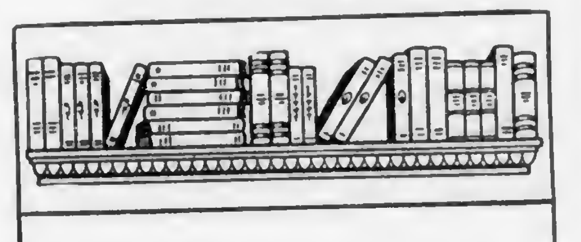
"I don't think it necessary to see him, as he has expressly authorized me to act for him in the case."

"Then I suppose you came here to serve the notice of ejectment on me."

"Oh, we won't use such strong language as that. I came here merely to tell you that the house must be vacated soon as possible. Mr. Bascom has gone to New York on business and will not be back for two weeks. Meantime he wishes the house vacated, so that he can rent it to other parties."

"When does the Senior Warden propose to eject his rector, if I may be allowed to ask?"

(To be continued.)



PIECES to SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

QUIT YOUR DOGGONED QUITTIN'!

If th' day seems dark an' gloomy
An' your feelin' sad an' blue;
If your plans have all got twisted
An' you don't know what to do,
An' adversity keeps comin'
Till you feel your hopes aflittin',
Just take a brace; keep diggin' in
An' quit your doggoned quittin'.

Don't sit around regrettin'
That you're not a rich man's son
An' wishin' for a chance to do
What some one else has done.
You'll find enough o' things to do
Right near where you've been sittin';
Just brace right up an' tackle 'em
An' quit your doggoned quittin'.

What's th' use o' always grumblin'
An' complainin' 'bout your fate?
If you'll cut loose an' get busy
Right away, it's not too late;
For there's always some one sizin' up
Th' pace that you're a-hittin';
Just keep braced up an' plug away
An' quit your doggoned quittin'.

Submitted by —
Mary D. Howden, McKean Co., Pa.

Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Colic.—I would like to know of a remedy for colic in horses, or how to prevent a horse having it. I would like to keep on hand a remedy to use before our veterinary arrives. F. B. G., Riverhead, N. J.—First of all, certain animals that have perhaps come honestly by weak digestive organs must be fed a good quality of food which is easily digested. They should not be fed much grain at a time when in a tired or exhausted condition. It is also a mistake to water horses too soon after feeding grain. The water is apt to wash quite a portion of the grain out of stomach into the small intestines and here ferment, creating gas and a certain amount of pain which, when mild, may not be noticed, but when severe causes animal to become exceedingly uncomfortable. The animal very often rolls and tumbles until relief comes. In the treatment of colic or indigestion, it is always good practice to give a cathartic of aloes or raw linseed oil. Large doses of hyposulphite of soda, aromatic spirits of ammonia, salicylic acid and such like usually relieve bloat, and give relief. Alcoholic stimulants, ginger, peppermint, etc., have a good effect. The horse should always be allowed to roll and tumble as he sees fit. Rubbing mustard on abdomen or applying friction has a good effect. So, also have acnemas of hot soap suds.

Knuckling.—I have a 7 year-old mare that knuckles on hind fetlock. I would like to know how to treat her. W. C. S., Saratoga Springs, N. Y.—Clip off hair and apply 1 part powdered cantharides and 4 parts lard, every 2 weeks. It will be necessary to give her rest while the treatment is going on.

Unthrifty Mare. — During harvest time I worked my 5-year-old mare pretty hard on binder. Since then she has not thrived well. Her coat is rough and starring, but her appetite appears to be good. No matter how much she is fed, she refuses to lay on flesh. S. J. P., The Rocks, Md.—First of all, you should change her feed and groom her well, twice a day. Give her 1 dr. fluid extract nux vomica, ½ oz. fluid extract gentian and ½ oz. Fowler's solution at a dose in feed, 3 times a day. Her stable should be kept clean, free from foul gas and be well ventilated.

Knuckling.—I have a 5-year-old horse that knuckles in both hind ankles. I am anxious to know if there is anything I can do or apply that will benefit him. D. S. K., Elverson, Pa.—Doubtless you know that a great many horses from natural conformation are predisposed to knuckling on fetlock joints, especially in hind legs. A short, straight, upright pastern indicates a tendency to tilting forward, especially if a young horse is driven much or over-worked. If your horse is one of this kind, treatment will perhaps do him very little good; however, benefit is derived from clipping off hair and applying 1 part powdered cantharides and 4 parts lard, every 2 weeks. If you require his work, it will be a mistake to apply a blister, but you will benefit him by rubbing with alcohol and bandaging over cotton.

Sequel to Castration.—I have a shoat about 5 months. I had him castrated a few days ago at which time the surgeon applied creolin. Since the operation the hog appears to be weak in his hind parts and acts rather dull and dumpish, but eats fairly well. Before he was altered he was quite lively and I have been thinking that he caught cold. What had I better do for him? S. M. A., Westfield, Pa.—Your hog has perhaps taken cold and feeling a little dumpish; however, I believe he will be all right after he recovers from shock of operation. Give him 4 grains of quinine at a dose, 3 times a day, and if wound in scrotum is suppurating, apply 1 part iodoform and 4 parts boracic acid daily.

Impure Blood.—I have an 8-year-old horse that had small lumps or swellings come on his hind quarters, extending as low down as hock. These bunches could be plainly felt with hand when rubbing over body and when he was curried the top of bunch would pull off and two or three drops of fluid would ooze out, stick to hair, then dry up and be brushed off. A second crop of these bunches would soon appear, but during the summer and fall his skin cleared up pretty well. At present there are 20 or more similar bunches to those that came on him last spring. His body itches and in places he has made his leg raw. I am feeding him ground oats and corn. He is doing very little work and could not be considered a sick horse. E. B., Carbondale, Pa. — Your horse suffers from blood impurities and will be benefitted by giving 1 dr. potassium iodide at a dose, twice a day, and ½ oz. doses of Fowler's solution, 3 times a day. Touch bunches with tincture iodine, 3 times a week, and groom him well, twice a day. If he is very heavy coated and you have a warm barn, he would do better to be clipped. You could then take better care and keep his skin clean.

Nodular Disease.—One year ago I took a flock of sheep to keep on shares, promising to double the number. When I got them they were in poor condition and I began to grain them and kept it up all winter. Nearly all of the ewes lambed in March, and in the early part of summer quite a number of them commenced to scour and some of them died. Those that I opened had many black spots on their bowels. The ram that ran with them was closely related to quite a few of the ewes; therefore, I suspected it might be the result of inbreeding. L. N. T., Friendsville, Pa.—Your sheep suffer from nodular disease, a parasitic bowel ailment which when in the advanced stages is incurable. Doubtless the sheep were in this condition when you took them. This is quite a common ailment in sheep. Mix together 1 part powdered sulphate iron, 3 parts salt, 4 parts ground gentian and mix a little with their feed, once a day.

COUNTY NOTES

Steuben Co., N. Y., (W.C.) Jan. 3.—Moderate winter weather, with considerable snow, which does not last long. Much ice, but a smooth roadbed. Meat, eggs and butter are good in price, but milk cows are lower. Many auctions and some property sold on chattel mortgage. Some farmers have not made ends meet.—C. M. Drake.

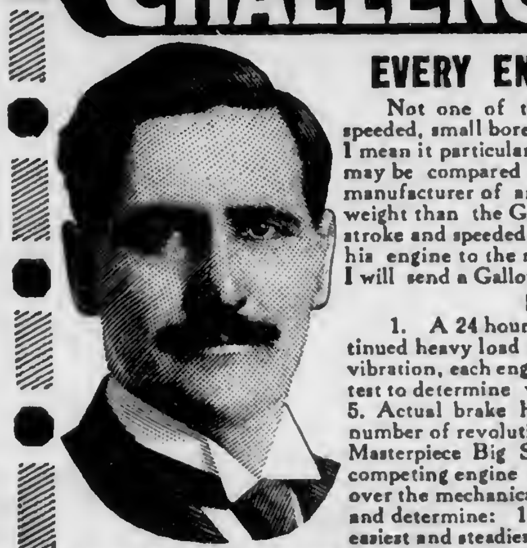
Warren Co., N. J., (N.W.) Dec. 26.—Weather moderate. Live stock looks good. Prices favorable. Corn, 75c cwt; wheat, $1.10 bu; rye, 90c bu; oats, 45c bu; eggs, 40c dozen; pork, 9c dressed; milk, $1.95 cwt. Farmers threshing and cutting wood.—V. R. Loller.

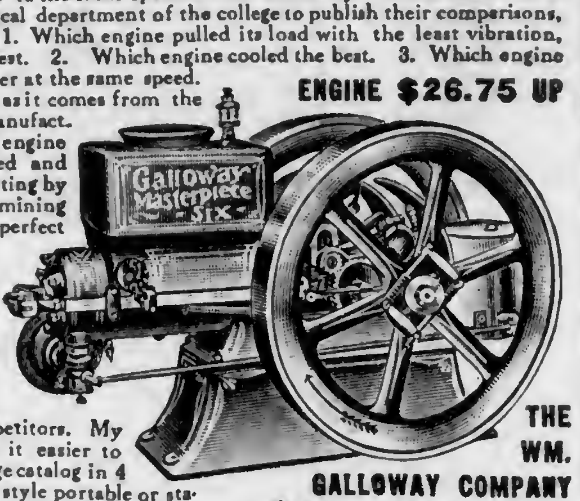
Huntingdon Co., Pa., (C.) Dec. 30.—Cold, with frequent snows. Heavy wind storm last week. Good sleighing. Live stock in good condition. Threshing all done. Grain yielded well. Potatoes generally a poor crop. Corn proved a bumper crop; is selling at 70c. Oats, 45c; wheat, $1.15; potatoes, 60c; beef cattle, (dressed) 7c; hogs, (dressed) 10½c; veal calves, 10½c; butter, 35c; eggs, 35c. Winter wheat looks promising. Corn all husked. Farmers got very litle fall plowing done Many are attending Farmers' Week at State College.—Clair L. Harnish.

Clinton Co., N. Y., (N.E.) Dec. 26.—Lots of snow but ground very dry. Great demand for fresh cows and springers; also anything fit to kill. Milk scarce and bringing $1.90 per 100 lbs. Good fresh cows $75 each; veal, 9c. Getting up the wood supply and tending the farm stock is the order now.—Henry E. Gilbert.

Chester Co., Pa., (S.E.) December 26.—Weather cold, snow drifting. Cows are high; good ones scarce. Hogs are rather plentiful and low; $8.50 to $9. Draft horses are high, $150 to $250. Good hay is scarce. Straw is not plentiful. Turkeys, 30c lb; veal 10c. Corn is not all husked. All fodder is not hauled. Snow storm has retarded out door work. Wheat looks well. Some manure is being hauled. — Hayes E. Taylor.

Montour Co., Pa., (C.) Dec. 20. — Winter conditions prevail. Snow has been lying on the northern slopes for over two weeks. Horses and cattle in fair demand. Prices on hogs and cattle have dropped for the present. Beef, 6½ to 7c; hogs, 9c; veals, 9c; poultry, chickens, 13c; turkeys, 23c; eggs, 40c; butter, 35c; wheat, $1.10; corn, 60c; oats, 40c; hay, $14 to $16. Weather conditions have not been favorable for growing of wheat. Work is generally in good condition.—Benjamin L. Diehl.





GALLOWAY'S 1916 ENGINE CHALLENGE! READ IT!

EVERY ENGINE BUYER NOW PROTECTED!

Not one of the advertisers or manufacturers of light weight, high speeded, small bore and short stroke engines dare accept this challenge. I mean it particularly for advertisers of over-rated engines so that they may be compared with my 1916 Masterpiece Big Six engine. Let any manufacturer of an engine rated at 6 h. p. or more which is lighter in weight than the Galloway Masterpiece Big Six, of smaller bore and shorter stroke and speeded up to a greater number of revolutions per minute, send his engine to the mechanical department of any state college in the union; I will send a Galloway Masterpiece Big Six to test on the block beside it for:

READ THESE CONDITIONS:

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The Wheat Yield
Tells the Story
of Western Canada's Rapid Progress

160 ACRE FARMS IN WESTERN CANADA FREE

The heavy crops in Western Canada have caused new records to be made in the handling of grains by railroads. For while the movement of these heavy shipments has been wonderfully rapid, the resources of the different roads, despite enlarged equipments and increased facilities, have been strained as never before, and previous records have thus been broken in all directions. The largest Canadian wheat shipments through New York ever known are reported for the period up to October 15th, upwards of four and a quarter million bushels being exported in less than six weeks, and this was but the overflow of shipments to Montreal, through which point shipments were much larger than to New York.

Yields as high as 60 bushels of wheat per acre are reported from all parts of the country; while yields of 45 bushels per acre are common.

Thousands of American farmers have taken part in this wonderful production. Land prices are still low and free homestead lands are easily secured in good localities, convenient to churches, schools, markets, railways, etc. There is no war tax on land and no conscription.

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Worms and Indigestion Cause 90% of Live Stock Losses

Mr. Sidney R. Feil, President of The Feil Mfg. Co. is a Registered Pharmacist, a graduate of the Cleveland School of Pharmacy and the National Institute of Pharmacy. He has been engaged in laboratory work for more than 25 years. For many years engaged in compounding veterinary remedies.

"Besides ridding my hogs of worms, I know SAL-VET has saved me bushels of grain." A. H. Evans, Wingate, Ind.

"I have not lost a single sheep since feeding SAL-VET." —Jno. E. Templin, Blanchester, Ohio.

Do you know that 90% of all your live stock losses are caused by indigestion and **worms?** That's what the Dept. of Agriculture says in one of its bulletins. It is estimated that the live stock losses during the past year were $100,000,000 and that $90,000,000 of this was probably due to worms and indigestion. Both conditions are preventable. Right now the thieving, blood-sucking parasites are at work in your farm animals. They kill off your pigs and lambs. They stunt the growth of many animals. They lessen resistance to contagious diseases. They keep stock gaunt and thin. They steal hundreds of dollars in stock profits from you every year. Get rid of these dangerous thieves! Clean them out of your herd! You can do it without risking a penny. I'll show you how — I'll prove it at my risk. I'll rid your stock of worms. I'll do it or no pay. Read my remarkable offer to feed your stock SAL-VET 60 days before you pay. I don't ask a cent of money in advance—just the coupon.

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"I have used SAL-VET for about two years, within which time I have not lost a single hog. Have fattened 74 head of May pigs that we sold December 10th, and which averaged 207 lbs. each. They took SAL-VET every day and never stopped growing. We cannot say enough for the merit of SAL-VET." —F. R. Dalrymple, Carthage, Indiana.

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More Proof from a SAL-VET User

"Before I commenced feeding "SAL-VET" my hogs were poor, run-down and without appetites. I was advised by neighbors several times to stop feeding them my high-priced corn, and to sell them for any price, however small. But instead of doing this, as a last hope, I tried SAL-VET. The change in these hogs is simply wonderful. I will never allow any of my stock to be without "SAL-VET" in the future." Chas. Dunlap, Hudson, Ind.

The Great WORM Destroyer

The Great Live Stock Conditioner

SAL-VET is the simple wonder-working remedy that rids all farm animals of their greatest enemy—worms. It destroys these deadly pests without bother or trouble to you. It is the medicated salt which contains no antimony. Stock eat just as much as their condition needs and **doctor themselves.** Unlike other worm remedies SAL-VET requires no dosing—no drenching—no starving. Let me furnish you a 60 days supply for your stock at my risk. I don't ask a single cent of pay in advance. I want you to see with your own eyes how the dull-eyed, thin, scrawny, rough-coated, worm-infested animals in your herds will improve when fed SAL-VET, which destroys the blood-sucking parasites that drag them down in weight, health and vitality. The old appetite will return —the digestion will improve—they will put on flesh better, gain faster and grow into profits for you. SAL-VET is not only the best stock remedy on the market but the cheapest. Costs only one-twelfth of a cent a day for each hog or sheep and one-third of a cent for each horse or head of cattle.

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Just fill out the coupon—tell me how many head of stock you have and I will supply you enough SAL-VET to last all your stock 60 days; you pay the freight charges when it arrives and feed it according to directions. If SAL-VET does not do what I claim and you make a specific report in 60 days, I'll cancel the charge; you won't owe me a penny. Address

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"SAL-VET is doing good work; since feeding it to my cows, my cream test has increased five points." —N. O. Johnson, Palmer, Minn.

"One of my horses was full of worms. I fed him SAL-VET and it expelled them. Since then, he has been taking on flesh at a wonderful rate, and has kept in good condition." Wm. Ross, Rt. No. 1, Greenfield, Michigan

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Dept. 105-1-15-16 CLEVELAND, OHIO

Supply me enough SAL-VET to last my stock sixty days. I agree to pay the freight, feed it as directed, and will then pay for it if it does what you claim. If it fails and I so report specifically in 60 days, you are to cancel the charge and I will owe you nothing.

I have..........hogs..........sheep
..........horses..........cattle.
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Fill Out Coupon Mail To-day

"By keeping "Sal Vet" before our hogs, we find that they keep easier and do better. Our horses also look better and feel better with only the same amount of grain. One of our mares passed worms 7 inches long, besides smaller ones, in bunches."—Geo. C. Campbell & Sons, Hallstead, Pa.

"I lost five hogs from cholera; at least, that is what one expert pronounced the disease. I then started to feed "Sal Vet" and the remaining hogs have done fine ever since, and have developed tremendous appetites."—Joseph Lambright, Rt. 1, Box 59, Fishers Ferry, Pa.

"I am cheerfully paying for the "Sal Vet" you shipped on trial. I have been feeding it to my horses; it cleaned out the worms, and now it does not take one-half the amount of feed to maintain them that it did before I fed "Sal Vet"."—Chas. Dorman, Millmont, Pa.

"Am highly pleased with the results from feeding "Sal Vet". My pigs, horses, and cows have better appetites, and show much more life and spirit than before, and are better in every way since feeding "Sal Vet".—Jacob H. Krieder, Rt. 1, Temple, Pa.

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"	100 lbs. "	5.00
"	200 lbs. "	9.00
"	300 lbs. "	13.00
"	500 lbs.	21.12

Special discounts for large quantities. No order filled for less than 40 lbs. on 60 day offer. Never sold in bulk; only in Trade-Marked "Sal-Vet" Packages. 60 day trial shipments are based on 1 lb. of Sal-Vet for each hog or sheep and 4 lbs. for each horse or head of cattle as near as we can come without breaking regular sized packages. Thousands of dealers sell Sal-Vet at above prices but in the far West and South the prices are a little higher on account of extra freight charges.

PENNSYLVANIA FARMER

AGRICULTURE THE KEYSTONE OF NATIONAL PROSPERITY

ESTABLISHED 1880 PUBLISHED WEEKLY

Vol. 39—No. 4. PHILADELPHIA, PA., SATURDAY, JANUARY 1916. 2 Years for $1.00

Rutgers College
Headlee Dr T J *815

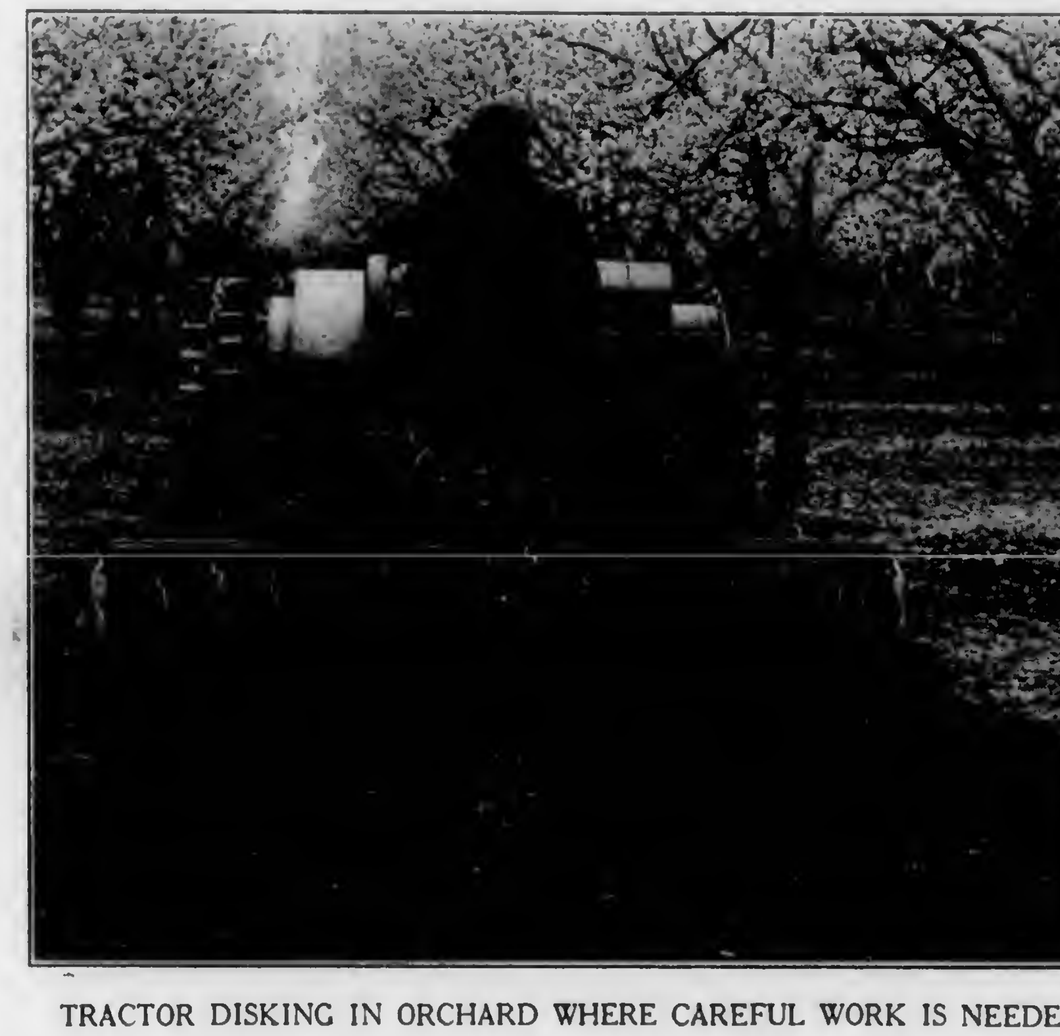
NOW AND SIXTY YEARS AGO

A RETROSPECT

Written November 10, 1915.—

Today I am living partially in the present and the past; in today and in a time now past by 65 years. And yet the view and review concern the same phase of work, the problem of the plow. That day, so many years ago, marked the bringing home by my father of an improved iron plow—a "Willoughby" make—not remarkable for design or "finish". It was of common cast iron, without coulter or jointer. It had no wheel to guage the depth of the furrow. This was a matter to be adjusted by the length of the tugs of the harness. It was a plow that could not without difficulty be made to "scour" in dry sand. Yet it was a great improvement over what had preceded it and was voted a fine tool, even by grandfather who not so very many years previously had been a noted maker of wooden plows with wrought iron points.

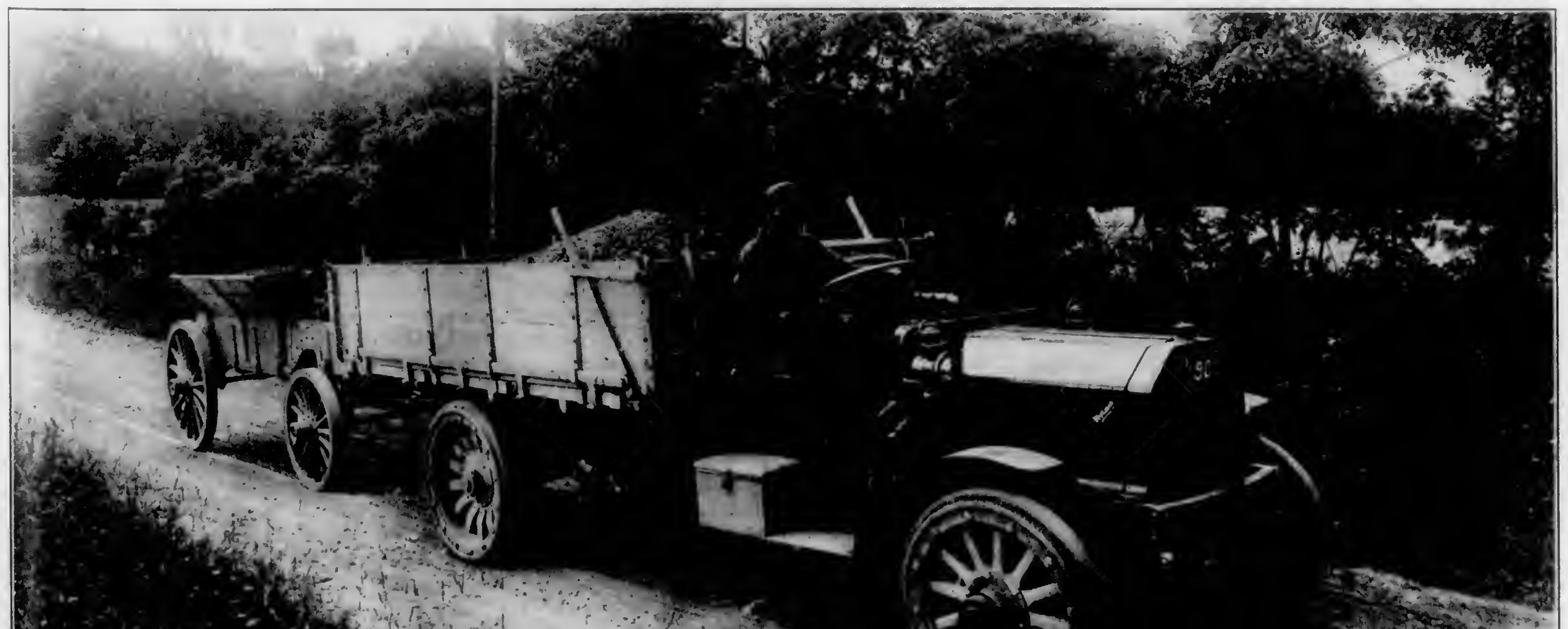
Today, not far away, a farm tractor is at work pulling a gang of five, up-to-date steel plows of finest make. It is giving a steady pull, and is about faultless in operation. Yes, a farm tractor has arrived, and is actually at work! Yesterday, between daylight and dark, this tractor pulled the plows to turn 12 acres of sod, and burned common kerosene oil to the amount of something like 18 gallons. It was a fair plowing field, with a few stones that obliged the driver to back up and dig out, and then go on again. How nicely the corners were turned! The plows were elevated by the hoist, the machine turned on its own ground to an inch, the plows dropped, and a square start was made as quickly it seemed as could have been done by a span of horses. And it seemed to have much reserve power left; so much so that in the spring it is proposed to attach a double cut-a-way harrow, and behind that a drill, and make the oat seeding a matter of one round trip only. Can he then do 12 acres a day? We shall see.


TRACTOR DISKING IN ORCHARD WHERE CAREFUL WORK IS NEEDED.

Harking back to father's new plow, what was his day's work with a small team of horses—two grey mares with colts by their sides? Was it an acre a day? That plowing was followed by the little A-shaped spike drag and oats were sown by hand and harrowed in, to be harvested later with a sickle, perhaps one of the then new "grapevine" cradles. With that Willoughby plow he was abreast with the times, as is now my neighbor with his tractor. With the little grey team he could do all sorts of power work on the farm. Of course the measure of the power marked the limits of the undertaking. Today, with his tractor, my neighbor is sure he can do about every sort of farm work, even run the mower and the binder, saw wood, run the ensilage cutter, and with three wagons "entrail" can truck any amount of produce to market and do any sort of farm freighting.

Stop! What is this? A big three-ton truck is going by, loaded with broken slag and slag dust, taking its load to where the men are working on an inter-county highway, hauling the load of three teams, going much faster and returning at an astonishing clip for another load. Now what is this? Why, another tractor with four wagons attached, loaded with gravel to make a fill to take the sag out of the new roadway. Back comes the truck, now loaded with sacks of cement

(Concluded on page 2.)


MOTOR TRUCK HAULING ROAD-MAKING MATERIAL AND DOING THE WORK OF THREE TEAMS.

Systematic Corn Improvement

As a sure method of improving the corn crop of any neighborhood and at the same time of increasing yields, agricultural colleges, farm periodicals, institute speakers and others have continually advocated the ear-to-row test. The practice as frequently described consists in the grower's selecting a number of the choicest ears obtainable and planting one half the grain from each ear in a row to itself usually representing in area from one fortieth to the hundredth part of an acre.

The unshelled half or remnant of each ear is saved and is given a number corresponding to the number of the row in which its grains were planted. A small piece of cardboard nailed to the butt answers for this purpose.

During the summer all rows are given uniform treatment in the way of cultivation and all are thinned to the same number of stalks or to a very close approximation.

In the Fall each row is cut, shocked and husked separately, the product from each row being carefully weighed and the rate of yield per acre computed.

Many surprises await the grower for oftentimes that ear which looks most promising falls considerably below its less attractive mates in production.

With a certain knowledge of the yielding abilities of the "remnants" the least desirable are thrown out while the most productive are shelled together and drilled next season in what may be termed a multiplying plot. This will be small in area and located at some distance from the general field to prevent cross pollenization between ordinary stalks and those in the multiplying plot.

SEED TEST CORN PILED AT ENDS OF ROWS. COVER CROP OF RAPE IN BACKGROUND.

Later from the multiplying plot are selected those ears needed for a continuation of the ear-to-row work and in addition to this enough to seed part or all of next year's field.

From the laws of heredity it is only fair to expect a marked increase in yield and general quality as a result of following out this careful practice.

C. B. Thomas, of West Chester, Pa., began a few years ago with the Cloud yellow dent corn and has consistently worked for a higher degree of perfection in the way of type and yield. The ear-to-row work and multiplying plot as above described are now a part of the routine at Mr. Thomas' home.

With the conclusion of his ear-to-row work this fall Mr. Thomas invited in the neighbors who were at once attracted by the 16 piles of corn and each piled at the end of a numbered row on which it had been produced. All rows were of the same length, 311 feet, contained practically the same number of stalks and represented in each case the one-fortieth part of an acre. Placed along side of each heap of corn was an inverted peach basket on which the unshelled half of the parent ear was displayed.

While Mr. Thomas and a helper weighed the heaps of corn two visitors computed the rate of yield per acre. Storms of a frequent and unusually damaging nature had reduced all Chester County, Pa. corn yields by at least one half so it was not surprising here to find the highest rate of yield to be sixty bushels and the lowest twenty-one.

The illustration shows Mr. Thomas holding up the mother ears of rows six and seven respectively. If anything, number seven would seem to be a more desirable ear than number six when as a matter of fact the former produced at the rate of but twenty-one bushels per acre (the lowest recorded) while number six went to forty-eight bushels, an increase of 128 percent.

Of additional interest was a luxuriant cover crop of rape which on account of the high price of leguminous seeds and their uncertainty is now more widely used in Chester County for this purpose than any other single crop. Thru accident in planting, rows 9, 10, 11 and 12 failed to get an application of rape seed and consequently went thru the season in a bare state. While it may not be fair to draw conclusions from this on the following basis it is true that the average yield on the four bare rows was nine bushels less per acre than on the twelve rows having the benefit of a cover crop.

Before departing, the guests were shown Mr. Thomas' multiplying plot, his seed corn storage, germination box and other equipment incidental to the production of good corn. Field meetings of this kind at which all formality is dispensed with will lead to a clear understanding of the subject matter and bring results.—P.

Now and Sixty Years Ago

(Concluded from page 1.)

and barrels of tarva to "face" up the roadway as fast as prepared.

"What was that you said, neighbor Smith? You used your auto to run the side delivery rake, and then used it to work the horse fork at the barn, and after chores that night took the family in this same auto and went ten miles to see a moving picture show?"

"Oh, that's nothing. Mr. Smart, over on the ridge, uses his tractor nights and mornings to run the milking machine, and at the same time runs a little dynamo to charge a storage battery that lights his house and buildings, runs the light machinery about the place, including the vacuum carpet sweeper and washing machine."

Here comes a big truck down the road with 200 bushels of onions aboard, bound from Wheeler's big onion patch. It is going to the city 25 miles away, and in a few hours it will be back and load up ready to go in again tomorrow morning! It is as cheap as railway freight and saves twice handling; and he has six thousand bushels of them.

It takes my breath. I look about and say, what else is new? Well, the brick roads are now built out from the city in several directions 25 to 50 miles, and these great trucks pick up the farmers' milk, deliver it at the city dealers at express speed, and—we forgot all about Hulet and his plowing. Who has got a pocket wireless with him? We will call him up. B-r-r-r. "Hello Hulet. Still plowing?" "Yes, got about an acre more. Will be done in half an hour or so. Tractor is going fine."

And all this, and more, in a rural locality where a hundred years ago the painted Indian followed the hunt and the wild fox made his home and reared his family unafraid. What will the future be?—Chas. Mathew Morgan, Ohio.

Common Impurities in Wheat

The results of recent tests by the United States Department of Agriculture indicate that the presence in wheat of more than 2 percent of what are known to millers as "inseparable impurities" lessens the value of the wheat for milling and baking purposes. This fact has been recognized in general commercial practice, for wheat containing a noticeable amount of impurities brings a lower price per bushel than other wheat.

The experiments included tests of the effect of rye, kinghead, corn cockle and wild vetch seed in wheat in various quantities. Of these substances, rye occurs the most frequently, being found in 83 percent of the samples of hard winter wheat examined by the investigators and in 39 percent of the spring wheat. In one instance a farmer's wheat crop contained 14.3 percent of rye. On this account the farmer received 8 cents less per bushel than the normal price.

In regard to the quantity of rye necessary to exert an injurious effect upon the quality of wheat, there is a difference of opinion among millers. Some believe that when the percentage of rye is less than 5, the flour or bread is not noticeably affected, while others have held that 2 percent is objectionable. The Government investigators found that 2 percent or more of rye is sufficient to lower the quality of the bread.

In a considerable percentage of the wheat samples examined, the presence of rye was said to be due probably to the fact that the seed used in sowing the wheat contained rye. It is not infrequent for rye to scatter during harvest and to produce in this way a volunteer crop. If wheat is sown on land which was planted in rye the previous season, this volunteer crop of rye is harvested with the wheat. Partial winterkilling of the wheat increases the percentage of the rye, because the latter grain is not so susceptible to winterkilling as the former.

Corn cockle, altho less frequent in wheat than rye, has a more injurious effect. The presence of even 1 percent of this weed seed in wheat is likely to lower the price to the farmer, and certainly lowers the baking quality of the flour. Corn cockle is an exceedingly prolific annual weed, a single plant having been known to yield as high as 2,500 seed. Furthermore, this seed is of such shape and size that it is difficult to separate it from the wheat. The weed is widely distributed over the United States and is especially abundant in sections producing soft red winter, spring, and Durum wheat. Every farmer, therefore, should strive to prevent its obtaining a foothold on his farm.

Corn cockle seed is particularly objectionable in wheat because it contains a poisonous element, saponin or sapotoxin. This has been found at times to do considerable injury to young chickens and stock when fed wheat screenings.

Of the other impurities examined, kinghead, sometimes known as great ragweed, is frequently found in wheat in quantities as high as 3 or 4 percent. Under such circumstances the flour contains black specks and the color and texture of the bread are seriously affected. Even as small an amount as 1 percent of kinghead seed is noticeable in flour. Vetch seed also alters the color of the flour, giving it a yellowish appearance as well as a noticeable odor of vetch.

As has already been stated, the presence of any one of these impurities is very likely to reduce the price the farmer receives for his wheat. Not only is the price per bushel usually less but there may also be a "dockage" charge. Dockage is a trade term for the amount deducted on account of the presence of foreign material from the gross weight of the wheat. For example, if a load of 50 bushels of wheat is found to contain 2 pounds of foreign matter per bushel, 100 pounds is deducted from the lot for "dockage." The owner is paid, not for 50 bushels, but for 50 bushels less 100 pounds, or 40 bushels and 20 pounds of wheat.—Department Letter.

New York Hay Grades

Following is the grading system employed on the New York Market by the New York Hay Exchange Association:

Prime Timothy Hay—Shall be pure timothy of medium growth, bright color, sweet, sound and well baled.

No. 1 Hay—Shall be timothy, not more than one-eighth mixed with other tame grasses, exclusive of clover, bright color, sweet, sound and well baled.

No. 2 Hay—Shall include all timothy not good enough for No. 1, fair in color, not more than one-eighth other tame grasses, sound and well baled.

No. 3 Hay—Shall include all hay not good enough for other grades, not over one-third clover; free from wild or bog, sound and well baled.

Shipping Hay—Shall consist of hay not good enough for No. 3, sound and well baled.

No Grade Hay—Shall include all hay badly

cured, threshed, or in any way unsound.

No. 1 Packing Hay—Shall consist of all fine grasses, of good color, free from flag or thistle, sound and well baled.

Fancy Light Clover Mixed Hay—Shall be bright, green sweet clover and timothy of medium growth, containing not over one-quarter clover, sound and well baled.

No. 1 Clover Mixed Hay—Shall be clover and timothy, medium growth, with at least one-half clover, bright color, sound and well baled.

No. 2 Clover Mixed Hay—Shall be clover and timothy, with at least one-half clover, fair color, sound and well baled.

No. 1 Clover Hay—Shall consist of bright, medium growth, sweet, sound and well baled.

No. 2 Clover Hay—Shall be clover of fair color, sound and well baled.

No. 1 Rye Straw—Shall be bright, clean, long rye straw, in bundles pressed in large or upright bales, sound and well baled.

No. 2 Rye Straw—Shall be clean, long rye straw, of fair color, in bundles, pressed in large or upright bales, sound and well baled.

No. 1 Tangled Rye Straw—Shall be bright, clean tangled rye straw, of fair length, sound and well baled.

No. 2 Oat Straw—Shall be clean, bright oat straw, of fair length, practically free from chaff and thistle, sound and well baled.

No. 1 Wheat Straw—Shall be bright, clean wheat straw, of fair length, sound and well baled.

Lindenhurst Farm Notes

By R. P. Kester

Exchanging Seed

I remember a morning many years ago, more than I like to recall, that grandfather, who lived just beyond our farm, came along in his old, blue-boxed "buggy" and asked me, a boy, if I would like to take a ride with him. Of course I did. I always liked to go with him because we seemed to have so many things to talk about in which we were both interested. I know now that he understood boys.

This morning he told me after we were on the way that he was going out to exchange seed potatoes with some neighbor. He explained to me what everybody then thought, and many still believe, that potato seed tend to "run out" after a while on a farm and that it was necessary to get seed from some other farm and of another kind. He had two bushels of Garnets about the amount of seed usually planted, in a bag in the back part of his "buggy."

ONE OF THE PROFITABLE PRODUCTS OF THE WOOD LOT.

We drove first to neighbor Moore's. I remember what a pleasant visit these two agreeable, neighbor-friends had. Altho it was a nice warm day in spring, neither was in a hurry. As it seems to me now they felt that they had all the time there was, and they enjoyed each other's company. They voted the same ticket, belonged to the same church, in fact there was perfect agreement between them on all points discussed. After an hour or so, my grandfather stated his errand, explaining that he thought it was time to change his potato seed as he had been raising Garnets for a number of years and, while he liked them very well, he thought it best to change to Late Rose for a few seasons.

Neighbor Moore said he was sorry, but he also had Garnets, but he felt sure that neighbor Johnson had Late Rose and would no doubt be willing to accommodate him. So we drove to Johnson's, found that he had the kind wanted and that he was perfectly willing to exchange.

After the errand was accomplished, visiting began. But the visit was different from the last one. They belonged to opposing parties, read different papers, had different ideas on farming methods, and did not see eye to eye on religious questions. The discussion waxed warm and no doubt would have been interesting if I had been old enough to follow it. They talked up to dinner time, and upon urgent request we stayed to dinner. The arguments continued at the table, and after, as they automatically hitched old "Sam" up to the blue-bodied "buggy". At no time was there anger, just a plain difference of opinion on questions of vital importance, an even exchange of honest thought, just as they had exchanged seed potatoes. The only difference being that each realized that he had gained by exchanging potatoes, but neither was aware, as they separated, that he had profited by receiving new ideas from the other.

As we journeyed homeward grandfather talked over the points of the last discussion. I do not remember that he referred to the talk with neighbor Moore, but he continued to argue some of Johnson's hardest points to me, forgetting for the moment that I did not understand him. But I realize now that there had been seed planted by both in the other's mind—seed that would slowly and unconsciously grow in the mind of the other.

I have often thought of the visit of that morning years ago. I think of it when the farmer is referred to as a solid man of thought; tho the impression is sometimes left that he thinks but little. Those who know farmers, realize that questions of vital importance are thought out more logically and honestly in their minds than by any other class. For this purpose he needs to provide opportunities for exchange of "seed" thought. Grange meetings, farmers' clubs, public sales, every place where men come together, all these provide opportunities for the purpose. The farmers as a class have been criticised for their leisurely methods. Experts in efficiency have said he spends too much time with his foot on a fence rail, talking to his neighbor. We deny it. The country needs these discussions. Figuratively speaking, they furnish a balance wheel to the rapidly revolving machinery of social progress. From them arise the sober, saving, second thought, which more than once has been the saving grace in the settlement of public questions.

Concrete Work

Concrete work has been going on during the fall and winter at Lindenhurst. The first work was a concrete slab, 18x32 feet, put down at the end of the cow barn. On this the two silos, one 12x30 and the other 16x30 were placed. They have a common shute which empties into the feeding alley which runs between the two rows of cows. Then the cow stable floor was concreted and the greater satisfaction in doing the work cannot be estimated, to say nothing of the saving of manure. The horse stables also received the same attention, and concrete floors were put in the little-pig house, and poultry house.

Last winter, the little pigs suffered from rheumatism because the earth floor became wet from water which run in and it gave no end of trouble. The house is divided into 16 separate pens, to contain 5 or 6 each. A sleeping floor of boards is placed in one corner of each pen. A strip of wood one inch high is placed around the edge of the floor to retain bedding.

The little pigs are being fed middlings and tankage which is producing very good results, considering that no milk is available. The milk from the dairy herd of 30 cows is being retailed.

Queries and Comments

(This department is open to all of our subscribers. Queries and short comments are invited. Queries will be answered by best available authorities.)

Ginseng and Golden Seal

In reference to the query about the possibilities of ginseng and golden seal, will say I have experimented with both plants and perhaps my experience will be valuable to readers.

Seven years ago, I purchased one-thousand one-year-old ginseng roots. A plot of ground, sixteen by sixteen feet was inclosed. The sides and top were built of laths, placed half an inch apart. Beds were prepared and the roots set six inches apart each way. Planting was done in the fall.

The following spring, the roots came up nicely, very few missing, and they grew well and looked thrifty all season. The second spring about one-third of the roots failed to come up. During this year, the plants were attacked by an insect that ate the foliage. Several sprayings with Bordeaux were required to get rid of the pests. This same year all the moles in the neighborhood discovered what a nice shady retreat the ginseng beds offered. The moles worked under the plants and quite a number of them died for this reason. I ousted the moles by digging a trench a foot deep around the bed, and placing a strip of one-inch-mesh poultry-netting in the trench. In planting, I planted rather closely, expecting to transplant when the plants crowded one another. After the insects and moles were finally ousted, I decided that no transplanting would be required.

But I still had hopes. The third year about four hundred plants came up. I sprayed twice with Bordeaux. This year many of the plants wilted and died without apparent cause. On digging, I found that the roots were rotting. About half the plants died from this cause. Those remaining yielded several thousand seed, which I stored in moist sand. Ginseng seed require eighteen months for germination, and if planted at once, one would incur the risk of the seed drying out, during the warm weather of summer. I kept the seed in moist sand for a year and planted them in the fall.

The fourth year I had more losses and the fifth year the beds carried but seven or eight of the original one thousand roots. The seed planted, germinated well, but quickly went the way of their parents.

My experience with golden seal was just as disappointing. Fifteen hundred roots, dug in near-by woods, were set. Two seasons ended the experiment.

Occasionally some one does make a success with ginseng and golden seal. A friend of the writer's grew a patch to maturity, which he sold for over nine hundred dollars, but his efforts since that time have resulted in a failure of such magnitude that the profits from his first patch will not nearly cover his losses.—T. Z. Richey.

Compensation Law and Farmers

L. B. G., Slatington, Pa., asks: "Does the Workmen's Compensation Law apply to farmers?"

The Workmen's Compensation Act, which went into effect on January 1, 1916 and which establishes an optional compensation plan for injuries received by a workman in the course of his employment, does not apply to workmen engaged in agriculture or in domestic service at the time of the injury. A farmer who employs domestic servants about his house or laborers to assist in cultivating his lands is not in any way affected by the new law. In other words, if in the future such a servant or laborer is injured in the course of his employment, the liability of the farmer to pay compensation for the injury must be determined by the same rules or law which determined liability prior to the taking effect of the new law.

By a recent ruling of the Workmen's Compensation Board, persons, firms, or corporations, engaged in fruit growing, stock raising, nursery work, flower and seed raising, and poultry raising, as such, and not merely a part of general farming, must come under the law.

Sources of nitrogen have been investigated by the U. S. Bureau of Soils in order to meet the increasing demand for this in fertilizers. The technical difficulties seem to be not so serious as the commercial ones. Laboratory investigations are now in progress with a view to developing a process for obtaining nitrogen at a cost which will be sufficiently low for practical purposes. Other investigations are designed to develop means of obtaining phosphoric acid and ammonia by eetrical processes.

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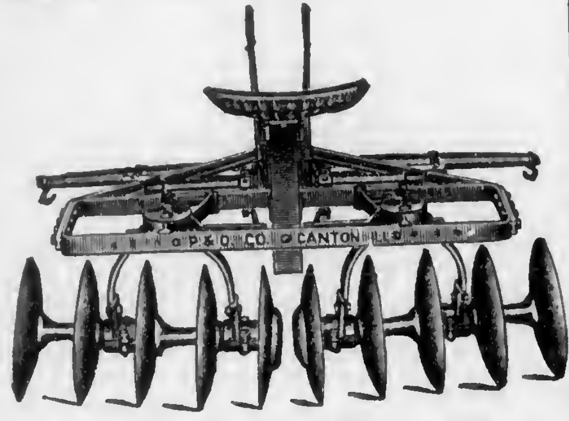

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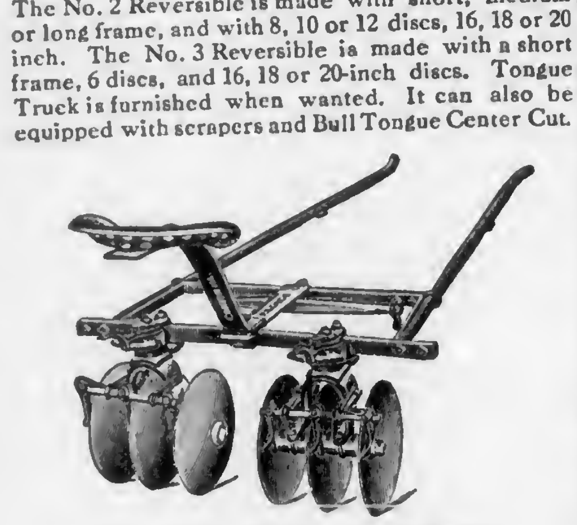

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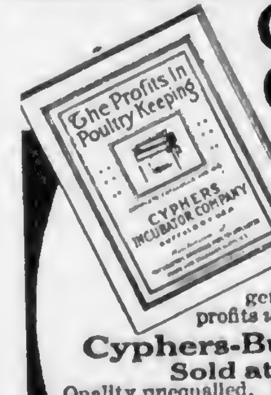

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Poultry

SHALL WE CONFINE THE WINTER LAYERS?

There seems to be a very widespread belief among poultrymen that in order to secure an abundance of winter eggs, it is necessary to keep the birds confined to their houses during the winter months. Not only is this the advice of many poultry writers but it is also a rather common practice on large poultry farms. "If the hens get cold feet in the snow, egg production decreases," is almost an axiom to the minds of many people.

This is another one of poultrymen's unsettled questions. Opinions differ. My belief and experience indicate that under some conditions at least, it pays far better to allow the birds free range, winter and summer. Undoubtedly fresh air and outdoor exercise mean vigor, red combs and glossy plumage. Almost all of us will agree that fowls on range in winter are healthier than those confined in houses. Constitutional vigor is one of the prime essentials of egg production.

Then there is a psychological reason. The hen that has the privilege of going outdoors is far the happier. Liberty is precious, even to our feathered friends. The more contented our birds are, the better they will lay. On a cold, blustery, snowy day, I have often watched the hens go to the door, look out or even take a step or two outside and then finding it more pleasant in the house, immediately returning, perfectly contented to remain indoors. I have also often observed confined birds standing at the windows looking longingly outdoors, on pleasant days, not knowing that it was far more comfortable within. There are many bright, sunshiny, winter days in which the birds can roam outdoors, exercising in the open, hunting some greens in the meadow or the wheat field, returning at night with good, hearty appetites, eager for the evening meal. Then if the birds are outdoors part of the time, it is easier to take care of them and the house will stay clean longer. All of which lessens labor and seems to indicate better results.

Conditions differ, hence each of us must decide this question for ourselves. In the fall of 1913, I took a flock of 550 pullets from the colony houses on range, placing them in one of the large laying houses, with the idea of winter confinement. Within two weeks their combs and shanks had become so much paler that I opened the doors and left them out. With the exception of a few days when the range was unusually muddy, they were allowed outdoors all the time, even tho it was raining or snowing. Their average egg production was as follows:

November, 77 eggs per day; December, 118 eggs per day; January, 195 eggs per day; February, 298 eggs per day; March, 341 eggs per day.

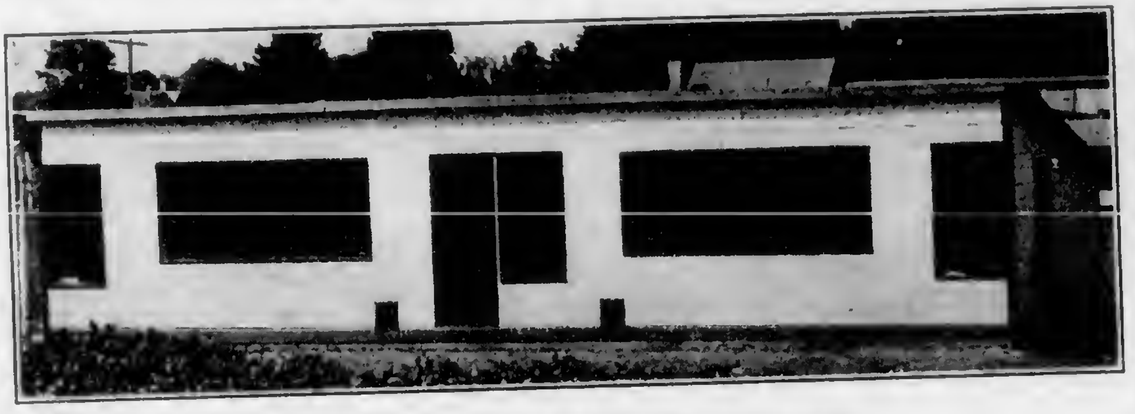
Snow, rain and frozen ground did not seem to retard laying in any way. However when there was snow on the ground, very often we could not see a single bird outdoors. It seems essential to have the house so pleasant that the birds will prefer to remain inside during unpleasant weather. If they rush pellmell into the snow or stand outside in cold drafty places, it may then be safest to confine them. But given a good comfortable house; strong, vigorous, well-trained birds; and a fairly well drained range; it will often pay to let them outdoors winter and summer. Experimental results especially at Cornell seem to prove that this view is correct.—Paul R. Guldin, Berks County, Pa.

HOUSE FOR 100 HENS

We are about to build a hen house. What can you say of the Orange County type of house? How large a house would you build for a maximum flock of chickens?—E. R., Bangor, Pa.

I am personally unacquainted with any type of poultry house known by that name. No given number of hens can be called a maximum flock, however, most poultrymen find results best where flocks do not exceed one hundred fowls.

For such a number of hens a house 20 feet long by 16 feet wide, 7 feet high in front and 5 feet in back, should be provided. The fron should contain two windows 3 feet by 4½ feet (12 lights of 10x12-inch glass), hinged to swing outward, and two openings 3 feet high and 4 feet long, protected by screens of duck, hinged to swing inward and hook up to ceiling. Place the openings in the center and a window on each side; have the top of the openings and windows as near the ceiling as possible, the sills should be at least three feet above the floor. A door 3x6 should be cut in one end near the front and another window in the opposite end.



A GOOD AND POPULAR TYPE OF HOUSE.

The droppings board should be built level, three feet above the floor and at the back of the house, running the entire length of the house. Make droppings board four and a half feet wide and place three roosts, one foot apart, upon it. Make the roosts of 2x2 stuff, corners rounded, and nail them to four crosspieces of 2x4 stuff; hinge the crosspieces to the back of the house so the roosts can be raised when cleaning the board. Cut the roosts into two sections of ten feet each. A muslin curtain rolled upon a stick should be provided for the front of the droppings board. Close the space between the rafters above the curtain to keep the heat of the fowls from escaping.

Nests may be arranged under the edge of the droppings board with the entrance for the hens at the back, and access for the attendant thru hinging the front.

The sills should be of 6x8 stuff; the floor joist and rafters of 2x8 stuff, placed two feet apart. The structure work may be of 3x4 placed 2½ feet apart. Tongued and grooved pine should be used for sides, roof and droppings boards. Use narrow flooring for floor. The sides should be covered with a good grade of roofing or else building paper and German siding. Set sills on concrete piers placed five feet apart.—K.

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It raises "the most chicks, the best chicks, with least labor and at lowest cost." The first successful brooder of the colony type, and years ahead of all imitations.

Your dealer can supply it. If necessary we will ship direct. Helpful catalog mailed FREE.

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Unless your present feed makes your pullets mature before your neighbors'—unless it produces unusual laying when there's a scarcity, you can increase your income with

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Record card with each shipment—if hens don't show a new record within 6 weeks, ship back collect unused portion and your money's refunded.

C. W. Gilbert, of Tully, N. Y., made 83 per cent record; C. F. Townsend, of Weedsport, N. Y., 90 and 93 per cent.

Would we dare make such a liberal guarantee unless we positively knew what Allen's would do? Send for prices, complete information, free Egg Record Card—write today—get more eggs per hen—more money per egg.

Allen Milling Co., Dept. 1, Niagara Falls, N. Y.

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Valuable 130-page data-book. Facts on lowering death-rate, getting 100 per cent batches, highest prices, etc. Illustrates improved incubators. Write today. MODEL INCUBATOR CO., 15 Henry St., Buffalo, N.Y. *Also 39 Barclay St., New York City*

A Large Philadelphia house has opening for several active, ambitious young men to learn salesmanship. Big pay eventually. Salary while learning. Address Box Z, care Pennsylvania Farmer, Phila., Pa.

Farmer Agents write for 1916 agency for Diddie Blitzen Rods. Best Lightning Rod sold. L. F. DIDDIE CO., Marshfield, Wis.

PACKING AND SHIPPING TO MARKET

In order that good prices may be secured, dressed poultry must be sent to market in an attractive style. A Philadelphia commission merchant assured ther writer that a handsome appearance is in all cases worth from one to two cents per pound in selling.

Poultry should be fat, but not over-fat. It is a mistake to ship a poor carcass. Food in the crop not only injures the appearance, but it is liable to sour. Poultry intended for market, should fast for at least twelve hours before killing.

Extra care should be taken, in picking, not to break or bruise the skin, as the torn or bruised blotches often hurt a sale, especially with particular people.

After being dry-picked, the birds should be hung up head down for at least twelve hours to thoroly cool. If packed before the animal heat has left the body, it will turn green in spots, and be unfit for food.

The Philadelphia market requires the head and feet to be left on the fowl, and the intestines must not be withdrawn.

After being picked, poultry that was scalded should next be "plumped," by dipping up and down in hot boiling water, and then immediately in cold water where the carcass should lie for about five minutes.

After becoming entirely cold they should be placed in clean boxes or barrels lined with good brown paper. Place a layer of brown paper at the bottom, then alternate layers of poultry and brown paper, stow each bird snugly, and fill the package so that the cover will draw down tight and snug upon the contents, to prevent shifting and shucking while in transit.

It is always best to put the different kinds in separate packages and mark the kind on the cover. An invoice of shipment should accompany the package, and a duplicate should at the same time be mailed to the commission house.

The best markets for poultry are Thanksgiving, Christmas and New Year. Shipments for these special occasions should reach destination in sufficient time before the event to meet the best sale. Poultry arriving late are apt to meet a glut in the market, and poor prices are the result.

For shipping turkeys and geese boxes are best. Turkeys should be dry-picked, and if they are very fat and handsome command a much higher price than when their condition is just ordinary.

Around the holidays mentioned, turkeys will sell well, especially fat hens and young toms. After the holidays small turkeys have the preference.

Ducks and geese shoud be full feathered before killing, and after being well scalded should be wrapped tightly in coarse cloths about two or three minutes, which steaming will enable the down to roll off with the feathers.

Barrels are best for shipping dressed ducks. Geese sell well at Christmas, and fancy ducks sell well at any time. —Michael K. Boyer, New Jersey.

THE MALE BIRD

Results in hatching depend a great deal upon the male bird. Where the male is old or the number of males insufficient for the flock of hens, the eggs produced are likely to give a low percentage of chicks even tho the majority of the eggs test out as fertile. Male birds over two years old are of very little value as breeders and best results will be obtained where year old or yearling males are used. Cockerels under one year old are of questionable value for breeding purposes.

The number of males required is dependant upon the breed of fowls and the age and physical conditions of the males. In the egg breeds, such as the Leghorns, one male to twenty hens has been found sufficient by most breeders, altho one to fifteen is somewhat better. One male to ten hens will be found to give results in the general purpose breeds, but in the meat breeds it is frequently necessary to allow one male bird for every six or eight females. The above is considering that nothing older than yearling males are used. When older males are used, less hens should be allowed.

The ability of the male is to a great extent dependant upon his physical condition. Males that have been allowed to starve themselves thru gallant attention to the hens are of very little use. Where a number of males are needed in the same flock there is always fighting with the result that some of the males become so cowed that they are as worthless as capons in the breeding pen. Results are usually very unsatisfactory, except in the case of flocks on free range, where more than one male is required in a pen, and most poultrymen have found it necessary to keep their breeding hens in flocks requiring only one male bird. Even when a single male is allowed to a pen he will frequently become run down, in which case another male should take his place until he can be fed up.

One of the most satisfactory methods of breeding, I have found, is the use of two male birds with a flock of twenty hens, using the males alternately, one being kept in a coop and fed while the other is with the flock, changing them each morning.—J. R. K.

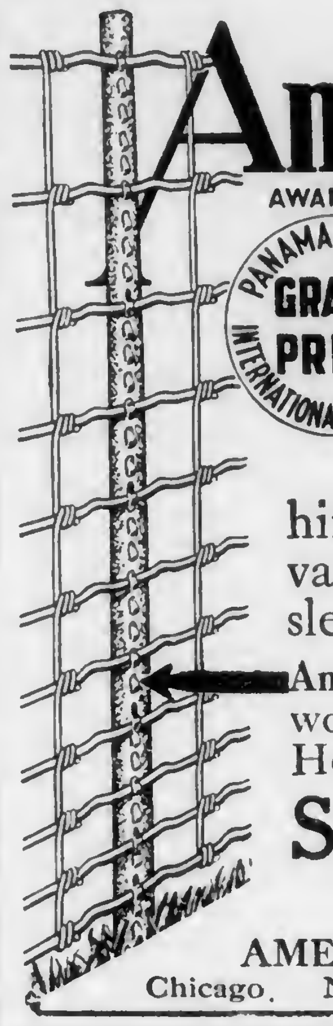
GETTING FERTILE EGGS

My experience is that eggs from hens on free range are more fertile and hatch stronger chicks than eggs from hens kept in confinement. The reason for this is not hard to find: Hens on range get an abundance of exercise and correctly balance the food supplied, with bugs, worms and green food found in the fields and meadows. In short, hens on range keep in a good thrifty state of health and are capable of transmitting health and strength to their offspring.

Where one makes a selection of breeders, it would be much better to give the breeders free range and confine the general flock, than to reverse this order of things, as is usually done. When the breeders are given range fewer males will be required. For free range stock I never allow over five males to each one hundred hens and find that such matings run almost perfect in fertility.

If the breeders must be confined, they should be compelled to exercise for the greater part of their food. My ration for penned breeders is as follows: Two parts wheat, one part cracked corn and one-half part coarse beef-scrap. The beef-scrap is put thru a sieve and the coarse portions mixed with the corn and wheat, and fed in the litter. In addition to the scratch grain the hens are fed all the green food they will eat. I never feed soft food to breeding hens. No doubt, I get fewer eggs by feeding a diet of whole grain and beef-scrap, but I know the eggs prove highly fertile and produce chicks that live.—T. Z. R.

It takes less work to keep things clean and in ship-shape if the work is attended to promptly than if left until a future time. This has a double meaning in reference to cleanliness. If neglect is practiced here unsanitary conditions soon develop, making success impossible.



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Made of galvanized metal; repels vermin. Size, open, 18 in. x 24 in. x 48 in. Pays for itself in chicks and labor saved. Write today for free circulars, special prepaid offer and how to turn work into pleasure and profit.
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Tells why chicks die

E. J. Reefer, the poultry expert, 9401 Farmer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure it." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

50 Best Paying Varieties Hardy Northern raised Chickens, Ducks, Geese and Turkeys. Purebred heaviest laying strains. Fowls, Eggs, Incubators, all at low prices. Large new Poultry Book and Breeders' Complete Guide Free. W. A. WEBER, Box 916, Mankato, Minn.

GREIDER'S FINE CATALOGUE of pure bred poultry: 70 breeds illustrated and described, many in color. Perfect poultry guide—all facts. Low prices on stock and hatching eggs. Incubators and brooders. 23 years in business. You need this book. Send 10c for it—today. B. H. GREIDER, Box 58, Rheems, Pa.

Special Sale Breeders and Egg Producers Mammoth Emden Geese, Imperial Pekin Ducks, White African Guineas, Barred, Buff and White Rocks, R. I. Reds, Campines, Minorcas, Leghorns, Wyandottes.
Maple Cove Poultry Yards, R 2, Athens, Pa.

S. C. White Leghorns 250 egg strain. The kind with long deep bodies, yellow legs and beaks and large combs that lop to one side. Cock birds, Cockerels, Hens and Pullets from $1 to $5. Am now booking orders for day-old chicks, eggs for hatching and 8-week old pullets.
A. R. GRAVES, R D 2, Rexville, N. Y.

CHICKS
7 and 10 cents. S. C. W. Leghorns, etc. Circular free. W. A. LAUVER, McAlisterville, Pa.

Breeding Stock for Sale Silver White and Partridge Wyandottes. Pekin, Rouen and Indian Runner Ducks $2.5 each up. World's Best Blood Lines.
Aldham Poultry Farm, R 39, Phoenixville, Pa

50,000 Chicks for 1916. S. C. White, Brown Buff Leghorns, Barred Rocks, Wyandotte and Broiler Chicks. 7 cents each, and up. Circular free. Keystone Hatchery, Box 45, Richfield, Pa

60 Page Book Free Describing varieties Poultry, Pigeons, Ferrets, Dogs Hares at lowest terms. Fancy colored catalogue 1t cents. J. A. BERGEY, Telford, Pa

Eggs Wanted mixed color gathered Penna. eggs or near by. State price and delivery. ALEX. LANGER, 54 S. 6th St., Newark, N. J

Cockerels Buff Orpington and Rhode Island Red Solid colors. $1.50 each. None better, few equals Orders booked for eggs. W. A. Lothers, Peruiack, Pa

R. C. White Minorca cockerels and a few pullets. Prices reasonable W. W. Hockenbery, Woodbourne Farm, Sussex, N. J

Clearview Poultry Farm. Established 1900. Trapnest strain of S. C. W. Leghorns. Eggs for hatching. 15, $1; 50, $3; 100, $5. Thos. H. Barns, Creston, O.

60 BEST BREEDS Chickens, ducks, geese, turkeys guineas, dogs and hares. Stock for sale Valuable catalog. Free H. A. Souder, Box P Sellersville, Pa

100 White Wyandotte Cockerels
7 to 8 lbs. each, bred from winners and layers. $2.00 each.
A. J. FELL, West Point, Pa.

Single Comb White Leghorns Baby Chicks $10.00 per 100. Hatching Eggs $6.00 per 100. IMPERIAL PEKIN DUCKS. Baby Ducks $18.00 per 100. Hatching Eggs $10.00 per 100. Write for circular.
CHESTERBROOK FARM, Berwyn, Pa.

Leghorns Ours win and lay. We are booking orders for April delivery. S. C. W. Leghorn chicks, $11 per hundred and up. R. C. Reds, $14.50; Barred Rocks, $15; White Wyandotte hatching eggs. Free booklet.
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White Leghorns. Cockerels from stock direct from D. W. Young. Fine selected vigorous birds; best of quality; at farmers' prices. Stock limited.
WM. J. PEARSON, Jr., R D 4, Jersey Shore, Pa.

Tom Barron English Leghorns vigorous cockerals $1.75 ea. chicks $11 per hundred; hatching eggs, $5 per hundred. GLENDALE POULTRY FARM, Wellsville, Pa.

Manager wanted for poultry plant, must have a thorough knowledge of poultry raising and excellent references. Apply to Geo. Allen, 1214 Chestnut St., Phila.

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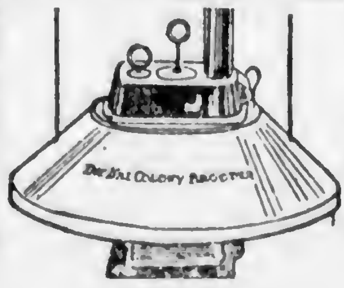
White Turkeys; Emden Ganders; Colored Muscovy, Pekin and Mallard Ducks, Barred Rock and Hamburg Cockerels; send for prices. B. F Kahler, Hughesville, Pa.

BLACK LANGSHANS—8 hens and cock, $15., 7 pullets and cockerel, $13; Trio utility Buff Wyandottes CHAS. G. RHOADS Douglassville, Pa



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It is absolutely the best brooder in America. Our Magic Brooder for $15.00 works excellently. Write for circulars describing both brooders to

United Brooder Co., 8 Bellevue Ave., Trenton, N. J.
Agents wanted in unclaimed territory.

New York Fruit Growers Hold Big Convention

Never in the fifteen years of its history has the New York State Fruit Growers' Association offered and carried out so strong a business program as at its convention held last week in Rochester. While plenty of scientific information was supplied by the investigators of the state college of agriculture and the state experiment station, the trend of the program was far more commercial than formerly, the productive end of fruit growing having secondary prominence to the problems of marketing and transportation. In later issues some of these questions will be presented, at least in synopsis so our readers may know the trend of thought in the Empire state.

In one respect the sessions on the auction system was a disappointment to many who attended. It did not bring out the discussion expected. In the first place, Mr. J. J. Dillon, commissioner of foods and markets did not come. His place was filled by Mr. H. A. Emerson, general manager of state auctions, who tho a good speaker did not bring many fruit growers or shippers to their feet. The general comment on the session by fruit growers was that it was "dead." Altho the audience voted indorsement of the work and "respectfully requested the governor and the legislature to continue the work another year under the same commissioner," the thought was freely expressed that the majority of the growers are not in sympathy with the work so far accomplished. However, it must also be said that so little testing of the auction system conducted by the commissioner has been done that very few of the audience were in a position to cast an intelligent vote. It is generally felt that the plan is too new to pass upon.

The leading feature of the convention was undoubtedly the exhibition. Never has a more representative or larger display of nurserymen's products, fruit growers' supplies and machines been made in Rochester if anywhere else on the continent. By far the greatest interest was shown in this feature of the convention. Often while 500 or more men and women would be listening to the speakers, twice or three times as many would be in the exhibition hall discussing machinery, packages, methods and similar topics. In no respect has the association made a greater success than in this matter of exhibition.

Principal Awards

It is the general concensus of opinion that while the quantity of fruit displayed was somewhat below that of last year's exhibition, the quality was markedly superior. This was especially noticeable in the commercially packed apples, first prizes for barrels of which were awarded as follows: Baldwin, L. B. Moore, of Kendall; Rhode Island Greening, L. B. Moore; Northern Spy, G. L. Wheeler and Son, of Pen Yan; Tompkins King, Talbot Brothers, of Spencerport; Roxbury, F. W. Clark and Son, of Wyoming; Ben Davis, G. A. Moore, of Williamson. The first prizes on the boxed fruit were awarded as follows: Baldwins, J. A. Hepworth and Son, of Milton; Rhode Island Greening, J. A. Hepworth and Son, of Milton; Northern Spy, Talbot Brothers, of Spencerport; Tompkins King, H. Vincent, of West Webster; Rome Beauty, Salisbury Brothers, of Phelps; Wagener, F. W. Clark and Son, of Wyoming; Spitzenburg, Salisbury Brothers. The grand sweepstakes prize of $50 for three boxes in open competition to the world was awarded to John H. Barclay of Cranbury, N. J., and the best packed barrel end was shown by H. Vincent, of West Webster, to whom the $10 first prize was awarded.

President's Address

In a very brief address, President Frank Bradley, of Barker, called attention to the infeasibility of establishing a co-operative selling scheme for the society as indicated in the constitution adopted at the initial meeting fifteen years ago; touched upon the restricted markets and the shortage of ocean boats which together have crowded eastern storages with 15 percent more apples than a year ago, and exports reduced by more than a million barrels. Upon these two points he suggested the timeliness of attempting to solve the distribution problems of the coming season.

He called attention to the criticism of the amended apple-packing law and the decision of Commissioner Wilson not to make changes this year. He declared there should be a packing law for pears, at least the minimum size of the barrel should be legally specified. To illustrate the value of grading and packing he cited the packing plant at West Somerset, now in its second season of operation. The first year revealed mistakes that have been so corrected that not a complaint has been lodged concerning "off grade" packing. Considering that the season started with Duchess and ended with Ben Davis, that often 500 barrels were packed in a day and that over 15,000 barrels were packed during the season, this is a remarkable record. The operators still find difficulty in convincing growers that their interests are to have their packing done by experts. Out of a lot of 5,000 barrels of Wealthy packed by these men, Mr. Bradley declared there was not "a barrel of shrinkage." He also declared that such a packing plant makes a saving of 5 to 10 cents a barrel in labor and shrinkage, and the fruit sells from 15 to 25 cents a barrel more than fruit of the same variety and grade packed by non-professionals. This is made possible because the packers are engaged for a longer season than most fruit growers can hold good men.

New York Packing and Grading Law

The New York state packing and granding law in its present form, said C. S. Wilson, commissioner of agriculture, took effect the first of last July. In principle and essentials, it is the same as that of the previous year. As soon as the governor signed the bill the department of agriculture issued a circular, Number 118, for the information of fruit growers, dealers and purchasers. A season's experience in enforcing the law indicates that all of the regulations are not thoroly understood; for instance, the color requirement and the essentials of the brand. Several thousand copies of the circular (118) were distributed. Copies were sent to every one with whom the department had corresponded the previous year, to farm bureau agents, fruit growers' societies and commission men who distributed them to producers. Then in order to reach nearly every fruit man, the department in co-operation with the New York Central railway ran a demonstration train thru the Hudson Valley and the central and northwestern parts of the state. The train made 40 stops and reached an average of 100 men at each stop, a total of 4,000 men thus reached.

An educational plan of disseminating information in regard to agricultural law . . . . is a great help in the department work, and will be taken up in all lines of department endeavor. The plea of ignorance, after such a plan is carried out, has less weight as evidence. Some people say that it is education, and not prosecution, that is needed. I believe this is true in the main, but in the enforcement of the apple packing law many cases indicate the reverse; namely those of "getting by" when the offenders have a full knowledge of the requirements.

The first work was directed to required markings on closed packages at many and widely separated shipping points. The first two weeks' work showed that most shippers did not comply with the law in this respect, but in four to eight weeks great improvement was reported. After the bulk of the fall shipments was marketed, the force of inspectors was increased and efforts made to detect violations in packing as well as marking. Here difficulties began.

The color qualifications, notwithstanding explanations have proved apparently difficult for some packers to understand, or else the packers have tried to see how close to the line they could sort and be just within the law. Apple scab is perhaps the most serious problem discovered so far. The majority of violations submitted for action of counsel during the fall was of apple scab packed in excess of the tolerance allowed in the several grades. Opinions of packers differ as to the meaning of the words "practically free" used in the law and explained in the circular; namely small defects so few in number as not to injure the appearance or keeping quality of the grade, and allowed in addition to the tolerance percentage. In such cases inspectors give the packer the benefit of the doubt. Claim is made that scab develops under storage conditions. This subject is being investigated.

The department has received 2,400 formal reports of shipments, only a small proportion of the shipments actually examined but not reported upon. Of these, 950 related to minor violations such as irregular or incomplete branding. Two hundred and four of these cases have been referred to the courts with evidence of violation. To settle rumors that the law was not being enforced and that a large portion of the apples were going to market ungraded or unmarked according to law, additional agents and detectives were put in the field to determine the facts, both within and without the state. Examinations thus showed that 85 percent of all apples marketed were packed according to law. Twenty-one visits were made to extensive commission houses in New York City, and not one house estimated the apples that were packed in accordance with the law at less than 70 percent, most of the estimates were 85 to 90 percent. In Baltimore and Philadelphia conditions are similar.

In conclusion, Commissioner Wilson declared: The law was requested by the growers themselves. It was foresight on their part to recognize that an honest pack would ultimately rebound to their credit and to that of the state. Such evidently is the case and the fruit growers have placed themselves on record for honesty and fair dealing. In respect to uniformity of grades the fruit growers lead all other farm industries. From this high ground there should be no backward step. Therefore, in view of the well recognized principle that a law is ef-

(Concluded on page 18.)

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A Four-Wheel Tractor Dependable as a Horse
Pulls Three Plows Easily
A simple, durable, powerful machine selling at a price you can easily afford. Equipped with four-cylinder vertical engine 5x6, developing 25 h. p. at belt, 12 h. p. at drawbar. Two-speed transmission working in oil, automobile type front axle, roller-bearing rear axle, steel gears thoroughly protected from dust and self-oiling, radiator and fan that cool absolutely, 16-inch face rear wheels, weight 4800 pounds.
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Sold at cost plus one profit
have given satisfaction for 32 years—better than ever now. Fruit, Nut, Ornamental Trees, Vines and Shrubs grown in our 400 acre Nurseries, largest in N. Y. sold direct at cost plus 1 profit and guar. Send for free wholesale cat., illus. in colors.
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Established 1884

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$1.60 per 1000, etc. Best Michigan Stock. 100 varieties including Everbearers, also Grapes, Raspberries and other small fruits. Send today for FREE Catalog.
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STRAWBERRY Plants, $1.65 per 100. True composed and valuable illustrated catalogue free. Mayer's Plant Nursery, Merrill, Mich. Bohemian Nurseryman.

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Philadelphia, Pa., January 22, 1916.

DO WE SERVE YOU? When you subscribed to Pennsylvania Farmer you paid for a certain amount of personal service. Are you getting it? We are always glad to have letters from our readers telling us what they want in their farm paper and how we can serve them. Our aim is to keep the paper close to its readers' needs; close to practical, every-day work of the farm; close to the smell of the soil. In furthering this aim we draw matter for our reading columns as largely as possible from practical men who are actually engaged in farming and who can write of the things they are doing and how they do them. There are many successful farmers in our circulation territory who are willing and well qualified to discuss the best and most successful farm practice in the handling of any crop or dealing with any farm problem that is likely to develop in this territory. It is a part of our obligation of service to you to secure such discussions and put before you the advice and suggestions of such men on such subjects. If we are not doing it, it is because you have not made your needs known. If there is a special crop or a special method of handling a crop that you would like discussed, write and tell us about it. We will not attempt to discuss it ourselves, as we do not believe that any man can work in a city office twelve months in the year, and be qualified to advise farmers on their every day work. But we will refer it to someone who has been successful in your particular line, if possible, and have him discuss it for you. That is our business, and we can serve you and your neighbors better if you will give us your suggestions and your opinions. And we are glad to hear from readers whether you have a special need or not. We do not have opportunity to meet and talk with many readers. The next best thing is a letter. So we are glad to have letters telling us what you want and what you do not want; what you like about Pennsylvania Farmer, and what you would like to see added or changed. We cannot serve each reader with everything he might want, but we can serve all by knowing more of the needs of all.

INTERESTING FIGURES ON HAY The Department of Agriculture, in making up its estimate of the hay crop the past year, classified the different kinds of hay for the first time. There are some interesting figures in connection with it. The total amount of "tame" hay produced in the United States was 85,225,000 tons, and the average farm price, $10.70. "Tame" hay includes, timothy, timothy and clover mixed, clover, alfalfa, millet and Hungarian grass, and grains cut green for hay. Timothy produces 22.3 percent of the total amount, and timothy and clover mixed about the same. It will no doubt be surprising to eastern farmers to learn that more than one-fifth, 21.8 percent of all the hay raised in the United States is alfalfa. This is because the production of alfalfa in some of the western states is so great, in many of them exceeding all other kinds contained. Following is the percent of the total hay crop which alfalfa furnishes in a few of the states. Pennsylvania, 3 percent; New York, 8 percent; New Jersey, 10 percent; Delaware, 4 percent; South Dakota, 34 percent; Kansas, 57 percent; Nebraska, 64 percent, Colorado, 77 percent; Nevada, 82 percent. In the country as a whole, as compared with 1909, timothy fell off 4 percent, clover increased 10 percent and alfalfa 4½ percent.

VALUE OF FAILURES We are receiving some valuable suggestions and object lessons in the the articles coming to us on Lessons of the Season. Some of these have been published in recent issues and there are more to follow in the next several weeks. These articles have come largely from men who are regarded as successful farmers in their communities. It may be a source of satisfaction to less successful readers to note the readiness of these men to acknowledge failure in some of their undertakings. It ought to be a matter of note with all of us that the failures are accepted as presenting the most valuable lessons. Every wise man makes mistakes, but only the fool makes the same mistake twice. The wise man grows wiser in avoiding the repetition of error and only the fool is confounded by the results of his folly. There are so many complexities and uncertainties in farming that there are certain to be some failures. It is the man who can successfully analyze the causes of failure, can trace their effect and avoid their repetition in future years who is even comparatively successful. And such a man will learn as much from the failures of others as from those of his own doing. We have in mind a community that has profited for many years by the apparent failures of a single man. This man bought a farm in the community and started farming with a lot of ideas that were new to his new neighbors. He paid too much for his farm in the first place, and thus handicapped himself from the start. He built the first silo in that community, but he built of stone, making the cost much greater than necessary. He introduced cow peas as a new forage crop in the locality and failed because of his climatic conditions. He brought in the first purebred dairy cattle that had been owned in the community, but they were of a breed not adapted to the market conditions. He did other things that were new to his neighbors, but usually failed thru some small error of judgment or practice. His neighbors call him a failure, but they are now using silos economically purchased and erected; they have learned to grow soy beans and alfalfa where cow peas failed, and they have established a breeding center for dairy cows of a breed that meets the needs of their community. The instigator of all these reforms is learning from them and is now gaining some profit from his previous mistakes; but his neighbors learned more from his failures than he has learned from their successes. And being so thoroly human, they take credit for every improvement to themselves and continue to point him out as the failure.

MEN AND TREES A great deal of the life and energy of humanity is expended in reconstruction, and reformation, showing that the first construction or formation was not right or satisfactory. How much faster would progress be if human character and institutions could be started right and all after growth maintain that direction! Men are careful when planting a tree to set it in a favorable environment; to furnish it with what they know it requires, and to guard it from all that hurts or injures it. They are careful to start the "head" evenly balanced, and with the right number of branches, knowing that neglect, disease and interruption by transplanting or extreme necessity for re-formation checks and sets back its growth and lessens its productiveness. The laws governing tree growth are well known and recognized as being established. Men do not assume that exceptions will be made in favor of their trees or their methods. We observe and study our surroundings and the experience of other men and, if we are wise, seek to profit by avoiding their mistakes so that the trees in our orchard may have an uninterrupted growth and usefulness. But how is it in relation to human character and man's social and ethical relationships? It would seem that the same care is not exercised, else why the great need for reformation in life's habits and the reconstruction of man-made institutions? We can easily learn by a thousand examples that certain habits and lines of action have invariably brought disaster, yet we often go on contrary to the teaching, thinking that it will not be so with us; that we can escape the consequences because we think that, somehow, exceptions will be made in our case. It is not so. The law of cause and effect holds as certainly as in the case of a tree. The same disregard of the lessons of experience is seen in the history of nations. Certain false standards, wrong motives and unrighteous conduct have invariably led to downfall and destruction. Dependence upon erroneous support and fictitious means of security have always failed in the end. There are no exceptions. So it would seem a wise thing for everyone, for his own greatest good, for the best interests of his family and community and for the nation to exercise the same judicious care in the formation of character and the establishment of institutions as he exhibits in the planting of and caring for a tree. Until men do this, much of their life and efforts will continue to be spent in reformation and reconstruction.

THE WOOL MARKET Wool is making new record prices. Three-eighths blood combing wool sold last week at 38 cents per pound and predictions of 40 cents on Ohio medium wools are being made. The tone of the market is reported stronger than ever with values advancing on practically all grades. At a meeting of about 200 members of the Philadelphia Wool and Textile Association last week, the question of increasing the Pennsylvania wool supply was the subject of general discussion. It was suggested that a campaign of education be promoted, looking to the development of the sheep industry on the large areas of waste lands in this state; the enactment of efficient dog laws which will do away with the dog nuisance, and the education of farmers in the economic advantages of sheep raising. Supported by a price of 40 cents per pound for wool, these men would find little difficulty in attaining all of these ends. If prices hold to their present figures thru the fleece buying season, sheep men will make money this coming spring. They will make good money on their flocks, and many farmers with pasture land available will go into the sheep business. They will buy sheep on a high market and expect to reap rich returns. But if past experiences are repeated, these same flocks will be closed out in a few years at the low ebb of the sheep market and the owners will lose on the transaction. There is money in sheep raising, and there are sections of Pennsylvania as well adapted to the industry as any section of the country. The dog nuisance is practically the only handicap, and dogs can be controlled if a community sentiment is developed which places a higher value on a sheep than on a dog; a sentiment which will support the destruction of dogs to save the sheep. These sections could make money on sheep and wool practically every year. But they can not look for 40-cent wool every year. Present prices are far above the normal level, and they will stay up only as long as they are sustained by the war condition abroad. In spite of all that has been said about the tariff protection of wool and the iniquity of Schedule K, sheep men have suffered about as much as they have benefited. The changing rates with each new tariff revision have been the greatest factor in the constant variations in the wool market. If a tariff commission could enforce tariff legislation based upon actual conditions at home and abroad, and give stability and uniformity to tariff rates, the sheep men would be the first to profit. The following figures on the wool industry in the past three years are of interest in connection with present prices. The Bureau of Crop Estimates reports the total production of wool in the United States in 1915 at 288,777,000 pounds as compared with 290,192,000 pounds in 1914 and 296,175,000 pounds in 1913. This shows a decrease of 2.5 percent from two years ago and about 1 percent from last year. But the average price to producers for unwashed wool averaged about 23.4 cents per pound in 1915, as compared with 18.4 cents in 1914 and 15.4 cents in 1913. Then the total value to producers was about $67,573,818 in 1915, compared with $53,395,328 in 1914 and $47,499,475. Pennsylvania is credited with 4,030,000 pounds in 1915, which, at the price quoted, would be worth $943,020. New York is second of the eastern states with 3,478,000 pounds. Maryland is credited with 749,000 pounds of wool in 1915. New Jersey with 95,000 pounds and Delaware with 28,000 pounds. Ohio is first of the so-called sheep farm states as contrasted with sheep ranch states, with 14,350,000 pounds. Of the farm states, Illinois and Iowa lead in average weight of fleece, with 7.5 pounds each; Wisconsin is second with 7.2 pounds. Other farm states rank as follows: Vermont, 7.1 pounds; Minnesota, 7 pounds; Michigan, 6.9 pounds; Ohio and Indiana, 6.8 pounds each; Missouri, 6.7 pounds; New York, 6.5 pounds; Massachusetts, 6.4 pounds; Maine and New Hampshire, 6.3 pounds each; Pennsylvania, 6.2 pounds. The average weight of fleece in Maryland is given as 5.9 pounds; in Delaware, 5.7 pounds and in New Jersey, 5 pounds. The highest average weight of fleece was in Washington, being 8.3 pounds.

HARRISBURG NOTES

Farms Not Affected by Compensation.—Very definite official statements have been issued by state officials to the effect that farms are not included either in the new child labor or compensation laws. The same is true of domestic service. How long it will be before they are included it is impossible to predict with a constitutional amendment just enacted and things more or less disturbed in industrial circles. The opinion regarding the exclusion of farming and domestic service from the acts was given by the attorney general. A statement issued by the bureau of vocational education sets forth that the child labor act does not affect in any way a minor employed on the farm or in domestic service in private homes. Work in hotels and boarding houses is not domestic service. The school code provisions are not set aside by the child labor law. "The several sections of the school code governing compulsory attendance at a day school apply to children between the ages of 14 and 16 years employed on the farm or in domestic service." In other words, they must attend school.

Activity Averted Trouble.—It is no secret that the industrial activity prevented some trouble in mills and factories when the new compensation and child labor laws went into effect. The present tremendous demands caused every man with a good pair of hands to be in demand and few people have been dismissed. In regard to child labor it is evident that manufacturers must establish continuation schools because if they dismiss their minor labor to avoid establishing such schools they will have no new source of labor. Chances are that at the next session of the legislature some efforts to change or even repeal these laws will be made, but they will not go far. Extension of compensation and child labor systems to the farm and into the home is more to be feared.

Demand for Farm Labor. — Unless there is a change between now and April 1, farmers will be hard put for labor. The demands of railroads and industries have taken hundreds of young men from the farms, and farm boys are reported as being now sought by employers. Going home to work on the farm has an importance that should not be forgotten by the manufacturer next spring, or by the employe.

Department Politics (?).—Word is going out again that appointments left in the air in the State Department of Agriculture are likely to be announced when the State Board meets here next week. Information is also out that some new bureaus may be established. There is need for some bureaus, but objections are heard that they should not be created at a time when politics permeats the Capitol more than known in half a dozen years. Names of several men have been coupled with places, including one or two active in political affairs, some better known for activity among farmers and others not heard of at all before. The status of the new agricultural commission may be better defined after the meeting of the State Board of Agriculture. The commission's sessions have been few and those few have been secret.

Chasing Out Eggs.—The State Department of Agriculture chased eggs out of cold storage during December. The month started with about 12 million dozen due to go into trade before January 1. State agents were sent into the plants with instructions to scan deposit books, and 13,000,000 dozen were taken out of storage. The state is now trying to prevent these eggs being sold as fresh, over 40 arrests for this offence having taken place in the last 30 days.

The Range of Prices.—The wide range of prices received by farmers for their products in Pennsylvania would seem to offer a fruitful field for study by the Department officials. Some ranges of prices are startling and it would be a vast benefit to the farmers and fruit growers of Adams County, for instance, if they could get something like the prices received by their northern tier and central Pennsylvania brethern. Marketing and distribution would seem to offer opportunity for discussion that would be beneficial and rather reconcile the state to payment of expenses of the Agricultural Commission.

Oleo Business.—Agreements have been reached whereby the state and federal authorities will work in harmony in the enforcement of the oleo license laws and the state will not be flooded with a product from other states without the authorities being notified. The issuance of licenses for oleo is greater for 1916 than ever known before, and it is likely that the amount paid will be made the occasion of another effort to force the legislature to cut down the fees.

Fertilizers Change. — According to opinion by attorney general's department, fertilizer makers and agents can not claim a change in brand by marking a date. It appears that a scheme was started to escape license based on tonnage by announcing new brands. The Department of Agriculture declined to accept simply the marking of "1916" after a brand name and when the manufacturers and others insisted sent the question to the attorney general.—Hamilton, Harrisburg, January 17.

NEW JERSEY FARM NOTES

Legislature Opens.—Chief interest the past week centered in opening of the Legislature, with the Republicans controlling by substantial majorities in each branch. Governor Fielder's message recommended absolute power for the board of public utility commissioners in the matter of rate-making for railroads, advised a state tax of from four to six tenths of a mill for road construction, urged an expert examination of the Wharton tract for a potable water supply in South Jersey, advocated development of public schools and establishment of another Normal school, favored promotion of vocational education and called for a brief session of the Legislature, with a four weeks' recess from February 1 for the consideration of the budget by the appropriation committee. The farmers of the state are most interested in the problem of good roads. The Governor would have the necessary funds raised by a small tax, spreading the work over a period of either 10 or 15 years. Report of Comptroller Edwards showed that the fiscal year closed with a net balance in state treasury of $305,421.01.

Many Bills Introduced.—On the opening day of the Legislature about 70 measures were presented, among them being one by Senator Gaunt of Gloucester County to create a State Department of Agriculture. This bill is fathered by the Economy and Efficiency Commission and the new department would take in the present board of agriculture and the agricultural experiment station. The local option bill was one of the first introduced and it is certain to play an important part in the session. The measure provides that upon the filing of a petition signed by 30 percent of the legal voters a special election shall be held on the question of permitting saloons in that municipality. Because of the presence of Billy Sunday in Trenton, the anti-saloonists expect there will be more votes for the bill this year than last. Senator Pierce of Union County put in a bill compelling each railroad company to abolish one grade crossing annually for each 40 miles of track, and also introduced a measure abolishing county tax boards and substituting 3-member boards of which the county assessor shall be chairman. Senator Edge sponsored a bill creating a new budget system and providing for a state purchasing agent.

Agricultural Board to Meet.—The 43 annual meeting of the State Board of Agriculture will be held at Trenton February 2, 3, and 4. In addition to state officials, who are to speak, addresses will be made by J. Warren Smith, of the United States Department of Agriculture; Edward Howe Forbush, state ornithologist of Massachusetts; Dr. Kenyon Butterfield, president of the Massachusetts Agricultural College, and Dr. Liberty H. Bailey of New York. A large attendance of farmers is being urged and an exceptionally strong program has been prepared.

Prosperity in State.—According to the annual report of the bureau of industrial statistics, 70 new factories were opened in New Jersey during the year ending September 30, last, at a total cost for buildings and equipment of $2,126,800, while 90 plants were enlarged and improved at an expense of $5,158,770. In the matter of total expenditures for factory enlargements and new construction, Camden led all cities of the state with $1,940,673.

Cattle Condition Poor.—The cattle on the dairy farms in this state, generally speaking, are in a poor condition, according to Isaac H. Shaw of the creameries and dairy division of the State Board of Health. He says the condition is such that good milk in large quantities cannot be had at any price. A state federation of milk inspectors is to be formed, the organization meeting to be held in Newark, February 9.

Jersey Apples Win.—First prize for for production of the best apples has again been brought to New Jersey, John H. Barclay, of Cranbury, having been awarded the Grand Sweepstake prize of $50 in the world competition conducted recently by the New York State Fruit Growers' Association, at Rochester.—L.

NEW YORK LETTER

Township Schools. — An important measure that will have the attention of the legislature this winter will refer to the change from the present rural school system to that of township schools. It will be opposed but it has the full support of the education department and educators thruout the state. Attention is directed to the matter by an address made by Dr. Thos. E. Finegan, of the Department of Education in Syracuse the past week. He said that the department would get back of any plan that could be proven to be better than the township school plan but in his opinion no such plan is in sight. The rural districts want schools equal to those of the cities but many old associations are broken up by changing from the district to township lines and there are certain inconveniences and some new expenses that are not met with under the present system. But the results to the rural pupils are not what they are entitled to receive. In 4,000 rural districts of this state, said Dr. Finegan, the average attendance is less than 10 pupils and in 2,000 districts it is less than 6. He cited the fact that Pennsylvania had only about 2,500 rural districts outside the cities and villages of 5,000 population against 10,500 in New York. And yet on account of the mountainous topography of Penna., one would expect there would be more districts there than here.

A Tax Measure.—At the state conference of assessors held at Albany this week, Senator Ogden L. Mills submitted a proposition repealing the present personal property tax and substituting an income tax. The proposition met with the approval of the conference, the up-state delegates witholding their full approval until it had been made perfectly clear that the income tax as related to farmers would be on their net and not on their gross earnings. It is understood that the Governor and the legislative leaders are opposed to an income tax plan in a presidential year. All of which shows how dependent legislation is on the whims of politicians in a presidential convention year.

Fruit Growers at Brockton. — On January 22 the annual meeting of the Chautauqua and Lake Erie Fruit Growers association will be held at Brockton. Some valuable reports are promised by standing committees on the grape crop of the past year and on the outlook for the future.

Forestry College Notes. — About $100,000 more has been asked of the legislature for the state college of forestry than was appropriated for its uses last year. The total appropriation asked amounts to $245,504 of which $73,420 is for salaries and $32,420 for supplies and equipment. The new building now under construction for the uses of the college requires over $36,000 for a heating and power plant.

Veterinarians in Conference. — The eighth annual conference of veterinarians of the state was held in Ithaca last week with an attendance of about 200. President Schurman gave a resume of the activities of the state veterinary college for the year and Dean Galloway spoke on Federal Government and Veterinary Service.

Onondaga Farm Bureau.—The Onondaga County Farm Bureau now has 450 members and wants 1000, to secure which a campaign is under way. During the year 65 meetings with a total attendance of 3,600 were held; 205 visits to farms were made by the agent and 1,363 calls at office on Bureau business were received. The county Alfalfa Growers' Association sold 820 tons of alfalfa last year for $14,850.25.—D.

NEW YORK'S FOOD DEMANDS

Bulletin 74 of the New York Agricultural Department has just been received. It is a report of the Farmers' Institutes from June 15, 1914 to June 14, 1915. The report is published by Edw. VanAlstyne, director of Farmers' Institutes and deals with the Normal Institute held at Geneva, regular Institute work with statistics; Farmers' Days; Special Lectures; Co-operative work with Columbia University; County Survey work; Cow-testing associations; state fair and Farm Bureaus. Bulletin 73 on the "Agricultural Advantages" of New York is another interesting pamphlet containing a mass of information relative to the agriculture of the Empire State. We take this interesting statement from the Foreword which is to the effect that the annual food supply of Greater New York costs in the consumers' kitchens over $500,000,000. Its milk supply alone costs over $60,000,000. Butter costs more than $50,000,000 and cheese amounts to about $8,000,000. The poultry supply is valued at $25,000,000 and the great city pays for eggs $30,000,000 annually. Meat reaches the stupendous sum of $100,000,000. The argument of the pamphleteer is that New York is not furnishing her share of these food stuffs to say nothing of what is required by 57 other cities. Copies of these bulletins can be procured of the Department of Agriculture at Albany.—D.

PENNSYLVANIA BREEDERS' AND DAIRYMEN'S MEETING

A joint meeting of the Pennsylvania Breeders' Association and the Pennsylvania Dairy Union will be held at the Monongahela House, Pittsburgh, Wednesday and Thursday, February 23 and 24. The meeting is open to all and everybody is invited.

FARM MEETING CALENDAR

Delhi Farmers 'Week, Delhi, N. Y.	Jan.24-27
Newark Poultry Show, Newark, N. J.	Jan.24-29
National Poland-China Record Association, Dayton, O.,	Jan.26
Western N. Y. Hort. Society, Rochester, N. Y.	Jan.26-28
Penna. Board of Agri. Harrisburg, Pa.	Jan.26-28
N. Y. Tobacco Growers' Association, Baldwinsville, N. Y.	Jan.29
N. Y. State Grange, Jamestown, N. Y.	Feb. 1- 4
N. J. Board of Agri., Trenton, N. J.	Feb. 2- 4
N. Y. Farmers' Week, Ithaca, N. Y.	Feb. 7-12
N. Y. Vegetable Growers, Ithaca, N. Y.	Feb. 8-12
Alfred University Farmers' Week, Alfred, N. Y.,	Feb.22-25
Penna. Breeders' Ass'n, Monongahela House, Pittsburgh	Feb.23-24
Peena. Dairy Union, Monongahela House, Pittsburg	Feb.23-24
Long Island Cauliflower Association, Riverhead, N. Y.	Feb.26
Mercer Co., Board of Agriculture, Trenton, N. J.	Feb.28
N. Y. Holstein-Friesian Club, Syracuse, N. Y.,	Mar. 1
American Jersey Cattle Club, New York City.	May 3
Holstein-Friesian Association of America, Detroit, Mich.	June 6
International Apple Shippers' Association, New York	Aug. 2

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Cooperation in Cattle Breeding

By N. S. Gottshall, Montgomery Co., Pa.

We frequently speak of co-operative associations as tho they were new, and, in a large measure, co-operation as applied to agriculture is quite recent. But co-operation itself has been a fundamental principle in civil and ethical life. The clan, the family and the tribe are only man's expressions in behalf of co-operation.

Organized co-operation originated in European countries and has taken a much firmer hold there than here. In America it has made considerable progress, however, along agricultural lines during the last quarter century and has been applied to the manufacture of cheese and butter, purchase of farm machinery, sale of produce and breeding of live stock.

Co-operative organizations are especially strong in Denmark, Switzerland, Belgium and the Netherlands. Within the past thirty years, co-operative dairying has been developed quite extensively in Denmark. There are in that small country more than 1,100 co-operative dairies, which own approximately 75 percent of the cows in Denmark and carry a capital of over $7,500,000. Co-operative breeding in European countries has been practiced for some time. Belgium established a government stud in 1850 and has an excellent stallion subsidy law in operation. France also has a stallion license and subsidy law. Several of our American states have license laws, but no subsidy laws.

If we follow the history of live stock improvement we find that the majority of the types of our domestic animals have been developed within comparatively small districts. We further find, in many cases, that a number of individuals have been sufficiently interested in the undertaking to center about one individual who for some reason has assumed the leadership and has given direction to the work. We may safely say that the improvement of the various breeds has been the result of the work of a community, or the result of the initiative of a single individual, aided by some of his fellowmen.

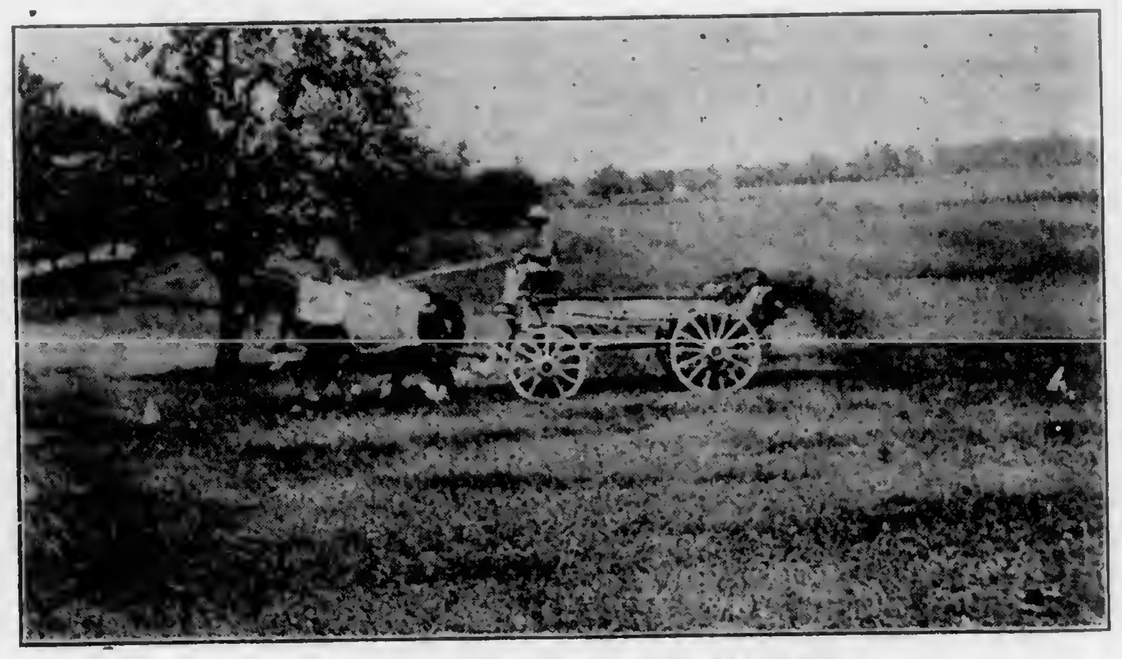
Breeding Associations

A census of the cattle of Michigan, several years ago, showed that not over one percent were purebred. A further study brought out the fact that the cattle of the state lacked sadly in uniformity and quality. The causes of this condition were: First, a lack of good blood in the herds, due chiefly to the use of scrub sires, and, second, mixed breeding. The blood of the different breeds had been used in almost endless varieties of combinations, so that mongrel stock had been produced where wise matings would have been possible.

To remedy these conditions an active campaign was begun in that state. Since only one out of every one hundred of the total cattle were purebred, it was impossible to improve the herds rapidly by selling the common stock and replacing it with purebred animals, because of the expense associated with such a method of improvement. It was evident that the proper method to use was upgrading by the continued use of purebred sires.

The introduction of purebred sires into the different sections of the state led to the organization of breeding associations. The purpose of these organizations was to obtain purebred sires and to continue the use of some one kind of pure blood on the grade and mixed-bred stock. On the other hand, it discouraged the use of cross-bred, grade and scrub sires and the mixture of blood of the several breeds.

Such breeding associations provide that the members shall be owners of at least 120 cows. For breeding purposes these cattle are divided into three groups of 40 cows each. Three sires are provided by the association, one of which is assigned to each group of 40 cows, and kept there for two years. At the end of two years and again at the end of four years the bulls are moved to another section or group. This system provides for breeding for six years with the three sires originally purchased. It further enables each sire to be kept long enough for the association to determine to some degree his value as a breeder. In such associations, provision is made for the safeguarding against tuberculosis, contagious abortion and other infectious diseases which may appear at any time.



MAKING BEST USE OF THE MANURE.

Benefits

A community derives many benefits from the organization of such a breeding association. In one association of this kind it was found that the members had not only procured registered sires, but most of them also had from one to twelve purebred cows. The communities, before stocked with scrub cattle, were soon known as breeding centers of the particular breeds there bred. The young bulls were purchased by non-members in the locality to improve their herds. There was abundant evidence that the members had received a stimulus to read, think and figure more than ever before. All were reading dairy papers, studying books on feeding, contemplating advanced registry tests and the organization of cow-testing associations. Balanced rations were being discussed, and protein feeds were found in many barns where their presence was unknown before. In the stables, record sheets were found upon the walls with scales near at hand to weigh the milk, while the owner could relate with pride the past year's record of different animals in the herd.

One of the greatest benefits, and the hardest to estimate the value of, is the influence upon the non-members in the community. The example of the progressive association members will make the "indifferent man" take notice in cases where the agricultural paper, farmers' institute, agricultural college and experiment station may fail to reach him.

Co-operative breeding teaches the correct principles of breeding good cattle. It advertises the cattle far and wide in an economical manner. It brings better prices and increases the demand for surplus stock. It helps the breeder to fight the much dreaded cattle diseases. It raises the value of the farms. It brings an increased amount of money into the country. It brings more pleasure into farming and encourages the young man to stay on the farm.

The expense of each breeder in a co-operative breeding association will be materially reduced. If several of the members desire to increase their herds they will not each be compelled to go in search of what they want. The organization will enable them to co-operate with their neighbors and purchase the cattle in carload lots. This will not only reduce the traveling expenses otherwise necessitated when each man makes the rounds, but it will also cut down the freight charges materially. A secretary will at all times communicate with breeders who have good stock for sale. It might also be well to issue monthly bulletins which furnish information to the members regarding records of available cattle which may be purchased.

In a true sense, co-operative breeding is to help one another. It is an association, not to pull down the man who is above the level of the average, but to lift ourselves up to his level, or above it, if possible.

Not until we accomplish this end will we be able to develop a better class of farmers who are interested in each others' welfare, as well as breed better and more profitable cattle. When we find a neighbor farmer who has not enjoyed the privileges of the association with those of more advanced ideas, and who is in the deep rut of scrub sires, poorly bred cows and not using scales or other means of knowing what his cows are producing, let us co-operate and pull together to lift him up to a higher level where he may enjoy the pleasures of a successful cattle breeder.

THE MANURE IN WINTER

Every ton of stable manure is worth from two to three dollars, the liquid portion being more valuable than the solid. If properly handled, at least 80 percent of its original value should be returned to the soil, but a little exposure to the weather or fire fanging will lessen its value a fourth or even a half in a very short time. The best way to guard against unnecessary losses during the cold winter months is the practical problem that presents itself to every farmer at this time of the year.

It is a common practice to feed cattle, sheep, and in some cases mules, in sheds that are more or less open, the animals being supplied with abundant quantities of straw or other bedding material. The animals remain here during the entire winter and are constantly packing the manure by their continual tramping. In this case the loss is reduced to almost the minimum. There is no leaching, no escape of the liquid, and no heating, because the air has been excluded by the constant tramping of the animals. While the

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Holstein Owners Partners in Prosperity. During the fiscal year ending April 30, 1915, 134,456 certificates of registration of pedigrees were issued by the Holstein-Friesian Association, producing a gross revenue of $150,814. To the thoughtful student of facts this great volume of business, of but one department of this Association, is sufficient evidence that the administration of its affairs has been able and sound. The owner of purebred Holstein cattle is a partner in all the benefits accruing from this progressive management of the affairs of the most profitable of dairy breeds. Investigate the big "Black-and-Whites."
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Dehorned cows give more milk; take less room; are gentle and easily handled. Dehorned steers fatten quicker and are not dangerous. Horns cost money; remove them with the new
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Holstein Bull---It Mona Pontiac
Born Dec. 1st, 1914. Sire, "IT," is a brother of cow holding Junior four-year-old record of 37.59 and is grandson of Pontiac Korndyke and Pontiac Clothilde De Kol. Dam with 31-months record of 16.48 lbs. is daughter of King of the Pontiacs. Quality on every side. Write at once for particulars.
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Registered Holsteins
Heifer and bull calves. Golden Segis De Kol Korndyke 70534 and Allamuchy Fayne Hengerveld Hartog 94180 breeding. Well marked. Write for pedigrees, pictures and farmers' prices.
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For Sale 2-yr.-old Holstein-Friesian bull (hornless). Dam at 4 yr. has 7 day A. R. O. record of 23.7 lbs.; semiofficial in 293 days, 750 lbs. Well grown, half white. Price $300.00. Send for catalogue.
Geo. E. Stevenson & Sons, Clarks Summit, Pa

Stock Bull For Sale born March 15th 1911. Imperial Sir Bethel De Kol No. 92497 H. F. H. B. Reason of selling on account of relation.
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Guernsey Males and Females
May Rose and Gov. of Chene breeding from imported and domestic females with record backing.
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Jersey Calves both sexes. Fine stock, of the most noted pedigrees in the world. Fred G. W. Runk, Allentown, Pa

Registered Holsteins Desirable calves for sale at prices that are right. Satisfaction guar't'd. Ideal Farm, Conyngham, Pa.

sanitary conditions may not be ideal where such a practice is followed, still it is not objectionable from other standpoints. The manure in this case can be allowed to remain in the shed until spring if so desired.

In the dairy barn or horse stall such conditions could not be tolerated because of the sanitary considerations. Consequently the manure must be stored in a pit or shed, always being careful to prevent too much aeration that will induce the material to heat. Should such a protection not be available, then haul directly to the field and scatter. If this latter practice is followed there will necessarily be a larger loss, but if the proper precautions are used even this can be decreased. When the ground is frozen there is a tendency for the soluble portions to be washed away, but because of the cold the insoluble material tends to remain as such. To minimize the losses that must necessarily occur, try to scatter all manure that is hauled out on frozen ground on a level area and leave the hillsides for spring or summer manuring. It is even claimed by some that it is best to scatter on a snow because on melting the soluble portions of the manure will be carried down by the water. This could not occur except where the ground had not been frozen or at least only slightly so.

FIRE-PROOF GARAGE OF CORRUGATED METAL ON JACOB WYCKOFF FARM, MONMOUTH CO., NEW JERSEY.

In general, observe the same precautions in winter that are followed in summer, but above all things do not throw the manure outside of the barn in a loose open pile to burn up and be washed away a little at a time until spring arrives. If in a pile at all, the air must not be allowed to circulate thru it at any time for a period long enough to allow burning to take place, but instead put it where it will be packed by animals or where conditions are similar to those found in a manure pit. If a little care is used it is easier to control losses in winter than in summer, but on the other hand, the losses may be even greater if weathering is allowed to occur.—F. E. Allison, Middlesex Co., N. J.

DIAMOND STATE COW TESTING ASSOCIATION

The Diamond State Cow-testing association, with headquarters at Wilmington, Del., has now had the third month of records completed. Each month in the Wilmington papers a list of the "honor" cows or cows producing either 1,000 pounds of milk or 40 pounds of butterfat is published by Louis Giboney, the tester for the association. The first month of its operation there were only five of these cows; the second month, 10 and the third month the 14 listed below. These records are excellent when it is considered that a very few of the cows in the association are purebreds and in only a part of the herds is a purebred bull used. Only one of the members, John Mitchell, had ever been in a similar association before, but if his records are an example of what the future holds in store, great things may be expected of this, the pioneer association of Delaware. Below is the honor list for the third month ending December 20th:

Blosom, a grade Holstein owned by Horace Dilworth, produced 1,128 pounds of milk and 46.3 pounds of butterfat.

Alma, a grade Holstein owned by F. Merion, produced 1,134 pounds of milk and 37.4 pounds of butterfat.

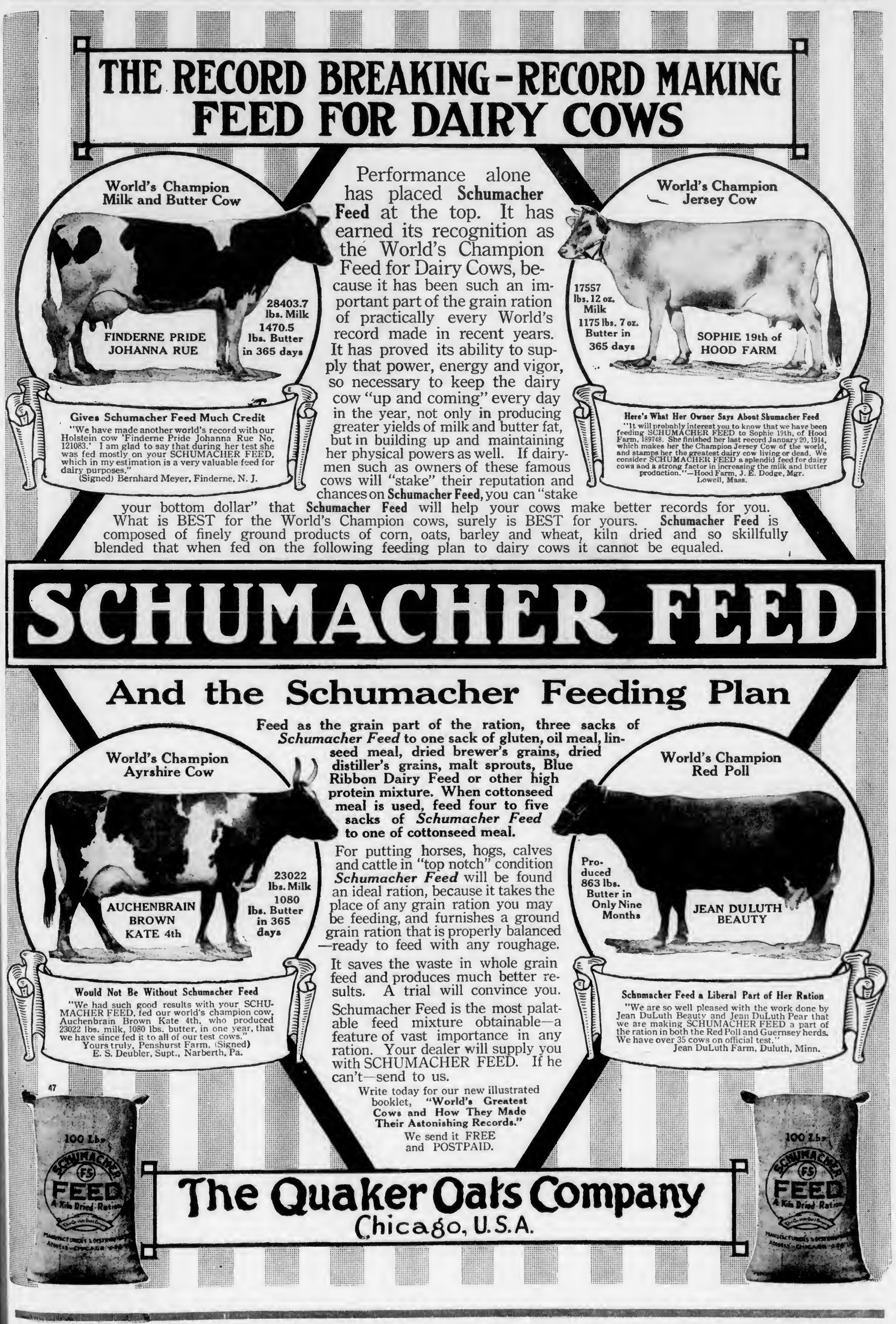
Pitsing, a grade Guernsey, produced 46.7 pounds of butterfat from 933 pounds of milk. Oyshan, a grade Ayrshire, produced 798 pounds of milk and 44.7 pounds of butterfat. Both belong to Wm. D. Howell.

Baby, produced 1,035 pounds of milk and 29.5 pounds of butterfat. Mayflower, gave 1,065 pounds of milk and 30.9 pounds of fat. Pennock, 1,047 pounds of milk and 44 pounds of fat. Black Spencer, produced 1,218 pounds of milk and 40.2 pounds of fat. Daisy, gave 1,713 pounds of milk and 54.8 pounds of butterfat. (This is the best record in the association to date.) Pauline, gave 1,320 pounds of milk and 48.8 pounds of fat. Latter six owned by John C. Mitchell.

The Woodlawn Company is owner of the following four purebred Holsteins: "46", gave 1,053 pounds of milk and 39 pounds of fat. "88" gave 1,170 pounds of milk and 37.4 pounds of fat. "28" produced 1,314 pounds of milk. "34" produced 1,674 pounds of milk.—F.

NOTABLE SHIPMENT OF HOLSTEINS

Three car loads containing 111 head of Holstein cattle were shipped this week from Syracuse, N. Y., to California. Two car loads containing 80 head were shipped to J. M. Henderson, Jr., at his ranch at Rockford, Cal. The stock was purchased from E. A. Powell and Stevens Brothers, C. A. Morris and A. A. Hartshorn, of New York State, and J. Hamilton, of Ontario. Included in the lot was the bull, King Pontiac Segis Inka, bought of Stevens Bros., a son of King of the Pontiacs, by Segis Inka 3d. Mr. Henderson is a prominent business man of Sacramento, with large banking and dairy interests. The third car, containing 33 head, was assigned to Dr. J. E. Weldon, Galt, Cal. These were purchased from Stevens Bros., and C. A. McAdams, of Utica. The entire lot of cattle was valued at $70,000.



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World's Champion Milk and Butter Cow
FINDERNE PRIDE JOHANNA RUE
28403.7 lbs. Milk 1470.5 lbs. Butter in 365 days

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"We have made another world's record with our Holstein cow 'Finderne Pride Johanna Rue No. 121083.' I am glad to say that during her test she was fed mostly on your SCHUMACHER FEED, which in my estimation is a very valuable feed for dairy purposes."
(Signed) Bernhard Meyer, Finderne, N. J.

Performance alone has placed **Schumacher Feed** at the top. It has earned its recognition as the World's Champion Feed for Dairy Cows, because it has been such an important part of the grain ration of practically every World's record made in recent years. It has proved its ability to supply that power, energy and vigor, so necessary to keep the dairy cow "up and coming" every day in the year, not only in producing greater yields of milk and butter fat, but in building up and maintaining her physical powers as well. If dairymen such as owners of these famous cows will "stake" their reputation and chances on **Schumacher Feed**, you can "stake your bottom dollar" that **Schumacher Feed** will help your cows make better records for you. What is BEST for the World's Champion cows, surely is BEST for yours. **Schumacher Feed** is composed of finely ground products of corn, oats, barley and wheat, kiln dried and so skillfully blended that when fed on the following feeding plan to dairy cows it cannot be equaled.

World's Champion Jersey Cow
SOPHIE 19th of HOOD FARM
17557 lbs. 12 oz. Milk 1175 lbs. 7 oz. Butter in 365 days

Here's What Her Owner Says About Shumacher Feed
"It will probably interest you to know that we have been feeding SCHUMACHER FEED to Sophie 19th, of Hood Farm, 189748. She finished her last record January 20, 1914, which makes her the Champion Jersey Cow of the world, and stamps her the greatest dairy cow living or dead. We consider SCHUMACHER FEED a splendid feed for dairy cows and a strong factor in increasing the milk and butter production."—Hood Farm, J. E. Dodge, Mgr. Lowell, Mass.

SCHUMACHER FEED

And the Schumacher Feeding Plan

Feed as the grain part of the ration, three sacks of *Schumacher Feed* to one sack of gluten, oil meal, linseed meal, dried brewer's grains, dried distiller's grains, malt sprouts, Blue Ribbon Dairy Feed or other high protein mixture. When cottonseed meal is used, feed four to five sacks of *Schumacher Feed* to one of cottonseed meal.

For putting horses, hogs, calves and cattle in "top notch" condition *Schumacher Feed* will be found an ideal ration, because it takes the place of any grain ration you may be feeding, and furnishes a ground grain ration that is properly balanced—ready to feed with any roughage.

It saves the waste in whole grain feed and produces much better results. A trial will convince you.

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World's Champion Ayrshire Cow
AUCHENBRAIN BROWN KATE 4th
23022 lbs. Milk 1080 lbs. Butter in 365 days

Would Not Be Without Schumacher Feed
"We had such good results with your SCHUMACHER FEED, fed our world's champion cow, Auchenbrain Brown Kate 4th, who produced 23022 lbs. milk, 1080 lbs. butter, in one year, that we have since fed it to all of our test cows."
Yours truly, Penshurst Farm, (Signed) E. S. Deubler, Supt., Narberth, Pa.

World's Champion Red Poll
JEAN DULUTH BEAUTY
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Schumacher Feed a Liberal Part of Her Ration
"We are so well pleased with the work done by Jean DuLuth Beauty and Jean DuLuth Pear that we are making SCHUMACHER FEED a part of the ration in both the Red Poll and Guernsey herds. We have over 35 cows on official test."
Jean DuLuth Farm, Duluth, Minn.

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Profitable Horse Raising in Penna.

A McKean County Example

By Dr. M. E. Conard, Chester Co., Pa.

How apt we are to follow the fads and customs of our fathers that were instilled into us in our formative years. Sometimes it is well to do so, but first we should be sure that the old customs have not been superceded by better ones; by those better adapted to present day conditions to which we must conform if we are to succeed.

I know of no branch of animal husbandry that has undergone so much change in the past two or three generations as has horse raising. The cheap pastures of the Middlewest fifty years ago attracted many of the naturally inclined stock raisers from the East. There they could raise stock much more cheaply than could be done on the improved lands of the Atlantic border states. It was a logical place for the eastern man to buy his teams, and the East offered a good market to the western pioneer, as he was called in those days. This dependence upon the West became a custom into which we of the 20th century were born, and we are still following it for some reason; I do not know just what the reason is.

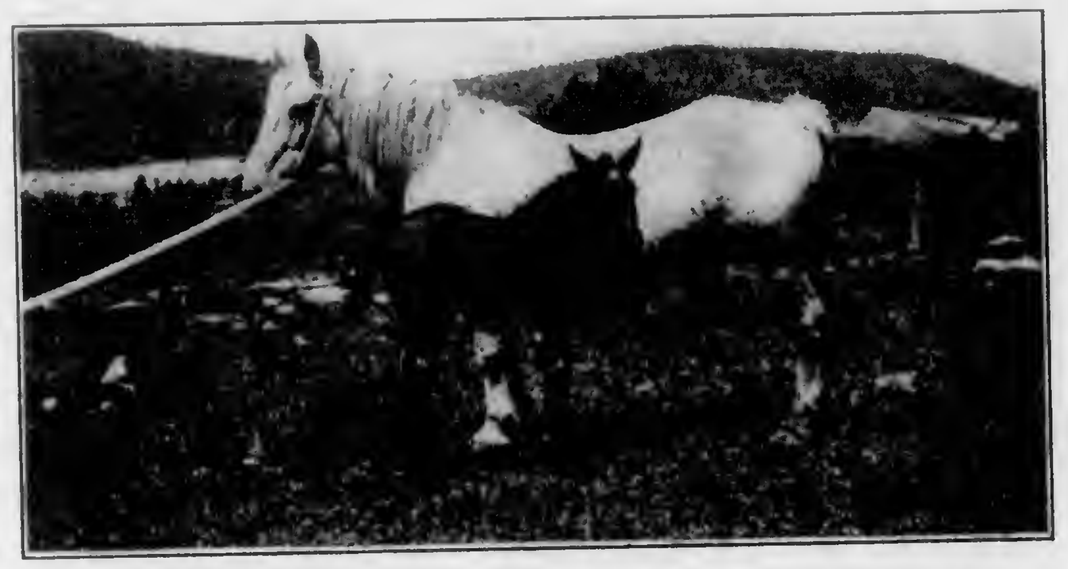

Fig. 1. SHADELAND DULCER, 23 YEARS OLD. COLT 3 DAYS OLD.

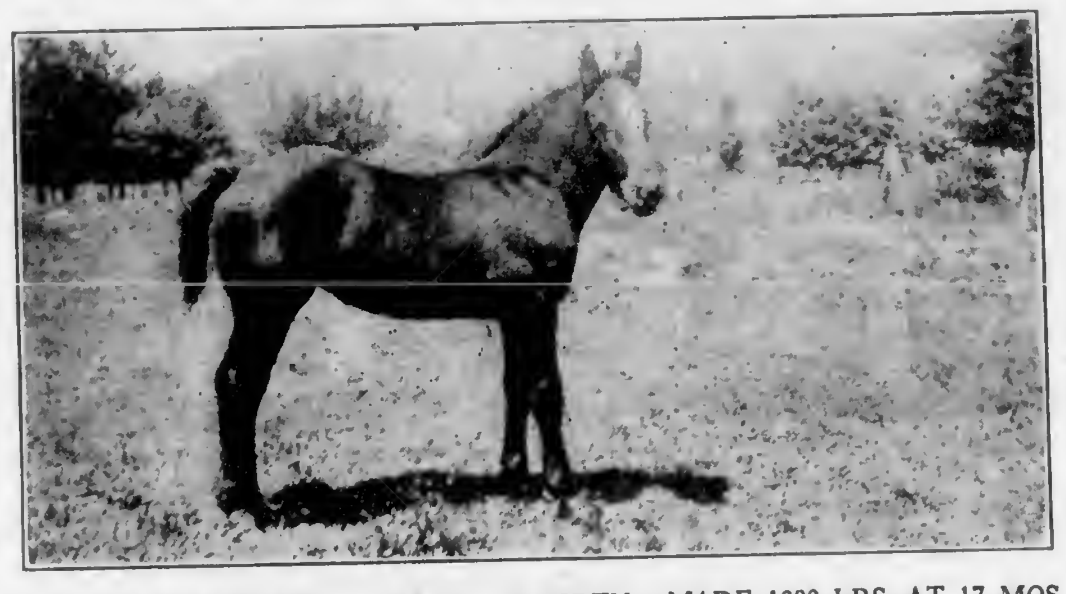

Fig. 2. COLT WEIGHING 139 LBS. AT BIRTH. MADE 1200 LBS. AT 17 MOS.

Now the question arises, is this custom as logical and profitable at present as it was 50 or 60 years ago? Then the farmer of the Middlewest could acquire a farm almost without money and without price. Then, also, the transportation facilities did not favor his market for grain, hay and other like crops, making it almost compulsory for him to produce a product that could walk to market. Many times the grain was not worth the cost of transportation and in sections where timber was scarce, corn was burned as fuel to keep the house warm. It was at that time a perfectly natural result that the improved lands of the East should sell their grains and buy livestock from the more remote sections.

It was of these primative conditions that some of our present-day extravagant practices were born. They were not quite so extravagant 50 years ago; quite the reverse. But now conditions have changed. Land values are quite different. Market facilities are much better and yet the eastern farmer clings to the old custom and, it would seem, without counting the cost. Let us figure for a moment and see if we can afford to pay the farmer of the Middlewest, whose land is selling for more per acre than our own, to raise our horses for us. Can we afford to pay the railroad companies to transport them to us, and we take all the risk of exposure and sickness and death incident to shipping? Can we then afford to walk up and pay at least twice as much money per pound as we receive for any livestock we sell from our eastern farms?

We can seldom buy a sound, young desirable horse at any of the auction sales for less than 20 cents per pound, live weight, and often he will cost more. Good mules will always cost more possibly 25 to 30 cents per pound. Now how much more will a pound of horse flesh cost than one pound of beef or a pound of pork? Doesn't it look as tho the time had arrived for us to grow our own farm teams on our own farms? It is surely true that a well-grown, home-raised, three-year-old horse acclimated and acquainted with all of his home surroundings, is able to do as much work during his fourth year as a five-year-old, western horse, shipped in should do, and he has two more years to his credit and has cost about one-half as much to raise as we must pay to buy one in from the West.

It is often said that breeding is a lottery and that the risk is so great that there is no profit in raising horses. This is too true as breeding is very often practiced. Many of us do not use good common sense in the selection of breeding stock. And we make mistakes later in working the mother and feeding and caring for the colt so as to get the most growth and good quality possible. If we would employ such business methods as does Mr. George Richards, of McKean Co., Pa., success would be assured.

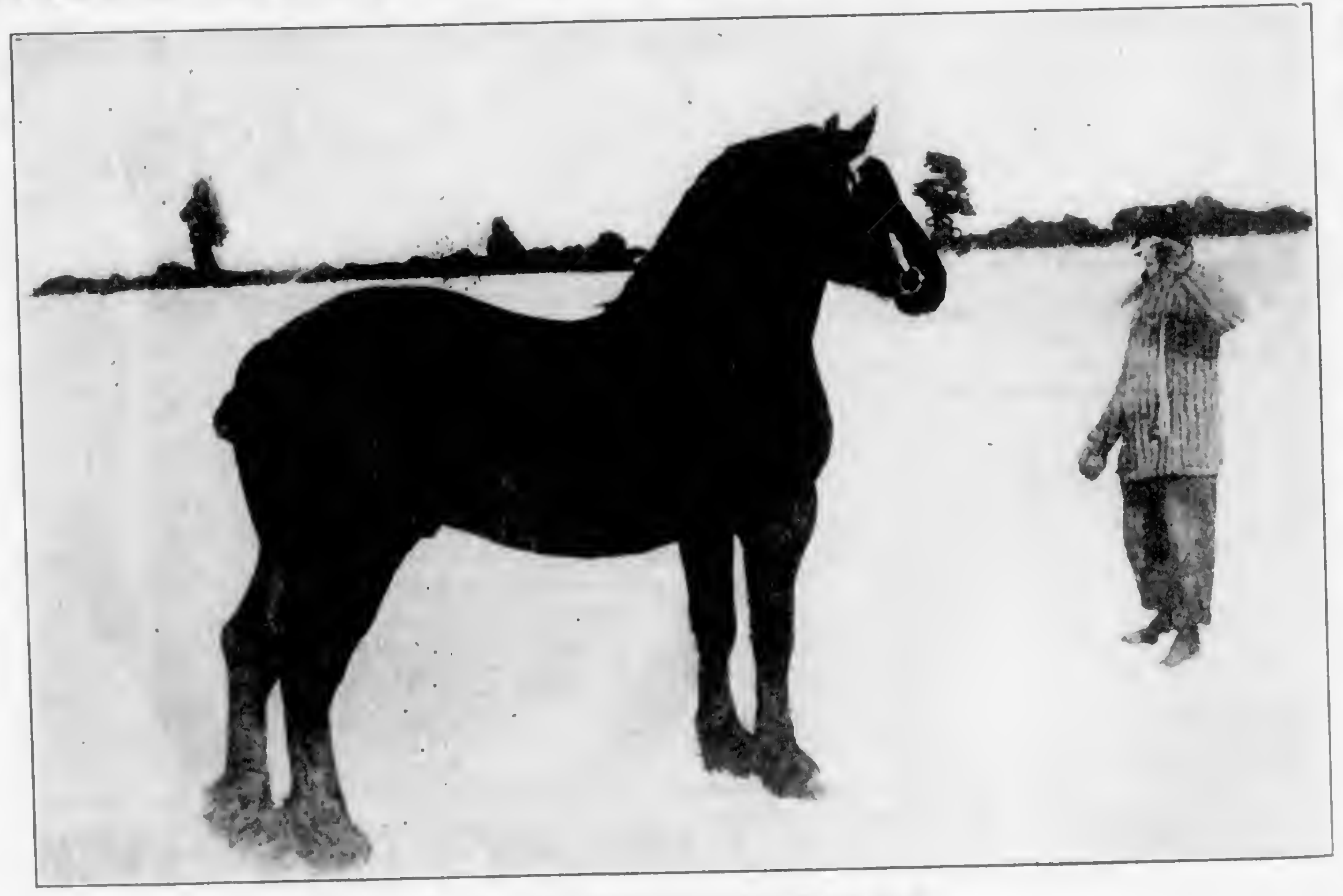

Fig. 3. GOOD TYPE OF FARM TEAM SIRE.

Mr. Richards has a mare, now 24 years old, that has raised a colt every year for the greater part of her life and looks as tho she would continue for years to come. Fig. 1 shows this mare, 23 years old, with a colt by her side. The colt was three days old when photographed, having been born in 1915. This mare does her share of the farm work. I am sure she has more dollars to her credit than any other two or three animals on Mr. Richards' farm; not only because she is a good animal, but because Mr. Richards knows it and knows how to make the best of her. This is what he does: He breeds her to the best stallion he can find. Then when the colt is born, he records its weight at birth and weighs it at regular intervals thereafter, say every 30 days. He knows whether or not the colt is getting the proper growth and increased weight. He knows that the proper time to make growth is in the early months of the colt's life, and he gets it.

Fig. 2 shows the same colt as in Fig. 1. At birth it weighed 139 lbs. At 30 days it weighed 282 lbs; at 60 days, 410 lbs; at 90 days, 515 lbs. and at 120 days, (weaning age), 635 lbs.—one-half the weight of a fair-sized horse. This is the result of good blood, good care and plenty of proper feed for both mother and colt. This colt made an average daily gain of 4 pounds and 1 ounce. There will never be a time in the life of this colt that 496 pounds weight can be acquired so cheaply or be of so much value to his future development as the gain shown here. This colt weighed 1,050 pounds at 12 months of age and can find a ready market at $200. Don't you think that kind of breeding will pay? I do. This and much more good work was done on a stumpy farm in McKean County; not on a high priced Lancaster County farm.

Fig. 3 shows a good type of sire for profitable workers and for the market. His colts will mature early and sell well. Mr. Richards recently sold two colts of the same kind as shown at 28 months old, weighing 2,875 lbs., for $600. They were not a mated pair and were not both sold to the same man.

The horse is not a thing of the past. The proper kind is finding a ready market at good paying prices. The automobile may have knocked out the small, common roadster, but good heavy workers of quality are still in demand. And they are certain to continue in demand. There are certain extensive lines of work that can never be done by motor cars or tractors. There will always be a demand for horses, but quality will be of increasing value as years go by.

CHANGES IN LIVE STOCK SHIPPING RULES

Important changes in the rules governing the shipping of live stock were inaugurated on the railroads East of the Mississippi and North of the Ohio Rivers on January 1st. Just as under the Cummins Act the railroads are compelled to have the passengers declare the value of all baggage checked, so in the case of live stock must the shipper state the value of his stock, and the rates charged will be on a sliding scale according to the valuation given. The valuation governs the limit of liabilities of the railroad.

Under the new regulations the maximum liability assumed by the railroads at the lowest rate is $250 for a horse, $150 for bulls and steers, $100 for a cow, $25 for calves and hogs, and $10 for sheep, lambs and goats. If a higher valuation than these is given, the rate will be increased 5 percent for every 50 percent or less increase in valuation. At various points on its lines, the Pennsylvania Railroad is holding meetings of live stock dealers to acquaint them with the new regulations.

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Household

PREPARING FOR BABY—II

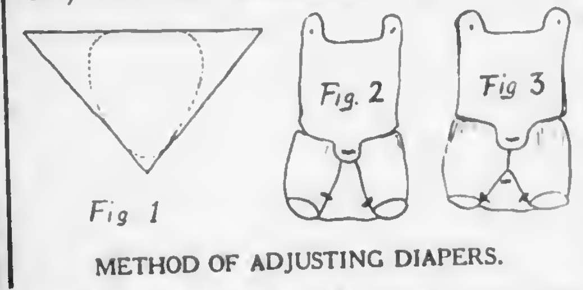
Infant's Outfit

In preparing the baby's clothing four things are important to keep in mind: The garments should be soft, loose, plain and warm. The material should be fine and light so that the tender skin of the babe will not be chafed and irritated. It should be loosely woven so that it will be porous and thus allow ventilation. This does not mean that the material must be expensive. Soft light fabrics may be had at moderate prices.

All the garments shoulds be loose to prevent pressure upon the ribs and other organs. A loosely clad little one is less apt to have colic than one crowded into tight clothes which prevent free circulation of the blood. .

Plain clothes not only are sensible but also fashionable just now. No matter how high-priced the baby's clothing material may be, the garments are made simple and with little trimming.

The first item on the list of necessary thing is woolen bands. There should be at least three knit bands. These may be bought for 45 to 50 cents or they may be knitted by those skilful in such work, or they may be made from soft, thin old underwear. Three is a satisfactory number for many of the essentials of the baby's outfit, tho it helps in keeping the baby clean and sweet without washing every day when more articles are provided. The following list has proven helpful: Three knit bands, 3 shirts, 3 flannel petticoats, 3 night slips, 3 day slips, 3 dresses, 3 pairs of stockings or bootees, 3 sacques or flannelette wrappers, 3-piece toilet set (comb, brush and soap box).



METHOD OF ADJUSTING DIAPERS.

When it comes to diapers there should be as many as the mother can comfortably afford and make—24 is not too many. I would advise the use of single diapers and diaper pads (Fig. 1) instead of double diapers. The diaper pads lighten the washing; they may be made of old soft materials such as old turkish towels, old table linen, old white flannelette or any old soft material that is not smooth—the latter precaution because, with the exception of old linen, smooth materials do not absorb readily. These pads may be burned or they may be washed—it is easier to wash the pads than the large diapers. One can buy diaper pads at the rate of 15 to 45 cents according to quality. Knit diapers cost from 25 to 35 cents each; where economy is not an object it is a good plan to buy them.

A tiny baby needs stockings or bootees. My experience has been that stockings are better because they can be pinned to the diaper and thus protect the legs as well as the feet. Stockings of part wool and cotton are best because they do not shrink in washing. Shirts also are better if at least one-third cotton for the same reason. No matter how carefully you wash all-wool shirts or other garments there is some shrinkage.

As the stockings should be pinned to the diaper I wish to call attention to the manner of pinning on diapers. In taking care of my first baby some one showed me how to pin on diapers so that they would form drawers over the little legs, and thus help to keep the baby warm. This helped so much that I would like to give the same hint to other mothers who may not know about it. No baby can help being fretful if the diaper is all pinned at one place, for the cloth will chafe and irritate the tender skin and hurt, and the little one can not tell about it.

The diaper was folded and brought around the baby's body, not too tight, and held over the flap of the baby's hand; the end of the diaper was brought between the baby's legs to meet this and pinned with one safety pin thru the flap and all. This holds the diaper in place. Then the diaper was brought around the leg at each knee, caught up with the stocking and pinned with a safety pin (Fig. 2). As the baby grew old enough to sit up I pinned the diaper with a safety pin to the flap at the back of the band. When the diapers began to be too small I lengthened them by pinning the diaper around the waist to the flap, and then instead of bringing the end up between the legs to meet this I pinned this end two or three inches lower (Fig. 3) and made the diaper meet around the knees as before. This gave a loose diaper around the buttocks, which is most important as wise mothers know.

Simple outfits for babies may be bought as low as $5 or $10, and one can get a great deal for this money. Where the mother is not able to sew, these outfits are a real boon. Day slips may be had for 25 cents each, already to wear. Flannelette wrappers are shown at 50 cents, knitted sacques at 40 and 50 cents.— Mrs N. D. Hitchock.

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1452.—Girls' Dress.—Cut in 4 sizes: 6, 8, 10 and 12 years. It requires 3 yards of 40-inch material for a 6-year size. Price, 10 cents.

1295.—Girls' Drawers, Petticoat & Under Waist.—Cut in 6 sizes: 2, 4, 6, 8, 10 and 12 years. The drawers require 1½ yards of 36-inch material, the petticoat requires 2 yards, and the under waist 1⅛ yards for a 10 year size. Price, 10 cents.

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LAWRENCE COUNTY BOY CORN GROWERS

At a meeting of Pomona grange officials and members held in the Clendenin building Saturday afternoon, December 18, prizes were awarded Lawrence county boys for the best records in corn raising during the past year. The prizes were offered thru the grange last spring and were awarded by the president J. W. Fulkman of New Wilmington. Each of the contestants had one acre under cultivation and the contestants had their choice of the prizes in the order in which their reports showed up. The winners and prizes they chose were as follows.

Roger E. Schultz, son of E. M. Schultz, Wilmington township, aged 18, 35 36-100 bushels of shelled corn, $10 in gold donated by Wilmington Bank.

George Fulkman, aged 20, son of J. W. Fulkman, of Wilmington township; trip to state college donated by Pomona grange, 30 72-100 bushels.

Donald Donley, aged 17, son of Daniel Donley of Wilmington township, 29 62-100 bshuels. Scholarship donated by Westminster college.

Lawrence Cox, age 19, 27 97-100 bushels; $5 donated by Lawrence Savings and Trust Company and $2.50 donated by Veach Bros.

Wallace Kelly, age 16, son of W. E. Kelly, Mahoning township, 27 9-11 bushels; $5 donated by Cooper and Butler.

Gale McCreary, age 15, son of J. M. McCreary of Mahoning township, $1.50 saw donated by Smith, Hutton & Kirk Company and $3.50 shoes, donated by Herb McGoun.

Freddie Book, age 13, son of A. F. Book of Mahoning township, 20 2-7 bushels, registered pig donated by Audley Boak.

In addition to these prizes each of the contestants received a subscription to the National Stockman, the Pennsylvania Farmer, The News and another paper.

All of the contestants planted on sod ground that has been previously manured and fertilized.

Shultz whose crop was raised on the J. B. Johnston farm, used about 325 pounds of fertilizer in all at different periods of growth. First when the seed was planted, again when it was about knee high and the third time when it was in tassel. The corn was worked three times and hoed.

Fulkman used about 100 pounds of fertilizer, worked the corn three times and hoed it.

Donley used 200 pounds of fertilizer, worked the corn four times and hoed it.

Cox used 250 pounds of fertilizer, worked the corn four times and hoed it.

Kelly used 800 pounds of fertilizer, cultivated twice and hoed.

McCreary used 250 pounds of fertilizer, worked the corn four times and hoed.

Book used 250 pounds of fertilizer, worked the corn three times and hoed.

As will be seen by the figures a majority of the boys used about 250 pounds. The fertilizer cost about $1.50 per hundred or $3.75. The shelled corn is worth about 80 cents per bushel. The crop of Shultz would therefore be worth about $28.27 or $56.54 per acre.

Following the award of prizes the boys went to the Smith, Hutton and Kirk store and had their pictures taken by George W. Dawson, International Press photographer.

The work done by the boys illustrates the value of intensive farming.

It was decided to hold another contest next year which will be open to all boys of the county. A corn contest committee was organized as follows:

J. A. Boak, Princeton, chairman; H. L. McCurley, Enon Valley, secretary; G. L. Reno, Wampum, treasurer.

The contest will be open to all boys under 21 years of age and a nice schedule of prizes will be awarded. The prizes will be announced later.

HARFORD CO., MD. POMONA

The second meeting of the Harford Co., Md. Pomona grange was held at Forest Hill, Md., Saturday, January 8, 1916, with a large attendance. The meeting was called to order 10.30 A. M. and after the minutes of the last meeting were read and approved the reports of the different committees were made. The Legislative Committee offered several resolutions which after some discussion were adopted and ordered sent to the Legislative Committee, appointed by the Maryland State Grange, with a request that they use their influence in having the present Legislature now in sessions, pass the necessary bills.

It was stated during the discussion that Harford County paid about $30,000 per year in automobile licenses, only one-half that amount was received back for road improvement, that other parts of the state were receiving more than they were paying; that each County Clerk should issue the license and the Commissioner receive the money for road improvement; that Harford County was one of the very few counties in the state that permitted race track gambling and that it should be abolished; that furniture exemption law reduced the taxable basis of Harford County over one million dollars, that several salaried men paid no taxes except on furniture and as they were in this way exempt, the revenue was raised by a high rate on our real estate property; that our Agricultural College was not receiving the amount due them in proportion to the other Colleges of the state.

Lunch was served in the Hall by the Forest Hill Grange and was much enjoyed by all. During the afternoon session, State Master John B. Black gave an interesting address telling of the meeting of the State Grange and of the National Grange and of the work of the different Granges during the past year. He also urged all to go to the National Grange meeting which meets in Washington next year. State Organizer Anthony also gave an interesting talk on work of the grange.—H.

SMOOTH ROADS

In the development and improvement of our public roads unexpected difficulties are constantly met and will have to be overcome. Our neighbors across the line in Maryland have built the best roads for the money expended I have ever found anywhere and they tell us the reason is when they legislate and appropriate money for the purpose they spend it on the roads, while in Pennsylvania the officials get it. It certainly looked that way during the Tener-Biglow administration. But the Maryland people during the summer and fall, on account of the dust, tried to further improve their roads by the use of crude oil and other greasy preparations and the result is not now satisfactory. I copy the following extract from a local paper:

"Three horses killed as a result of falls on a comparatively short stretch of road is the toll which has been exacted within the past several days in Frederick county. These accidents are due, it is said, to the frozen and slippery condition of the surface of the roads which have become very smooth from oil."

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A McKean County Example

By Dr. M. E. Conard, Chester Co., Pa.

How apt we are to follow the fads and customs of our fathers that were instilled into us in our formative years. Sometimes it is well to do so, but first we should be sure that the old customs have not been superceded by better ones; by those better adapted to present day conditions to which we must conform if we are to succeed.

I know of no branch of animal husbandry that has undergone so much change in the past two or three generations as has horse raising. The cheap pastures of the Middlewest fifty years ago attracted many of the naturally inclined stock raisers from the East. There they could raise stock much more cheaply than could be done on the improved lands of the Atlantic border states. It was a logical place for the eastern man to buy his teams, and the East offered a good market to the western pioneer, as he was called in those days. This dependence upon the West became a custom into which we of the 20th century were born, and we are still following it for some reason; I do not know just what the reason is.

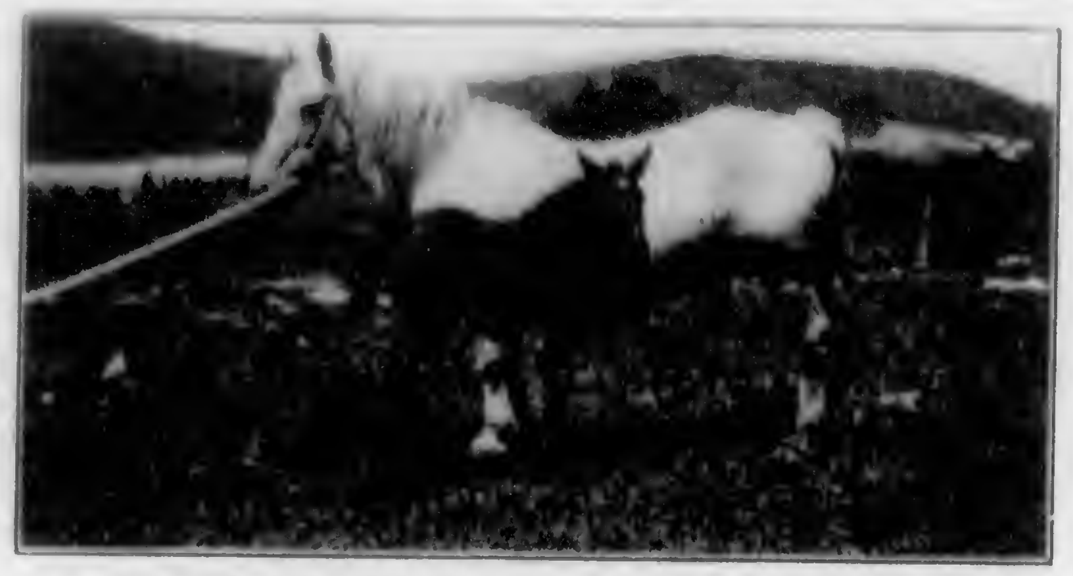

Fig. 1. SHADELAND DULCER, 23 YEARS OLD. COLT 3 DAYS OLD.

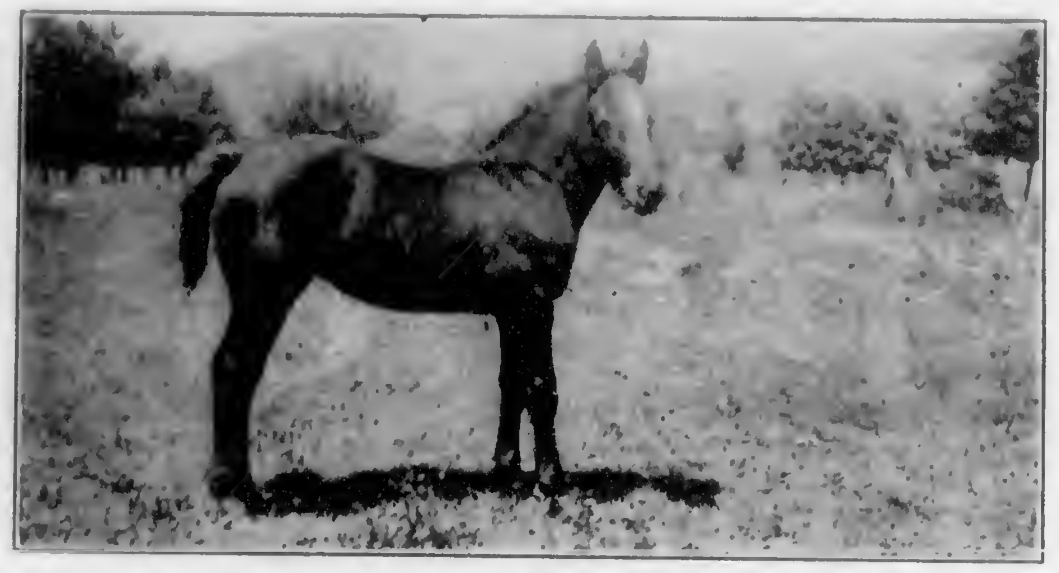

Fig. 2. COLT WEIGHING 139 LBS. AT BIRTH. MADE 1200 LBS. AT 17 MOS.

Now the question arises, is this custom as logical and profitable at present as it was 50 or 60 years ago? Then the farmer of the Middlewest could acquire a farm almost without money and without price. Then, also, the transportation facilities did not favor his market for grain, hay and other like crops, making it almost compulsory for him to produce a product that could walk to market. Many times the grain was not worth the cost of transportation and in sections where timber was scarce, corn was burned as fuel to keep the house warm. It was at that time a perfectly natural result that the improved lands of the East should sell their grains and buy livestock from the more remote sections.

It was of these primative conditions that some of our present-day extravagant practices were born. They were not quite so extravagant 50 years ago; quite the reverse. But now conditions have changed. Land values are quite different. Market facilities are much better and yet the eastern farmer clings to the old custom and, it would seem, without counting the cost. Let us figure for a moment and see if we can afford to pay the farmer of the Middlewest, whose land is selling for more per acre than our own, to raise our horses for us. Can we afford to pay the railroad companies to transport them to us, and we take all the risk of exposure and sickness and death incident to shipping? Can we then afford to walk up and pay at least twice as much money per pound as we receive for any livestock we sell from our eastern farms?

We can seldom buy a sound, young desirable horse at any of the auction sales for less than 20 cents per pound, live weight, and often he will cost more. Good mules will always cost more possibly 25 to 30 cents per pound. Now how much more will a pound of horse flesh cost than one pound of beef or a pound of pork? Doesn't it look as tho the time had arrived for us to grow our own farm teams on our own farms? It is surely true that a well-grown, home-raised, three-year-old horse acclimated and acquainted with all of his home surroundings, is able to do as much work during his fourth year as a five-year-old, western horse, shipped in should do, and he has two more years to his credit and has cost about one-half as much to raise as we must pay to buy one in from the West.

It is often said that breeding is a lottery and that the risk is so great that there is no profit in raising horses. This is too true as breeding is very often practiced. Many of us do not use good common sense in the selection of breeding stock. And we make mistakes later in working the mother and feeding and caring for the colt so as to get the most growth and good quality possible. If we would employ such business methods as does Mr. George Richards, of McKean Co., Pa., success would be assured.

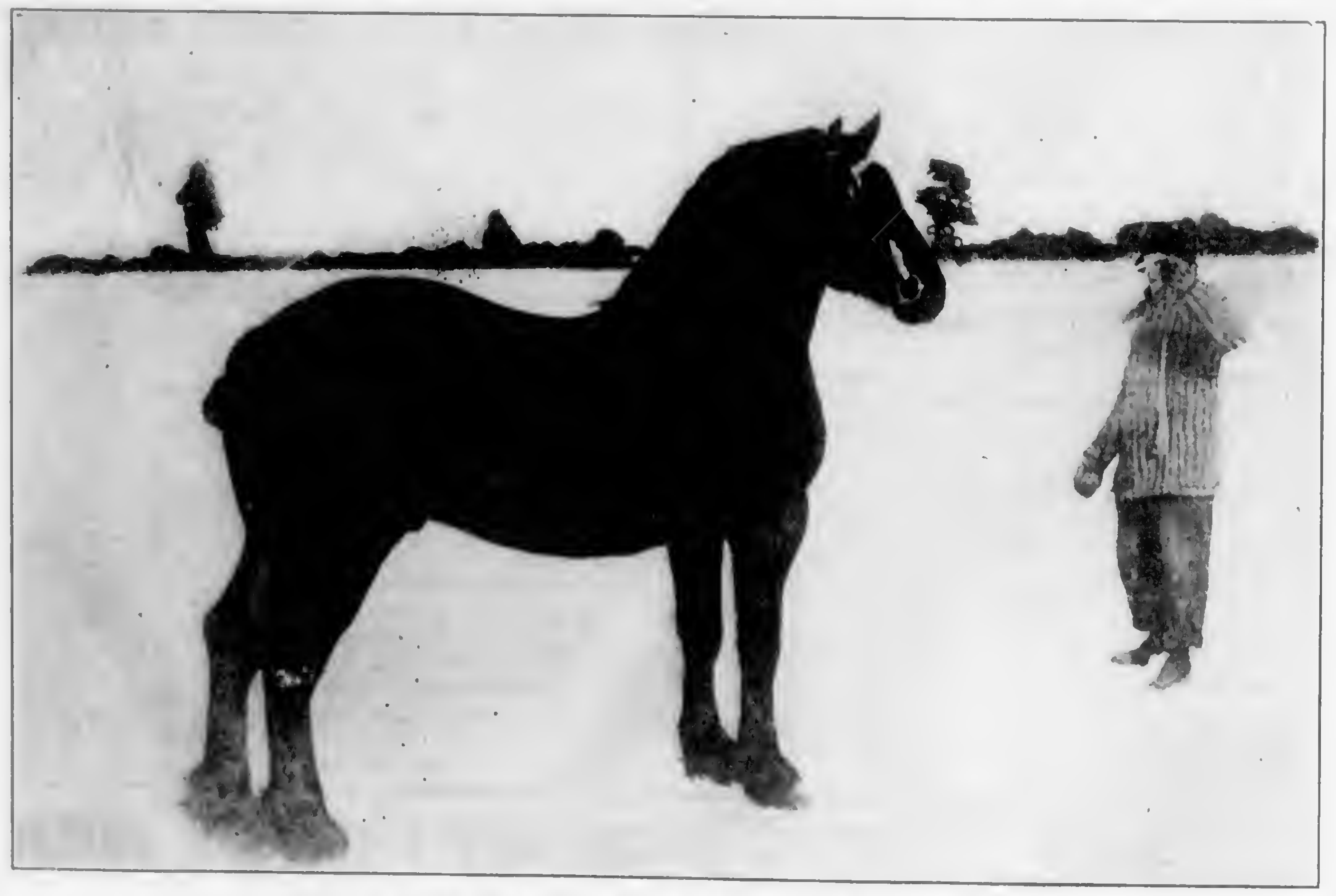

Fig. 3. GOOD TYPE OF FARM TEAM SIRE.

Mr. Richards has a mare, now 24 years old, that has raised a colt every year for the greater part of her life, and looks as tho she would continue for years to come. Fig. 1 shows this mare, 23 years old, with a colt by her side. The colt was three days old when photographed, having been born in 1915. This mare does her share of the farm work. I am sure she has more dollars to her credit than any other two or three animals on Mr. Richards' farm; not only because she is a good animal, but because Mr. Richards knows it and knows how to make the best of her. This is what he does: He breeds her to the best stallion he can find. Then when the colt is born, he records its weight at birth and weighs it at regular intervals thereafter, say every 30 days. He knows whether or not the colt is getting the proper growth and increased weight. He knows that the proper time to make growth is in the early months of the colt's life, and he gets it.

Fig. 2 shows the same colt as in Fig. 1. At birth it weighed 139 lbs. At 30 days it weighed 282 lbs; at 60 days, 410 lbs; at 90 days, 515 lbs. and at 120 days, (weaning age), 635 lbs.—one-half the weight of a fair-sized horse. This is the result of good blood, good care and plenty of proper feed for both mother and colt. This colt made an average daily gain of 4 pounds and 1 ounce. There will never be a time in the life of this colt that 496 pounds weight can be acquired so cheaply or be of so much value to his future development as the gain shown here. This colt weighed 1,050 pounds at 12 months of age and can find a ready market at $200. Don't you think that kind of breeding will pay? I do. This and much more good work was done on a stumpy farm in McKean County; not on a high priced Lancaster County farm.

Fig. 3 shows a good type of sire for profitable workers and for the market. His colts will mature early and sell well. Mr. Richards recently sold two colts of the same kind as shown at 28 months old, weighing 2,875 lbs., for $600. They were not a mated pair and were not both sold to the same man.

The horse is not a thing of the past. The proper kind is finding a ready market at good paying prices. The automobile may have knocked out the small, common roadster, but good heavy workers of quality are still in demand. And they are certain to continue in demand. There are certain extensive lines of work that can never be done by motor cars or tractors. There will always be a demand for horses, but quality will be of increasing value as years go by.

CHANGES IN LIVE STOCK SHIPPING RULES

Important changes in the rules governing the shipping of live stock were inaugurated on the railroads East of the Mississippi and North of the Ohio Rivers on January 1st. Just as under the Cummins Act the railroads are compelled to have the passengers declare the value of all baggage checked, so in the case of live stock must the shipper state the value of his stock, and the rates charged will be on a sliding scale according to the valuation given. The valuation governs the limit of liabilities of the railroad.

Under the new regulations the maximum liability assumed by the railroads at the lowest rate is $250 for a horse, $150 for bulls and steers, $100 for a cow, $25 for calves and hogs, and $10 for sheep, lambs and goats. If a higher valuation than these is given, the rate will be increased 5 percent for every 50 percent or less increase in valuation. At various points on its lines, the Pennsylvania Railroad is holding meetings of live stock dealers to acquaint them with the new regulations.

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Household

PREPARING FOR BABY—II

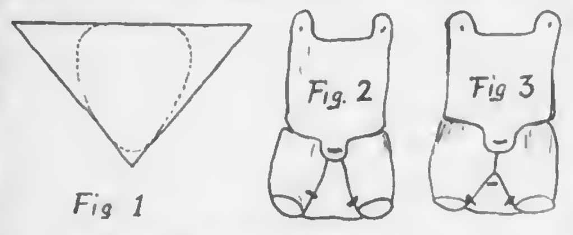
Infant's Outfit

In preparing the baby's clothing four things are important to keep in mind: The garments should be soft, loose, plain and warm. The material should be fine and light so that the tender skin of the babe will not be chafed and irritated. It should be loosely woven so that it will be porous and thus allow ventilation. This does not mean that the material must be expensive. Soft light fabrics may be had at moderate prices.

All the garments shoulds be loose to prevent pressure upon the ribs and other organs. A loosely clad little one is less apt to have colic than one crowded into tight clothes which prevent free circulation of the blood.

Plain clothes not only are sensible but also fashionable just now. No matter how high-priced the baby's clothing material may be, the garments are made simple and with little trimming.

The first item on the list of necessary thing is woolen bands. There should be at least three knit bands. These may be bought for 45 to 50 cents or they may be knitted by those skilful in such work, or they may be made from soft, thin old underwear. Three is a satisfactory number for many of the essentials of the baby's outfit, tho it helps in keeping the baby clean and sweet without washing every day when more articles are provided. The following list has proven helpful: Three knit bands, 3 shirts, 3 flannel petticoats, 3 night slips, 3 day slips, 3 dresses, 3 pairs of stockings or bootees, 3 sacques or flannelette wrappers, 3-piece toilet set (comb, brush and soap box).



METHOD OF ADJUSTING DIAPERS.

When it comes to diapers there should be as many as the mother can comfortably afford and make—24 is not too many. I would advise the use of single diapers and diaper pads (Fig. 1) instead of double diapers. The diaper pads lighten the washing; they may be made of old soft materials such as old turkish towels, old table linen, old white flannelette or any old soft material that is not smooth—the latter precaution because, with the exception of old linen, smooth materials do not absorb readily. These pads may be burned or they may be washed—it is easier to wash the pads than the large diapers. One can buy diaper pads at the rate of 15 to 45 cents according to quality. Knit diapers cost from 25 to 35 cents each; where economy is not an object it is a good plan to buy them.

A tiny baby needs stockings or bootees. My experience has been that stockings are better because they can be pinned to the diaper and thus protect the legs as well as the feet. Stockings of part wool and cotton are best because they do not shrink in washing. Shirts also are better if at least one-third cotton for the same reason. No matter how carefully you wash all-wool shirts or other garments there is some shrinkage.

As the stockings should be pinned to the diaper I wish to call attention to the manner of pinning on diapers. In taking care of my first baby some one showed me how to pin on diapers so that they would form drawers over the little legs, and thus help to keep the baby warm. This helped so much that I would like to give the same hint to other mothers who may not know about it. No baby can help being fretful if the diaper is all pinned at one place, for the cloth will chafe and irritate the tender skin and hurt, and the little one can not tell about it.

The diaper was folded and brought around the baby's body, not too tight, and held over the flap of the baby's hand; the end of the diaper was brought between the baby's legs to meet this and pinned with one safety pin thru the flap and all. This holds the diaper in place. Then the diaper was brought around the leg at each knee, caught up with the stocking and pinned with a safety pin (Fig. 2). As the baby grew old enough to sit up I pinned the diaper with a safety pin to the flap at the back of the band. When the diapers began to be too small I lengthened them by pinning the diaper around the waist to the flap, and then instead of bringing the end up between the legs to meet this I pinned this end two or three inches lower (Fig. 3) and made the diaper meet around the knees as before. This gave a loose diaper around the buttocks, which is most important as wise mothers know.

Simple outfits for babies may be bought as low as $5 or $10, and one can get a great deal for this money. Where the mother is not able to sew, these outfits are a real boon. Day slips may be had for 25 cents each, already to wear. Flannelette wrappers are shown at 50 cents, knitted sacques at 40 and 50 cents.— Mrs N. D. Hitchcock.

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Be sure to give the figures and letters of each pattern exactly as printed at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-63 So. Third Street, Philadelphia, Pa.

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1452.—Girls' Dress.—Cut in 4 sizes: 6, 8, 10 and 12 years. It requires 3 yards of 40-inch material for a 6-year size. Price, 10 cents.

1295.—Girls' Drawers, Petticoat & Under Waist.—Cut in 6 sizes: 2, 4, 6, 8, 10 and 12 years. The drawers require 1½ yards of 36-inch material, the petticoat requires 2 yards, and the underwaist 1⅛ yards for a 10 year size. Price, 10 cents.

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LAWRENCE COUNTY BOY CORN GROWERS

At a meeting of Pomona grange officials and members held in the Clendenin building Saturday afternoon, December 18, prizes were awarded Lawrence county boys for the best records in corn raising during the past year. The prizes were offered thru the grange last spring and were awarded by the president J. W. Fulkman of New Wilmington. Each of the contestants had one acre under cultivation and the contestants had their choice of the prizes in the order in which their reports showed up. The winners and prizes they chose were as follows.

Roger E. Schultz, son of E. M. Schultz, Wilmington township, aged 18, 35 36-100 bushels of shelled corn, $10 in gold donated by Wilmington Bank.

George Fulkman, aged 20, son of J. W. Fulkman, of Wilmington township; trip to state college donated by Pomona grange, 30 72-100 bushels.

Donald Donley, aged 17, son of Daniel Donley of Wilmington township, 29 62-100 bshuels. Scholarship donated by Westminster college.

Lawrence Cox, age 19, 27 97-100 bushels; $5 donated by Lawrence Savings and Trust Company and $2.50 donated by Veach Bros.

Wallace Kelly, age 16, son of W. E. Kelly, Mahoning township, 27 9-11 bushels; $5 donated by Cooper and Butler.

Gale McCreary, age 15, son of J. M. McCreary of Mahoning township, $1.50 saw donated by Smith, Hutton & Kirk Company and $3.50 shoes, donated by Herb McGoun.

Freddie Book, age 13, son of A. F. Book of Mahoning township, 20 2-7 bushels, registered pig donated by Audley Boak.

In addition to those prizes each of the contestants received a subscription to the National Stockman, the Pennsylvania Farmer, The News and another paper.

All of the contestants planted on sod ground that has been previously manured and fertilized.

Shultz whose crop was raised on the J. B. Johnston farm, used about 325 pounds of fertilizer in all at different periods of growth. First when the seed was planted, again when it was about knee high and the third time when it was in tassel. The corn was worked three times and hoed.

Fulkman used about 100 pounds of fertilizer, worked the corn three times and hoed it.

Donley used 200 pounds of fertilizer, worked the corn four times and hoed it.

Cox used 250 pounds of fertilizer, worked the corn four times and hoed it.

Kelly used 800 pounds of fertilizer, cultivated twice and hoed.

McCreary used 250 pounds of fertilizer, worked the corn four times and hoed.

Book used 250 pounds of fertilizer, worked the corn three times and hoed.

As will be seen by the figures a majority of the boys used about 250 pounds. The fertilizer cost about $1.50 per hundred or $3.75. The shelled corn is worth about 80 cents per bushel. The crop of Shultz would therefore be worth about $28.27 or $56.54 per acre.

Following the award of prizes the boys went to the Smith, Hutton and Kirk store and had their pictures taken by George W. Dawson, International Press photographer.

The work done by the boys illustrates the value of intensive farming.

It was decided to hold another contest next year which will be open to all boys of the county. A corn contest committee was organized as follows: J. A. Boak, Princeton, chairman; H. L. McCurley, Enon Valley, secretary; G. L. Reno, Wampum, treasurer.

The contest will be open to all boys under 21 years of age and a nice schedule of prizes will be awarded. The prizes will be announced later.

HARFORD CO., MD. POMONA

The second meeting of the Harford Co., Md. Pomona grange was held at Forest Hill, Md., Saturday, January 8, 1916, with a large attendance. The meeting was called to order 10.30 A. M. and after the minutes of the last meeting were read and approved the reports of the different committees were made. The Legislative Committee offered several resolutions which after some discussion were adopted and ordered sent to the Legislative Committee, appointed by the Maryland State Grange, with a request that they use their influence in having the present Legislature now in sessions, pass the necessary bills.

It was stated during the discussion that Harford County paid about $30,000 per year in automobile licenses, only one-half that amount was received back for road improvement, that other parts of the state were receiving more than they were paying; that each County Clerk should issue the license and the Commissioner receive the money for road improvement; that Harford County was one of the very few counties in the state that permitted race track gambling and that it should be abolished; that furniture exemption law reduced the taxable basis of Harford County over one million dollars, that several salaried men paid no taxes except on furniture and as they were in this way exempt, the revenue was raised by a high rate on our real estate property; that our Agricultural College was not receiving the amount due them in proportion to the other Colleges of the state.

Lunch was served in the Hall by the Forest Hill Grange and was much enjoyed by all. During the afternoon session, State Master John B. Black gave an interesting address telling of the meeting of the State Grange and of the National Grange and of the work of the different Granges during the past year. He also urged all to go to the National Grange meeting which meets in Washington next year. State Organizer Anthony also gave an interesting talk on work of the grange.—H.

SMOOTH ROADS

In the development and improvement of our public roads unexpected difficulties are constantly met and will have to be overcome. Our neighbors across the line in Maryland have built the best roads for the money expended I have ever found anywhere and they tell us the reason is when they legislate and appropriate money for the purpose they spend it on the roads, while in Pennsylvania the officials get it. It certainly looked that way during the Tener-Biglow administration. But the Maryland people during the summer and fall, on account of the dust, tried to further improve their roads by the use of crude oil and other greasy preparations and the result is not now satisfactory. I copy the following extract from a local paper:

"Three horses killed as a result of falls on a comparatively short stretch of road is the toll which has been exacted within the past several days in Frederick county. These accidents are due, it is said, to the frozen and slippery condition of the surface of the roads which have become very smooth from oil."

Farmers of this section claim that so far as the state roads benefitting them

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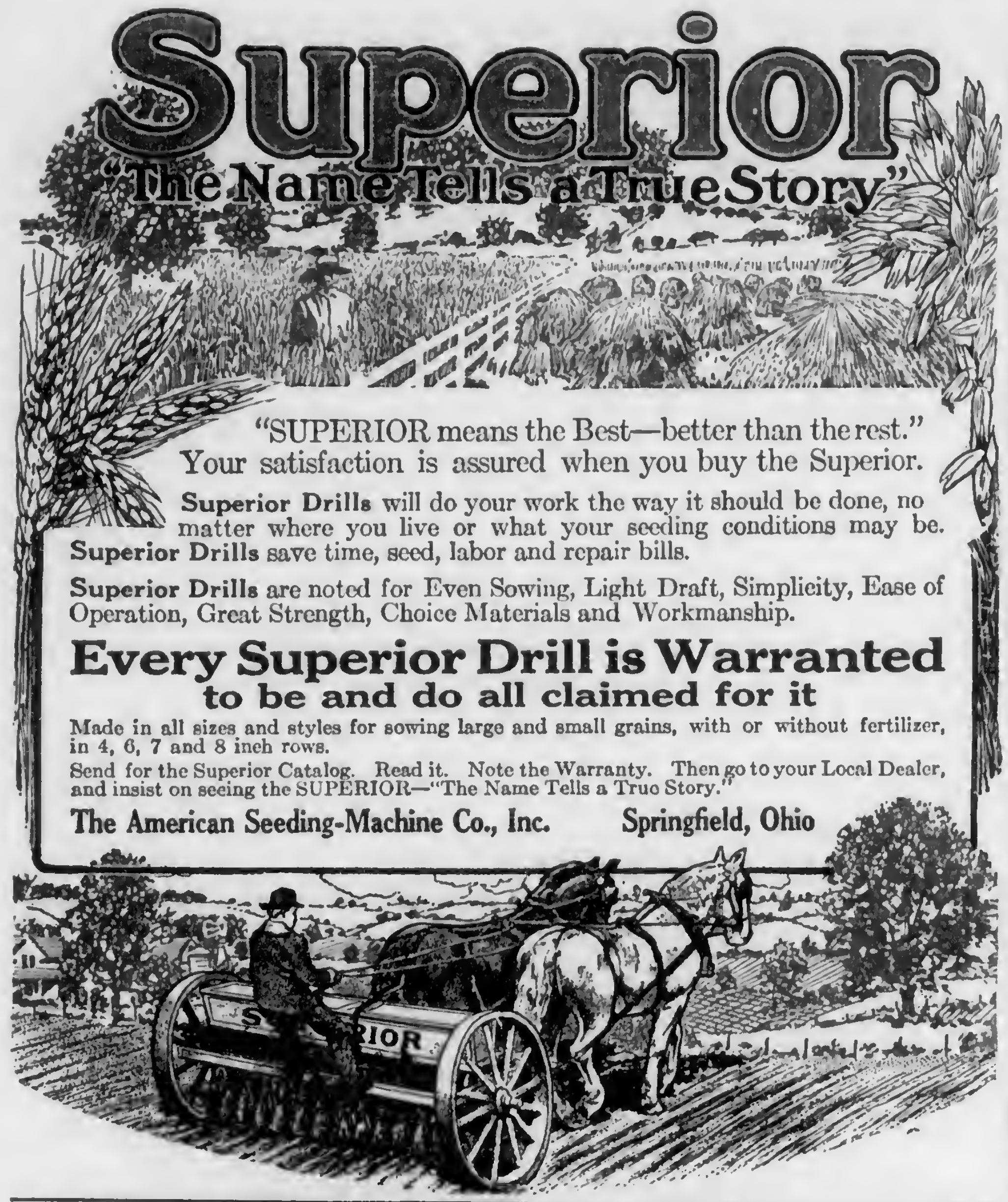

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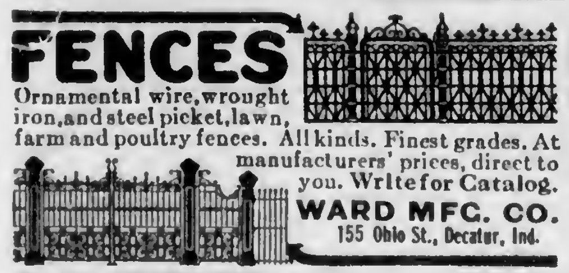

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is concerned they are a farce and a flat failure. They can haul less produce now than ever before. This condition prevails especially in cold weather when the surface of the road is frozen.

I am persuaded that in the solution of this road question, the old turnpike has not received the consideration it deserves. Its first and perhaps greatest value is that it is a just system. He who uses, pays—as he ought. Then, the cost of keeping in repair is less than any of the state roads which have been built. The possibility of graft in the construction of them is reduced to a minimum. The single objection is the bother of toll-gates, but had we not better put up with that until we find a better system?—D. P. F., York Co., Pa.

(Note.—What do our readers think of toll-roads as a system?—Editors.)

Marketing Department

PRICES IN PENNSYLVANIA

Price variations in many counties for the crops of the Pennsylvania farms make an interesting study. According to statistics prepared by the Department of Agriculture from the December reports of the 800 correspondents, the quality and quantity of the crops, accessibility of ample markets and the general demand of the community play a big part in the prices the farmer is able to obtain for the products of the farm. During the recent holiday season when the demand for turkeys was greatest they sold in many places for as high as 45 cents a pound dressed, but the highest average obtained in any one county was in Lancaster where the price was 32 cents a pound. In Clearfield, Dauphin, Northampton and Schuylkill counties the average price was 31 cents while in Berks, Cumberland, Erie, Montgomery and Westmoreland 30 cents was secured. The low prices were established in Adams, Potter and Venango counties at 22 cents and in Fulton and Greene at 23 cents.

For live turkeys Schuylkill county carried off the high average price at 27 cents with Northampton next at 25 cents and Berks, Lancaster, Lehigh, Luzerne, Montgomery and Northumberland in line at 24 cents. The low price prevailed in Potter county at 16 cents and in Fulton, Green and Venango at 17 cents.

The prices of potatoes during December show a wide variance from $1.10 a bushel in Cameron county to 63 cents in Adams and Fulton counties. The high price averages were Cameron, $1.10; Tioga, $1.00; McKean, 96 cents; Allegheny, Beaver, Sullivan and Susquehanna 94 cents, and Wayne and Pike, 93 cents. In addition to Adams and Fulton counties low prices ranged in Perry, Somerset and Lancaster at 64 cents, Juniata 65 cents, Berks 67 cents and Bedford 68 cents.

Wyoming county established the highest price average for oats at 55 cents a bushel with Carbon and Clearfield receiving 54 cents, Lackawanna 53 cents and Wayne, Schuylkill and Cameron 52 cents. Snyder county oats was sold at an average price of 35 cents a bushel, Centre at 36 and Cumberland county at 37 cents.

Rye in Forest and Cameron counties brought an average of 98 cents a bushel while in Elk and Crawford 96 cents was the price. In Chester, Delaware and Lehigh 95 cents was obtained and in Philadelphia 94 cents. Snyder county was low at 70 cents, Perry 72, and Lebanon, Green, Dauphin and Centre 75 cents.

Shelled corn came high in Elk county where an average price per bushel of 92 cents was obtained. In Monroe it was 86 cents, Clearfield, Philadelphia, Schuylkill and Wayne 85 cents and Allegheny, Jefferson and Sullivan 84 cents. The low price counties were Mifflin 60 cents, Northampton 63, Montour 65 and Lebanon 67 cents.

Montgomery and Carbon county wheat brought the top notch price at $1.14 a bushel while Cambria, Bradford, and Warren averaged $1.12 and Elk, Lycoming, Wyoming and Cameron $1.10. Butler county had the low average at 97 cents with Green wheat at 99 cents. Jefferson, Northumberland, Somerset and Washington were the dollar wheat counties.

Buckwheat in Susquehanna county averaged 96 cents for a bushel and in Cameron 95 cents. Northampton county averaged 63 cents and Fulton 65 cents.

There was a big difference in the price of hay, ranging from $20 a ton in Luzern county to $11.40 a ton in Crawford county. Some of the high prices were obtained in Carbon, $19.30; Philadelphia, $19; Schuylkill, $18.80; Cambria, $18.75; Delaware, $18.60; Lancaster and Clearfield, $18.50. Low priced hay was found in Tioga at $12; Fulton, $12.80; Potter, $12.85; Erie, $12.90; Mercer, $13.30, and Butler, $13.50.

Twenty-two cents a pound was the average price for dressed chickens in Beaver, Lawrence, Philadelphia, Washington and Westmoreland counties altho Allegheny topped this average with 23 cents a pound. In Adams, Bradford Fulton, Juniata, Potter and Venango 15 cents was the average. Live chickens brought 17 cents a pound in Philadelphia and 16 cents a pound in many other counties. Against this was the average price of 11 cents a pound in Adams, Bedford, Bradford, Clarion, Crawford, Fulton, Jefferson, Juniata, Potter and Venango counties. — Pa. Agricultural Department News.

NEW YORK FRUIT GROWERS HOLD BIG CONVENTION

(Concluded from page 7.)

fective in proportion as it is supported by public sentiment, it becomes the duty of those who desire that no backward step be taken to take active part in the right direction.

New Fruits

Mr. G. H. Howe, of the experiment station reported as chairman of the New Fruits Committee: It is often argued that new sorts of fruits are unprofitable from a basis of dollars and cents; but several new varieties introduced within the last few years may be classed as money makers. More stress can well be laid upon the advisability of improving the list of varieties now grown. Consumers' tastes and requirements differ and there are millions of consumers to please. A greater variety of fruits would increase the total sales and add materially to the enjoyment of the individual consumer. The following varieties are specially worthy of consideration in their respective classes.

The Perfect apple is of the Baldwin type, but a month later and continuing four to six weeks longer. Size is about the same but color not quite so bright for Perfect which is less yellow and soft in flesh. Flavor and juiciness are very similar. Trees resemble each other altho Perfect is the darker. So far tests indicate that Perfect will be as vigorous as Baldwin. It originated in Maine.

The Rochester peach belongs with the Crawford group and is valuable for its earliness. In several respects it is a distinct improvement over early Crawford. The fruit is large, symmetrical, yellow, beautifully mottled with red. The yellow flesh is sufficiently thick and firm to make it rank with the best of the Crawford group. Altho classed as a freestone, there is a slight tendency to cling under some conditions. The trees seem to be up to the average in productiveness. Ripening continues over a very long season, an advantage for some cordditions; a disadvantage for others. Because of its earliness, good quality and handsome appearance, Rochester is recommended for due consideration. It originated near Rochester, New York, in about 1900.

The Reine Hortense cherry is one of the choicest of the Duke group of cherries. This group, including hybreds between the sweet and the sour cherry species, are not grown at all for commercial purposes. Indeed, they have almost disappeared except in old gardens, yet they are among the most pleasing and refreshing of all dessert fruits. This variety deserves special attention for home orchard planting. The trees are of moderate size, the fruit large and handsome, with a bright glossy, red color, the quality exceedingly rich and refreshing. Altho the fruit hangs on the trees a long time it is too soft for safe shipping. The variety originated in France many years ago. Formerly it was extensively grown because of its high quality, a factor which should again make it popular.

The Empire State grape is a green variety less known than Niagara which had extensive advertising to introduce it. Empire State is an old variety fully as productive and hardy as Niagara and no more subject to insect or disease attacks. In quality it surpasses Niagara, having the delicate muskiness of the European varieties so pleasing to the palate. It ripens later and keeps longer than Niagara, but is not as attractive in either berry or bunch. There is plenty of room for other green kinds, so a variety of the type of Empire State should receive a welcome in gardens and vineyards. Its distinctiveness of flavor adds briskness to our dessert grapes. The variety first fruited in 1879 with James H. Ricketts, the originator, at Newburg, N. Y. Many nurserymen now carry it.

The Herbert raspberry has been known for a quarter of a century but has never attained the popularity it deserves. At the Geneva station it has proved one of the hardiest and best berries of its class. Few nurserymen list it and many growers have never tried it. It is more vigorous and hardy than the Cuthbert and its productiveness is almost unparalleled. The berries are much like Cuthbert, but larger, rounder and more sprightly. Unfortunately the fruits are a little softer than those of Cuthbert, and do not retain their shape quite as well as some other varieties. The season approaches that of Cuthbert, but often continues a little longer. The variety qualifies commercially in so many characters it should be cultivated more extensively. It originated at Ottawa, Canada, about 1891.

Report of Nomenclature Committee

Mr. O. M. Taylor, of the state experiment station, as chairman of the nomenclature committee said: One of the important lines of work conducted by the Horticultural Department of the New York state experiment station is the testing of new varieties of fruit. In this work effort is made to secure the new fruits directly from the originators or introducers, with a statement of parentage and a brief description of both plant and fruit, giving the most important characters which may be of value in identifying the variety. The object of this is to gather first-hand information of permanent value. During 1915 the following numbers of fruit varieties were grown at the station:

Tree fruits.—421 varieties of apples; 377 of peaches; 322 of plums; 187 of pears; 109 of cherries; 48 of apricots; 34 of nectarines and 18 of quinces. Grapes and small fruits—411 varieties of grapes; 83 of gooseberries; 61 of raspberries; 44 of strawberries; 42 of blackberries; 35 of currants and 9 of dewberries. Total, 2201.

Report of Secretary-Treasurer

In his report as treasurer, E. C. Gillett showed the society to have handled almost $6,950 during the year, including $1,985 for memberships; $1,420 from rent of space at the annual meetings; $275 from sale of tickets at a banquet in Poughkeepsie, where the eastern meeting is held; a profit of nearly $318 on orders of material; and a balance on hand at the first of the year of over $3,160.

In his report as secretary, Mr. Gillett outlined the development of the society during his ten years incumbency. The membership more than doubled; a debt of over $500 wiped out and a balance now on hand of over $3,100; the migratory meeting place dropped for a permanent one in Rochester five years ago with steady annual growth; extension of the two days' meeting into three; great enlargement of prizes for fruit at exhibitions, extension of machinery and materials exhibits from a small beginning to the immense floor space now required; model banquets and musical entertainments; speaking contests with prizes totaling $50 for students of horticulture at the state college of agriculture.

Of the seven definite objects sought by the constitution, six have been conspicuously attained: Disseminating information, securing legislation, improving transportation, improving grading and packing, improving crop reporting and co-operative purchase of supplies. In every one of these directions the association has been of signal service to the members and in many respects to the whole fruit industry of the state and even the nation.

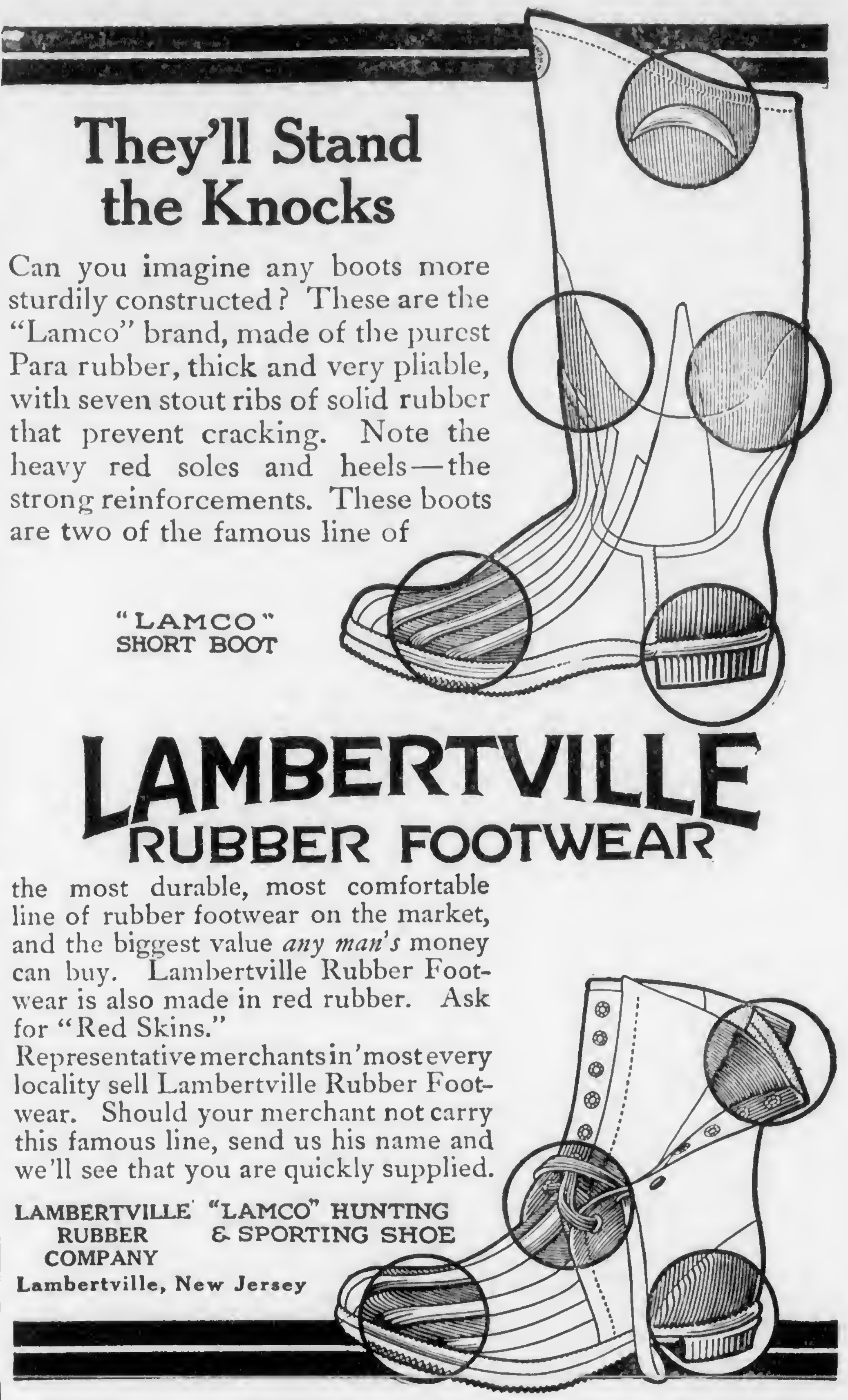
The past year has not been marked by great growth and advancement as have some preceding years. Membership has been slightly reduced and the trade in spray materials and fertilizers somewhat lessened. But these differences are readily accounted for by the trend of the times and the conditions of crops and prices, not to lack of work on the part of officers or executive committee. Shrinkage is not as great as that of similar associations during the same period. The immense crop of apples in 1914 and of peaches in 1915 doubtless are largely responsible for reduction in membership.

Resolutions Adopted

Only three important resolutions were presented and adopted. One requested the president to appoint a committee to represent the sellers of standard grades of fruit to co-operate with the agricultural department of the New York Central Railway to secure new markets for fruit and a wider distribution of standardized products, the quality of which can be guaranteed. The second ''respectfully, but insistently'' urged that the governor and the legislature have due regard for the agricultural interests of the state and provide such appropriations as will enable the Commissioner of Agriculture adequately to enforce the laws committed to his administration. The third resolution ''most urgently requested'' the governor and the legislature to provide funds adequate to the maintenance and equipment of the state experiment station on such a basis as will enable it to accept more fully its opportunities for useful service.

Officers for 1916

Officers for the ensuing year were elected unanimously as follows: President, Frank Bradley, of Barker, re-elected, First vice president, A. C. King, of Trumansburg; secretary-treasurer, E. C. Gillett, of Pen Yan, re-elected for the tenth time.



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Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., Jan. 17, 1916.

Potatoes are selling generally at from $1.10 to $1.25 per bushel. The arrivals are mostly from western points and upper Pennsylvania counties, with a few cars arriving from New York State and Maine. There seems to be no indication at this time of any change in price in the immediate future. Sweet potatoes continue in moderate supply, and with a very good demand the market is ruling firm at 50@60c per basket, while hampers sell at 80@90c.

Supplies of onions have been ever so much heavier during the past week, but prices are holding firm on fancy stock which comprises only a very small percentage of the supplies. Poor onions are dull and irregular. Sales are now being made on No. 1 onions at $1.50@2.75 per 100 lb. sack, while No. 2's are sold at 75c@$1.25 per sack.

Cabbage is selling at $10@12 per ton and meeting with a good demand under supplies that are quite heavy. The cold weather prevailing this week has hampered the sale of cabbage.

Unusually heavy supplies of spinach in the market this morning caused another big drop in prices. There were 3,800 barrels of spinach when the depot opened for business, which was the heaviest single day's receipts of the season. With these heavy offerings, prices declined to 75c@$1 per barrel. Kale was also in liberal supply and prices eased off a trifle, most sales being made at around 60c per barrel.

Pennsylvania celery is finding a ready market at 8@10c per bunch. Some little celery is still arriving from New York State out of storage, which is selling at 65@75c per bunch. Advices from Florida are to the effect that their crop will start to move about the middle of next week.

Altho the demand for cranberries has fallen off to a great extent, prices are very firmly held at $9@11 per barrel for the finest Howes. Crates bring $2.50@2.85. Medium grades are being sold at $7.50@9 per barrel and $2.15@2.35 per crate. The crop has been very closely cleaned up, and only a very few are left to be marketed.

Root crops with the exception of parsnips are not so plentiful about the country as we were at first led to believe, and prices on all kinds of root stocks are gradually hardening. White turnips show an advance of fully 25 cents per barrel, with sales being quickly made at $1.50@1.75. Beets are in very strong demand and the market has been cleaning up all supplies daily at $2@2.25 per barrel. Yellow turnips also show a slight advance, as best stock is now selling at 65@70c per bushel. With the cold weather even parsnips are doing a little better, and sales are being made at $1.25@1.50 per barrel.

Hot-House and Southern Vegetables

Altho hot-house products have been in fairly liberal supply, there has been a good demand for all lines at attractive prices. Mushrooms have brought from 20@40c per pound; tomatoes, 25@30c per pound; cucumbers as high as $1.50@1.75 per dozen. Some hot-house rhubarb from Michigan has been on the market and sold at 60@75c per bunch.

Florida vegetables of all kinds have been in quite liberal supply and prices on many varieties are showing quite some decline. Beans are much lower, sales now ranging generally from $2@2.75 per hamper. Peas have brought from $2.50@4.50; lettuce, 75c@1.50; cauliflower, $1.50@2; egg plants, $2@3.50; peppers, $1.50@2.25; okra, $2.50@3.25; squash, $2@2.50. Altho a few very poor tomatoes are arriving which hardly bring freight charges, the most of the Florida tomatoes are now showing good quality, and sell from $2@3.50 per crate. Strawberries are increasing in supply, and the market has been ruling rather weak at 30@35c per quart.

Apples

The offerings of apples were somewhat lighter than last week, there being only 30 cars unloaded at the depot today against 40 cars a week ago. There were seven cars on track that were not unloaded. The market is ruling quiet. Holders of apples are all anxious to sell and see stocks reduced. From the reports as to the number of apples in the country, there is now scarcely half enough apples being moved. The last report shows that there were 253,656 barrels of apples more than there were a year ago. Reports also show that not half the number are being exported that were going out in previous years. Notwithstanding all these facts, prices are now from 50@75c per barrel higher than they were a year ago. It looks as tho values would have to be reduced somewhat to stimulate the movement. Prices are ranging on the various varieties as follows: Kings, $2.75@3.50; Hubbardsons, $2@2.75; Gilliflowers, $2.75@3.50; Spys, $2.50@3.25; Greenings, $2.75@3.25; Baldwins, $2.50@3.50; Grimes Golden, $2@3; Black Twigs, $2.50@3.25; Ganos, $2.25@2.75; Rome Beauties, $2.50@3.25; Winesaps and Stayman Winesaps, $2.50@3.25. No. 2 apples of all varieties are selling at $1.50@1.75 as to quality.

There has been quite some little increase in the supplies of live poultry since our last issue, and the market is ruling quiet at unchanged prices. Both fowls and chickens are selling at 16@18c, while old roosters bring 12@12½c. Turkeys are gradually falling off in supply, but it takes only a very few to supply the demand at this time. They are selling at 20@22c per pound. Ducks and geese are in good demand at 15@17c per pound.

There has been a very firm market under a strong demand for dressed fowls. The supplies have been light, and cleaned up close every day. Turkeys are in very light supply and firm. Ducks and geese are quiet but prices rule firm. Fancy heavy fowl sold at 18@19c, while smaller sizes sold at 15@17c. Fancy heavy roasting chickens sell at 20@21c, while smaller ones bring 17@19c. Fancy near-by turkeys are selling at 27@28c while choice to good bring 23@26c. Best western turkeys are selling at 26c. Best others bring 22@24c. Ducks are worth 17@20c, and geese 16@18c.

Eggs

The egg market is so much of a weather proposition at this time of the year that it is almost impossible to give anything like a reliable quotation. Last week one day eggs declined 5 cents per dozen, and the very next day they advanced 3 cents per dozen. Today they advanced 1 cents per dozen, and at this writing fancy selected eggs are quoted at 38c, near-by firsts, 33c, and current receipts at 32c. Western extra firsts bring 33c; firsts, 32c, and seconds 25c.
—Selmarad.

NEW YORK PRODUCE

New York City, Jan. 17, 1916.

The tone of the butter market is slightly improved but little change in values. The cheese market is firm and prices slightly higher, altho there is no export trade. There is a fair supply of eggs, even a surplus but the cold weather is expected to decrease the arrivals. Arrivals of poultry very light, with market strong for good stock. Apples in heavy supply. Market weak. Potatoes steady.

Butter. — Creamery extra, (92 score) per pound, 33c; higher score, 34c; thirds to firsts, 24@32c; state dairy, 27@31c; packing stock, 17@20c.

Cheese. — Whole milk specials, 18c; Daisies, 18¼; skims, fresh choice, 15¼c.

Eggs. — Fresh gathered, extra, 36@37c; firsts, 34@35c; thirds, 27c; dirties, 20@23c; nearby whites, fine to fancy, 39@41c dozen; ordinary to good, 33@38c; browns, 37@39c.

Dressed Poultry. — Chickens, 28@30c; fancy roasters, 24@25c. Capons, 25@50c. Fowls, 16@18c. Old roosters, 13c; squabs, $2.25@5.75 dozen. Spring ducks, per lb. 14@20c. Turkeys, dry picked, 22@26c.

Apples.—These prices show the range from "B" to "A". Jonathan, bbl., $2@4; York Imperial, bbl., $2.25@3.50; Winesap, bbl., $2.50@4.25. Twenty Ounce, bbl., $2@3; Greening, bbl., $2@3.25; King, bbl., $2.25@3.25; Northern Spy, $2.25@4.50; Baldwin, bbl., $2@3.25; Hubbardson, bbl., $2@3; Ben Davis and Gano, bbl., $2@3; Common, bbl., $1.50@3.

Vegetables.—Beets, per bbl., $1.25@1.75; Carrots, bbl., $1@2. Cabbage, near-by, ton $3@6. Danish, $8@14. Cauliflower, bbl., $1@6. Celery, choice, crate, $3@4. Turnips, barrel, $1.00@1.50. Onions, white, $2@4.50 basket; do., yellows, $1@2.25 bag. Squash, Hubbard and Marrow, $1.75@2.25 bbl. Potatoes, Jersey, $3@3.50 bag. Long Island, $4 bag. Sweets, $1.75@2.50 barrel.

Country Dressed Veals.

Choice	15½@16
Prime	14½@15
Fair to good	13 @13½
Coarse, heavy	13 @13½
Common	12 @12½
Buttermilks	10½@11½
Grassers	9½@10½

YORK PRODUCE MARKET

York, Pa., Jan. 17, 1916.

The markets were without unusual features outside the sharp advance in grains an potatoes. Poultry also raised two cents. Apples are in more demand at good prices.

Eggs.—33@35c per dozen.

Butter.—Country, 30@32c; separator, 32@35c lb. Milk, 6c quart.

Poultry.—Hens, 13@14c lb; dressed, 45c to $1 each. Turkeys, 22@24c lb.

Vegetables.—Potatoes, 8@12c per ½ pk.; 75c@$1 bu. Cabbage, 3@6c per head. Lettuce, 5@10c per head. Beets, 3@5c bch. Onions, 4@6c bunch; 10@12c ½-pk. Radishes, 5@7c bunch. Lima beans, 25c quart. Soup beans, 10@12c quart. Lard, 13@14c lb. Cucumbers, 3@5c. Turnips, 10@12c ½-pk. Spinach, 10c ½-pk. Sauer kraut, 8@10c quart.

Fruit.—Apples, 15@30c ½-pk; 75c to $1.50 bu. Pears, 12@15c ½-pk. Grapes, 8@12c basket.

Retail Grain Market.—Wheat, $1.32; corn, 90c; oats, 60c; rye, 92c; bran, $1.40 cwt.; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.22; corn, 80c; oats, 52c; rye, 82c; bran, $26 per ton; middlings, $27 to $31 per ton.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., Jan. 17, 1916.

Receipts for the week ending Saturday evening, January 15:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,292	7,153	4,918
Previous week	2,817	6,074	6,853

Calves. — Total receipts of calves for this week were 1,201 against 1,369 last week.

Beef Cattle. — With a better feeling between buyers and sellers, current arrivals, which were equal to every requirement on all desirable stock, commanded firm rates. Nearby Western and Southern cattle were mostly on sale. Bulls, cows and calves of the choice or kinds realized former values.

Best steers	$9.00@9.25
Good	8.50@8.75
Choice	8.75@9.00
Medium	7.75@8.00
Common	7.25@7.50
Bulls	5.00@7.00
Fat cows	5.25@6.75
Thin cows	2.75@8.75

Veal Calves.—

Exceptional lots	$11.50@12.00
Good to choice	11.00@11.25
Medium	8.50@ 9.00
Common	6.00@ 7.00
Southerns and barnyards	4.00@ 5.00

Sheep and Lambs.—There was a noticeable increase in holdings, but trade responded sufficiently to work a satisfactory clearance at well-maintained values, the closing outlook being favorable.

Wethers, extra	$7.70@8.00
Choice	7.25@7.50
Good	6.75@7.00
Medium	6.25@6.50
Common	4.50@5.00
Ewes, heavy, fat	6.00@7.00
Lambs, extra	$11.00@11.25
Good to choice	10.75@11.00
Medium	9.75@10.00
Common	8.00@ 8.50

Hogs. — This market closed fractionally stronger under light supplies and seasonable trading. Westerns, as to size and quality, $10.50@10.75.

City Dressed Stock.—Every description of prime and choice meats were firmly held, with demand somewhat improved.

Steers	10 @14
Heifers	9 @13
Cows	8 @11
Veal calves	14 @16
Extra calves	18 @
Southerns and barnyards	10 @18
Country dressed	12 @14
Extras	15 @
Sheep	11 @12
Extra wethers	13 @
Lambs	15 @16
Extra lambs	18 @
Hogs	10¾@11

BUFFALO LIVE STOCK

Buffalo, N. Y., Jan. 17, 1916.

Cattle.—The week opened with liberal offerings and only fair quality generally. Export and shipping were in light receipts and the demand was good. Stockers and feeders were in light supply and only fair demand. The offerings of milk cows and springers were light and the demand for good ones active. On the close the supply was liberal, the demand good and the market strong. Receipts of cattle today totaled 3,500 head; market steady. Prime steers, $8.50@8.90; butchers, $7.50@8.25; fat cows, $5.50@6.50; heifers, $6.50@7.50; bulls, $4@6.75.

Calves.—The offerings were liberal on the opening of the week and the demand active at a quarter lower. The basis on choice veals active at $7 flat. The supply was liberal on the close and the demand active at 50c higher. The best veals sold at $11@11.50 with a few extras at $12. Seven hundred calves were on the market today; top veals brought $11.50.

Sheep and Lambs. — The offerings were light and the market opened with a good demand at 15c higher on the best grade of lambs. Cull and medium lambs were also in good demand. Sheep were in light supply, active demand and 30@35c higher. All grades of mixed sheep were in good demand and sold on the basis of $7.25@8. With a fair supply on the close and an active demand the market was a shade higher. Good quality lambs sold 15c higher. Yearlings were in good demand and firm. The receipts of sheep and lambs reached 10,000 today; market lower. Best lambs, $11; yearlings, $9.10; wethers, $8.25@8.50; ewes, $7.75@8.

Hogs.—Offerings were liberal at the opening and the demand good at 10@15c decline. The best Yorkers brought $7.25. Pigs were active at $7 flat. The supply was liberal on the close. The demand was active and prices 15@20c higher. The best Yorkers brought $7.75, and light weights $7.50; medium and heavy ruled strong at $7.75. There were 19,200 head of hogs received; to-day market strong. Yorkers, mediums and heavy, $7.60@7.65; pigs, $7.25; roughs, $6.50@6.65; stags, $4.50@5.25.

Horses.—The market shows no particular change. Offerings 450 head. Demand for war grades good but supply limited. This kind quotable at $150@185. Work horses light demand range $175@250.

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., Jan. 17, 1916.

Hay and Straw.—Desirable grades of hay are kept pretty well cleaned up at firm prices. No. 1 timothy and top grades of mixed hay are in good demand. Lower grades are slow and hard to dispose of at quoted figures. Straw is quiet but steady at quotations.

Grains.—Wheat continues to fluctuate daily with the speculative market. There was a gain of about 2 cents per bushel over last week. The market opened one cent lower this morning, but the loss was recovered and under stronger advices from outside markets, the local price was firm. There is a fairly active demand both for export and milling trade. Corn is quiet but steady under light receipts. Receipts of oats are only moderate and prices are steadily held at an advance over last week. Trade is slow. Feed is quiet.

Hay.—No. 1 timothy, $20.50@21; No. 2 do., $19@19.50. No grade, $10@14. Clover, light mixed, $18.50@19. No. 1 do., $18@18.50; No. 2 $15@16.

Straw.—No. 1 straight rye, $13.50@14; No. 2 do., $12.50@13. No. 1 wheat straw, $9.50@10. No. 2 do., $8.50@9. No. 1 oats straw, $9.50@10; No. 2 do., $8.50@9.

Feed.—Car lots, in 100-lb. sacks; winter bran, $24.50@25. Spring bran, $22.50@23.

Wheat.—In round lots, No. 2 red, $1.25@1.27. No. 3 red, $1.25@1.27. Rejected A, $1.22½@1.24½. Rejected B, $1.21@1.23.

Corn.—No. 2 yellow, 84@85c; steamer yellow, 82½@83½c; No. 3 yellow, 80@82c. New ear corn, 78@80c per 70 pounds.

Oats.—No. 2 white, 53@53½c bu.; No. 3 do., 50½@51c; sample, 46@47½c; standard white, 52½@53c.

Flour.—Car lots winter clear, $5.40@5.65; patent, $6.25@6.50. Favorite brands, $6.75@7.15. City mills, choice, $6.75@7.15. Rye flour, $5.25@5.50 as to quality.

NEW YORK HAY AND GRAIN

New York City, Jan. 17, 1916.

Hay and Straw.—The hay market is not active but holds steady to firm thruout. Receipts by boat, which make up a small part of the total, move out readily but most of the offerings are track delivery goods which are at all times at a disadvantage. Large baled timothy hay is scarce and holds firm. Top qualities of small baled timothy are also scarce and hold up well. There is a fair call for light clover mixed, with exceptional cars of alsike selling up to $24. Heavy mixed is slow sale, especially small baled goods and straight clover is not wanted, except by special trade. Rye straw is in liberal supply and easy, with only occasional sales above $14.

Grains.—Wheat is irregular today, but the general tendency of prices is upward. Prices have advanced about 5 cents per bushel on the week. There are evidences that the export demand is strengthening. English buyers are said to be in the market for spring wheat. The total American stocks now visible are reported at 117,661,000 bushels as compared with 84,439,000 bushels at this time last year. Corn is moving upward with wheat, altho the export demand for corn is not as active as was expected. Oats are firm and higher.

Hay.—Large bales—No. 1 $25@26; No. 2 $23@24; No. 3 $20@21; fancy clover, $22.50@24; No. 1 $20.50@21.50; No grade, $15@19.

Straw.—Per ton, No. 1 rye, $14@14.50. Oat straw, $9.

Wheat.—No. 1 Northern, $1.48; No. 2, $1.46; No. 3, $1.42.

Corn.—No. 2 yellow, 88@89c.

Oats.—No. 3 white, 52¾@53¾c; No. 4 52@52¾c.

Rye.—$1.06@1.07½.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $23. Standard middlings, $23.50; flour, do., $27 to arrive. Red dog, to arrive, 140-lb. sacks, $31. Oil meal, $40.25@41. City feed, bulk bran, $22.60. Heavy feed in bulk, $22.60. Red dog, $32. Flour middlings, $31.50. Middlings, $22.60@31.50.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., Jan. 17, 1916.

Hay.—Receipts of hay are extremely light, having had quite a heavy decline since the beginning of the year. The demand is good, market strong and looking higher. No. 1 mixed hay is remarkably scarce, not nearly enough arriving to supply the demand. Poor clover hay not wanted. No. 1 timothy, $19@19.50; No. 2 timothy, $16.75@17.75; No. 3 timothy, $14@15; No. 1 light mixed, $16.50@17; No. 1 clover mixed, $15.50@16.50; No. 2 clover mixed, $12@13; No. 1 clover, $14.50@15; No. 2 clover, $9@12; No. 3 prairie, $11@11.50; No. 4 prairie, $8.50@9.

Straw.—Demand a little slow; receipts, while not heavy, are fully equal to same; market quiet. No. 1 oat, $8.50@8.75; No. 2 oat, $7.75@8; No. 1 wheat, $8.50@8.75; No. 2 wheat, $7.75@8; No. 1 rye, $9.50@10; No. 2 rye, $8.25@8.75.

Ear Corn.—Receipts of ear corn are about equal to the demand; any arrivals are readily placed at quotations. New No. 2 yellow, 73@74c; No. 3 yellow, 69@71c; No. 2 high mixed, 70½@71½c; No. 2 mixed, 69@70c.

Oats.—The oat market has advanced rapidly within the last few days, no doubt in sympathy with western markets. Prices higher. No. 2 white, 51½@52c; Standard, 50½@51c; No. 3 white, 49½@50c; No. 4 white, 48@49c; Rejected, 41¾@44¾c.

NEW YORK MILK MARKET

New York City, Jan. 17, 1916.

The market is evenly balanced. The supply shows some falling off at distant points. At the same time it is increasing at near-by production points. The receipts last week as compared with those of the previous week show a gain of 6,444 cans of milk and 220 cans of cream. The market value is approximately 4⅛ cents a quart for Grade B in the 26-cent zone.

The receipts of milk and cream in 40-quart cans for the week ending January 15, were as follows:

Railroad	Milk	Cream
Erie	43,829	2,268
Susquehanna	9,325	95
West Shore	15,979	879
Lackawanna	54,750	1,250
N. Y. Central (long haul)	78,033	1,343
N. Y. Central (short haul)	21,010	30
Ontario	40,680	1,189
Lehigh Valley	39,466	870
Homer Ramsdell Line	3,460	30
New Haven	6,863	105
Pensylvania	6,750	220
Other sources	1,140	18
Totals	321,285	9,297

PHILADELPHIA BUTTER MARKET

Philadelphia, Pa., Jan. 17, 1916.

There was a fair demand for fancy grades of butter today and the market ruled firm under light offerings. Receipts of western creamery are moderate and only a small proportion of the arrivals are of high-grade goods. The best grades sell promptly at top prices. Medium and low grades continue dull and irregular in value. Ladles are in moderate supply and quiet at former quotations. Fancy prints sell promptly at top prices but supplies are mostly of more or less unattractive goods, which are dull and rule in buyers' favor. Offerings of cheese are light and the market rules firm under a fairly active demand.

Butter. — Fresh, solid-packed creamery, fancy specials, 36c; extras, 34c; firsts, 31@32c; seconds, 25@27c; near-by prints, fancy, 37c; firsts, 28@32c; seconds, 25@27c; special, fancy prints, 40@43c.

Cheese.—N. Y. full cream fancy, 18@18¼c; fair to good, 17@17½c; part skims, 10@15c.

ELGIN BUTTER MARKET

Elgin, Ill., Jan. 15, 1916.

All butter sales were made today at 31 cents.

CHICAGO HORSE MARKET

Chicago, Ill., Jan. 17, 1916.

Horses were in ample supply last week, the domestic demand being retarded by the bad weather, but the demand for army horses continued active. Prices showed no marked changes, the French inspectors paying $130@160, and some horses were bought for the Italian army at around $150. Some choice heavy horses were bought at $300 by an agent for the Stanard Oil Company and sales ranged all the way to $200 for the cheaper class of light-weight drafters, while drivers were salable at $100@200. Inferior animals sold down to $60.

TOBACCO MARKET

Altho the weather was cold there was little cessation in stripping as growers are now determined to push this work to a finish. It is unfortunate that a condition savoring of doubt should exist on the part of sellers as to whether their tobacco will be satisfactory when delivered and that the condition will be determined almost wholly by buyers. If such possible wranglings were based wholly on merits they would, of course, be justified, but it may be said that in many instances it is a matter of taking unfair advantage of the comparatively helpless sellers; of a very one-sided arbitration. There seems to be a continued demand for the few unsold crops, buyers braving the weather and the roads in pursuit of crops yet unsold. There were, of course, very few sales, for there is very little to sell but it can be said that prices were well sustained and fully as high as at any previous time this season. A feature of the week was the annual election of the Seed Leaf Growers' Association and the announcement of a 5 percent stock dividend. This company is in excellent standing and in position to do much to help growers, all of whom should at least consider membership. The present peculiar situation with reference to dye stuffs was reflected in the shipment of a quantity of tobacco stalks (not stems) to be used in experiments for that purpose. While growers would, of course, welcome a market for this more or less unprofitable by-product, it should not be forgotten that the stalks are a valuable fertilizer and probably worth more to be returned to land than to be sent to market. The unavoidable movement of fertility from the farm is now too great, and further drains should be discouraged.—H. E. Tweed, Jan. 17, 1916.

Hepsey Burke

By Frank N. Westcott

SYNOPSIS OF PRECEDING CHAPTERS

Donald Maxwell, a young minister, has spent several months in his first ministerial charge at the little town of Durford. Hepsey Burke, a widowed member of his flock, has proved his most faithful and efficient helper. The senior Warden, Sylvester Bascom, is an important, if not the most loved, factor in dictating the affairs of the church. Miss Virginia Bascom, his daughter, was an enthusiastic worker as long as Mr. Maxwell remained single. When he brought his young wife, Mrs. Betty, to Durford, there was a decided change. While all of Durford accepted Mrs. Betty as a welcome addition to the community life, Miss Bascom sought every opportunity to snub her. Jonathan Jackson, the Junior Warden, becomes Mrs. Betty's faithful supporter. Upon Mrs. Betty's suggestion, he preposes to Mrs. Burke, but is made to wait for his answer. Hepsey is kept too busy with neighborhood affairs to consider marriage. She gets rid of a new saloon near the church by methods all her own. Mr. Bascom finally shows his opposition to Mr. Maxwell, by demanding that he move out of the rectory, upon which Mr. Bascom holds a mortgage. The Maxwells have just been served with notice to move out at once.

CHAPTER XVII (Concluded.)

"When must we move out?" asked Mr. Maxwell.

"Oh, there is no immediate hurry. Any time this week will do."

"What does he want for this place?"

"I believe he expects fifteen dollars a month."

"Well, of course that is prohibitive. Tell Mr. Bascom that we will surrender the house on Wednesday, and that we are greatly indebted to him for allowing us to occupy it rent-free for so long a time."

As Donald showed the objectionable visitor out of the house, he caught sight of Hepsey Burke walking towards it. He half hoped she would pass by, but with a glance of suspicion and barely civil greeting to Nelson as he walked away, she came on, and with a friendly nod to Maxwell entered the rectory.

"I've just been talkin' to Mrs. Betty for her good," she remarked. "I met her in town, lookin' as peaked as if she'd been fastin' double shifts, and I had a notion to come in and complete the good work on yourself."

Maxwell's worried face told its own story. He was so nonplused by the bolt just dropped from the blue that he could find no words of responsive raillery wherewith to change the subject.

Hepsey led the way to the parlor and seated herself, facing him judicially. In her quick mind the new evidence soon crystallized into proof.

"Is Bascom making you any trouble? If he is, say so, 'cause I happen to have the whip-hand so far as he's concerned. That Nelson's nothin' but a tool of his, and a dull tool at that."

"He's an objectionable person, I must say," remarked Maxwell, and hesitated to trust himself further.

Mrs. Burke gazed at Maxwell for some time in silence and then began:

"You look about done up—I don't want to be prying, but I guess you'd better own up. Something's the matter."

"I am just worried and anxious, and I suppose I can't help showing it," he replied wearily.

"So you're worried, are you? Now don't you get the worried habit; if it makes a start it will grow on you till you find yourself worryin' for fear the moon won't rise. Worryin's like usin' rusty scissors: it sets your mouth awry. You just take things as they come, and when it seems as if everything was goin' to smash and you couldn't help it put on your overalls and paint a fence, or hammer tacks, or any old thing that comes handy. What has that rascal Bascom been doin'? Excuse me—my diplomacy's of the hammer-and-tongs order; you're not gettin' your salary paid?"

For some time Maxwell hesitated and then answered:

"Well, I guess I might as well tell you, because you will know all about it anyway in a day or two, and you might as well get a correct version of the affair from me, tho I hate awfully to trouble you. The parish owes me two hundred and fifty dollars. I spoke to Reynolds about it several times, but he says that Bascom and several of his intimate friends won't pay their subscriptions promptly, and so he can't pay me. But the shortage in my salary is not the worst of it. Did you know that the rectory was heavily mortgaged, and that Bascom holds the mortgage?"

"Yes, I knew it; but we paid something down, and the interest's been kept up, and we hoped that if we did that Bascom would be satisfied."

"It seems that the interest has not been paid in some time, and the real reason why Nelson called just now was to inform me that as Bascom was about to foreclose we must get out as soon as we could. I told him that we would leave on Wednesday next."

For a moment there was a look on Mrs. Burke's face which Maxwell never had seen before, and which boded ill for Bascom; but she made no immediate reply.

"To tell you the truth," she said finally, "I have been afraid of this. That was the only thing that worried me about you're gettin' married. But I felt that no good would come from worryin', and that if Bascom was goin' to play you some dirty trick, he'd do it; and now he's done it. What's got into the man, all of a sudden? He's a skinflint—always closer than hair to a dog's back; but I don't believe I've ever known him to do somethin' downright ugly, like this."

"Oh, I know well enough," remarked Donald. "If I had been aware of how matters stood about the rectory, I should have acted differently. I wrote him a pretty stiff letter a day or two ago, calling upon him, as Senior Warden, to use his influence to fulfill the contract with me, and get the arrears of my salary paid up. I suppose he had thought I would just get out of the place if my salary was held back—and he's wanted to get rid of me for some time. Now, he's taken this other means of ejecting me not only from his house but from the town itself. He knows I can't afford to pay the rent out of my salary—let alone out of half of it!" He laughed rather bitterly.

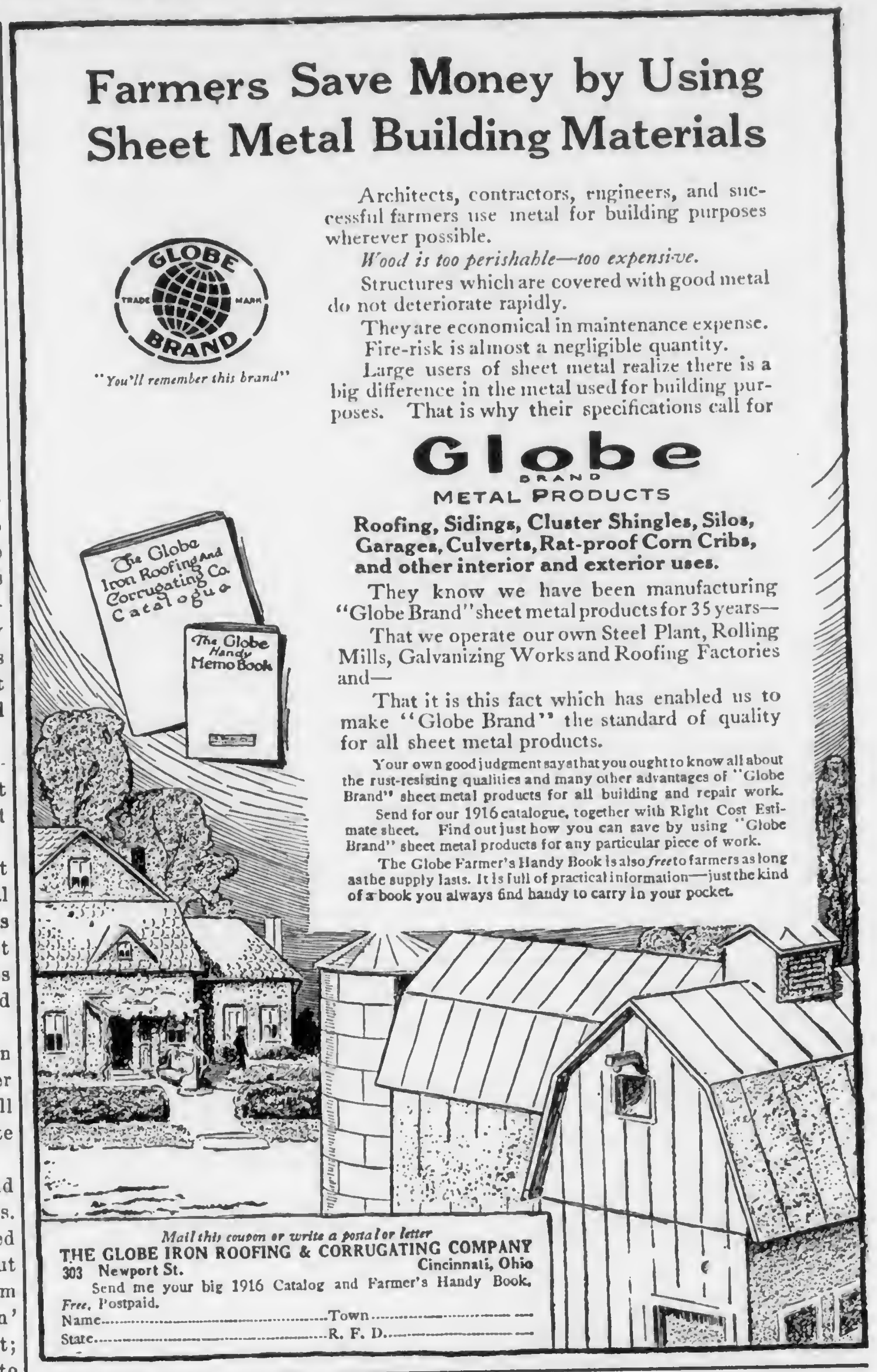
"He'll be singing a different tune, before I've done with him," said Hepsey. "Now you leave this to me—I'll have a twitch on old Bascom's nose that'll make him think of something else than ejecting his rector. I'll go and visit with him a little this afternoon."

"But Nelson said that he was in New York."

"I know better than that," snorted Hepsey. "But I guess he'll want to go there, and stay the winter there too, maybe, when I've had my say. No sir—I'm goin' to take my knittin' up to his office, and sit awhile; and if he doesn't have the time of his life it won't be my fault."

She turned to leave the room, with a belligerent swing of her shoulders.

"Mrs. Burke," said Maxwell gently, "you are kindness itself; but I don't want you to do this—at least not yet. I want to fight this thing thru myself,



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and rather to shame Bascom into doing the right thing than force him to do it—even if the latter were possible. I must think things out a bit. I shall want your help—we always do, Betty and I.''

''I don't know but you're right; but if your plan don't work, remember mine will. Well, Mrs. Betty'll be coming in soon, and I'll leave you. Meantime I shall just go home and load my guns: I'm out for Bascom's hide, sooner or later.''

CHAPTER XVIII

The New Rectory

When Betty returned, and Donald told her the happenings of the morning, the clouds dispersed somewhat, and before long the dictum that ''there is humor in all things''—even in ejection from the house and home—seemed proven true. After lunch they sat in Donald's den, and were laughingly suggesting every kind of habitat, possible and impossible, from purchasing and fitting up the iceman's covered wagon and perambulating round the town, to taking a store and increasing their income by purveying Betty's tempting preserves and confections.

Their consultation was interrupted by the arrival of Nickey, armed with a Boy Scouts' ''Manual.''

''Gee! Mr. Maxwell: Uncle Jonathan Jackson's all right; I'll never do another thing to guy him. He's loaned us his tent for our Boy Scouts' corpse, and I've been studying out how to pitch it proper, so I can show the kids the ropes; but——''

''Donald!'' cried Betty. ''The very thing—let's camp out on the church lot.''

''By Jinks!'' exclaimed Maxwell, unclerically. ''We'll have that tent up this very afternoon—if Nickey will lend it to us, second hand, and get his men together.''

Nickey flushed with delight. ''You betcher life I will,'' he shouted excitedly. ''Is it for a revival stunt? You 'aint goin' to live there, are you?''

''That's just what we are going to do, if Jonathan and you'll lend us the tent for a few months. Mr. Bascom wants to let the rectory to some other tenants, and we've got to find somewhere else to lay our heads. Why, it's the very way! There's not a thing against it, that I can see. Let's go and see the tent and consult Mrs. Burke. Come along, both of you.''

And off they hurried, like three children bent on a new game. It was soon arranged, and Hepsey rose to the occasion with her usual vim. To her and Nickey the transportation of the tent was consigned, while Maxwell went off to purchase the necessary boarding for a floor, and Mrs. Betty returned to the rectory to pack up their belongings.

''We'll have to occupy our new quarters tonight,'' said Maxwell, ''or our friend the enemy may raid the church lot in the night, and vanish with tent and all.''

An hour or so later, when Maxwell arrived at the church, clad in overalls and riding on a wagon of planks, he found Mrs. Burke and Nickey with a contingent of stalwarts awaiting him. There was a heap of canvas and some coils of rope lying on the ground nearby. Hepsey greeted him with a smile from under the shade of her sun-bonnet.

''You seem ready for business, even if you don't look a little bit like the Archbishop of Canterbury in that rig,'' she remarked. ''I'm afraid there'll be an awful scandal in the parish if you go wanderin' around dressed like a carpenter; but it can't be helped; and if the Bishop excommunicates you, I'll give you a job on the farm.''

''I don't mind about the looks of it; but I suppose the vestry will have something to say about our camping on church property.''

''That needn't worry you. Maybe it'll bring 'em to their senses, and maybe they'll be ashamed when they see their parson driven out of his house and havin' to live in a tent,—tho I ain't holdin' out much hope of that, to you. Folks that are the most religious are usually the hardest to shame. I always said, financially speakin', that preachin' wasn't a sound business. It's all give and no get; but this is the first time I've ever heard of a parish wanting a parson to preach without eating and to sleep without a roof over his head. Most of us seem to forget that rectors are human beings like the rest of us. If religion is worth havin', it's worth payin' for.''

The planking was soon laid, and the erection of the tent was left to Nickey's captaining—all hands assisting. With his manual in one hand he laid it out, rope by rope, poles in position, and each helper at his place. Then at a word, up it soared, with a ''bravo'' from the puzzled onlookers.

''We want a poet here,'' laughed Maxwell. ''Longfellow's 'Building of the Ship,' or Ralph Connor's 'Building the Barn' aren't a circumstance to Nickey's 'Pitching the Parson's Tent.' ''

It was next divided off into three convenient rooms, for sleeping, eating and cooking—and Hepsey, with three scouts, having driven across to the old rectory while the finishing touches were being put to the new, she and her military escort soon returned with Mrs. Betty, and a load of furniture and other belongings.

''Why, this is perfect!'' cried Betty. ''The only think lacking to complete the illusion is a trout brook in the front yard, and the smell of pines and the damp mossy earth of the forests. We'll wear our old clothes, and have a bonfire at night, and roast potatoes and corn in the hot coals, and have the most beautiful time imaginable.''

The town visitors who still lingered on the scene were received cordially by Maxwell and Mrs. Betty, who seemed to be in rather high spirits; but when the visitors made any inquiries concerning structural matters they were politely referred to Nickey Burke for any information they desired, as he had assumed official management of the work.

Just before the various helpers left at six o'clock, smoke began to issue from the stove-pipe sticking out thru the canvas of the rear of the tent, and Mrs. Betty, with her sleeves rolled up to her elbows and her cooking apron on, came out to watch it with all the pride of a good housekeeper.

''Isn't it jolly, Mrs. Burke,'' she exclaimed. ''I was afraid that it would not draw, but it really does, you see. This will be more fun than a month at the seashore; and tomorrow we are going to have you and Nickey dine with us in the tent; so don't make any other engagement. Don't forget.''

By noon of the following day everybody in town knew that the Maxwells had been dispossessed, and were camping on the church lot; and before night most of the women and a few of the men had called to satisfy their curiosity, and to express their sympathy with the rector and his wife, who, however, seemed to be quite comfortable in their new quarters. On the other hand, some of the vestry hinted strongly that tents could not be put upon church property without their formal permission, and a few of the more pious suggested that it was little short of sacrilege thus to violate the sanctity of a consecrated place. Nickey had painted a large sign with the word RECTORY on it, in truly rustic lettering, and had hung it at the entrance of the tent. The Editor of the Durford Daily Bugle appeared with the village photographer, and after an interview with Maxwell requested him and his wife to pose for a picture in front of the tent. This they declined with thanks; but a half-column article giving a sensational account of the affair was in the next issue of the paper headed by a half-tone picture of the tent and the church. Public sentiment ran strongly against Bascom, to whom rumor quickly awarded the onus of the incident. In reply to offers of hospitality, Maxwell and Mrs. Betty insisted that they were very comfortable for the time being, and were not going to move or make any plans for the immediate future. The morning of the fourth day, Maxwell announced to Mrs. Betty that he had a strong presentiment that Bascom would soon make another move in the game, and he was not surprised when he saw Nelson approaching.

''Thank goodness we are in the open air, this time,'' Maxwell remarked to Betty as he caught sight of the visitor. ''I'll talk to him outside—and perhaps you'd better shut the door and keep out the language. I may have to express myself more forcibly than politely.''

Nelson began:

''I am sorry to have to intrude upon you again, Mr. Maxwell, but I must inform you that you will have to vacate that tent and find lodgings elsewhere.''

''Why, pray? This tent is my property for as long as I require it.''

''Ah! But you see it has been put on the land that belongs to the church, and you have no title to use the land, you know, for private purposes.''

''Pardon me,'' Maxwell replied, ''but while the legal title to all church property is held by the wardens and vestry collectively, the freehold use of the church building and grounds is held by the rector for the purpose of the exercise of his office as rector. No church property is injured by this tent. This lot was originally purchased for a rectory. To all intents and purposes (excuse me; I am not punning) this tent is the rectory pro tem. The use of a rectory was offered me as part of the original agreement when I accepted the call to come to this parish.''

''Hm! You speak quite as if you belonged to the legal profession yourself, Mr. Maxwell. However, I am afraid that you will have to get off the lot just the same. You must remember that I am simply carrying out Mr. Bascom's instructions.''

''Very well; please give my compliments to Mr. Bascom and tell him that he is welcome to come here and put me out as soon as he thinks best. Moreover, you might remind him that he is not an autocrat, and that he cannot take any legal action in the matter without a formal meeting of the vestry, which I will call and at which I will preside. He can appeal to the Bishop if he sees fit.''

''Then I understand that you propose to stay where you are, in defiance of Mr. Bascom's orders?''

''I most certainly do. It is well known that Mr. Bascom has successfully intimidated every one of my predecessors; but he has met his match for once. I shall not budge from this tent until I see fit.''

''Well, I should be very sorry to see you forcibly ejected.''

''Don't waste any sympathy on me, sir. If Mr. Bascom attempts to molest me, I shall take the matter to the courts and sue him for damages.''

''Your language is somewhat forcible, considering that you are supposed to be his pastor and spiritual advisor.''

''Very well; tell Mr. Bascom that as his spiritual advisor I strongly suggest that his spiritual condition will not be much improved by attempting to molest us here.''

''But to be perfectly frank with you, Mr. Maxwell, he can force you to leave, by stopping the payment of your salary, even if he does not eject you by force.''

''I rather think not. Until he can bring specific charges against me, he is liable for the fufillment of our original contract, in his writing. Moreover, I may have more friends in the parish than he imagines.''

(To be continued.)

Grandmother Dear

Grandmother dear, in your little gold frame,
You bring me a thought of the good and fair.
You seem to know when I speak your name,
Out of the darkness over there.
You are gone before us and passed away,
Where love seems endless and night seems day.

Grandmother dear, you seem to smile
In the tender way that your great heart knew
When life seemed better, and all the while
You were stepping heavenward, tired and true.
But I am so weak and so frail, I fear,
Sadder and feebler, Oh, grandmother dear!

You are safe asleep from the storm and the fret,
From the dreams and the sorrow, the yearn and the pang.
Oh, grandmother dear, I could never forget
The birds in the lilac that chirped and sang
As we laid you to rest on that last sad day
When spring was dancing along the way.

Grandmother dear, I am wearying too,
Tired and faint with life's sorrows and tears.
And you seem to call me across to you,
O'er the highway bridge of the desolate years.
You seem to cheer me; you seem so near—
Close to my sad heart, grandmother dear.

And you smile at me now from your little gold frame,
With your brave, calm thoughts of the pure and fair.
You seem to know when I speak your name
Out from Eternity . . . over there.
Not lost nor forgotten, but passed before,
Where love is perfect and rest is sure.

—Submitted by Maggie A. Cromlich, Cumberland Co., Pa.

Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Bloody Dysentery.—Can you give me advise regarding treatment for young heifers that are taken with a sort of winter cholera and die? Have lost two, one yearling and one two year old. Both were taken with scours some two days apart and after being sick two days, they both passed blood and trembled as if very cold. Then they went into regular spasms. After being sick two days, they refused food and each of them lived only one week. The first one we doctored ourselves and checked scours all right. The other was treated by veterinarian, but his medicine failed to help him. We have three cows in same stable which were fed on same kind of food and drank same water; however, all three cows appear to be well. The heifers that died had a very high temperature. I. O. J., Cameron, N. Y.—I am at a loss to know what should have caused this bloody dysentery. I do not believe it an infectious or contagious trouble. Such ailments are very often incurable, there being so much irritation and hemorrhage of the bowels that it is not possible to check it; consequently the animals die. Their food supply may have brought it on or the water might have been infected.

Steers Improperly Nourished—Hogs Have Poor Appetite—Barrenness—Stock Tonic.—I bought a few steers that were thin, rough coated and have long hair. They are not thriving. I also have several hogs that are not doing as well as they should. They have rather poor appetites. I also have some young sows that do not get with pig. There are many powders and stock tonics on the market that sell from 8 to 15 cents a pound but I would like to know if sulphur, charcoal, salts and copperas would not be all right to feed my horses, cattle and hogs in place of more expensive stock tonics. C. E. D., Littlestown, Pa.—The steers require good care and plenty of rich feed. Your hogs probably require a change of food. There are so many different causes for barrenness that I am unable to guess what may be the cause with your sows not breeding. You fail to give any history or symptoms. One part sulphur, 1 part copperas, 3 parts salt and 5 parts charcoal is the right proportion of these remedies, and a teaspoonful would be a full dose for full-grown hogs. It should be given twice a day.

Indigestion—Impaction.—We have a small driving horse, 15 years old that had an attack of bowel trouble, causing him considerable abdominal pain. We gave him 1½ bottles of Harlem Oil. The next day we called a veterinarian who thought he had caught cold in his bowels and kidneys, but his bowels have not moved for three or four days and he passes very little urine. He is inclined to lay down most of the time and is quite uneasy. At last our veterinary came to the conclusion that his bowels were either clogged or had a kink in them. This horse has had common care that all horses should have and has never been sick. W. H. K., DuBois, Pa.—Your horse suffered from indigestion, followed by costiveness and impaction of the bowel. Had he been fed food of a laxative nature and exercised daily he would perhaps have escaped this attack. Frequent and large doses of raw linseed oil and anemas of soap suds is about all that can be done for a case of this kind.

Mare Needs Clipping—Crib Biting.—We have a mare whose coat is so thick and heavy that her skin cannot be seen. When used, she perspires so freely that she is growing thin. Can I give her any medicine that will make her shed her coat? I would also like to know what can be done for a horse that has been crib-biting for the past four years. S. A. S., Reinholds Station, Pa.—Your mare should be clipped. Then she will be comfortable and soon commence to thrive. If your crib-biter sucks wind, place a strap around neck and keep him in a stall without a manger. Place his feed box on floor.

Roarer.—I have a horse that took cold last winter and has had a cough and rattling in head or throat or nose ever since. L. T. S., Canton, Pa.—Apply 1 part tincture iodine and 2 parts camphorated oil to throat, every day or two, and give ½ dr. potassium iodide and ½ oz. powdered licorice at a dose in moist feed, 3 times a day.

Bursal Bunches. — Some five weeks ago my 10-year-old mule slipped on ice. Since then she has been limping. The only change in leg is a bunch above fetlock joint which seems to hurt her most when walking uphill. M. E. F., Everett, Pa.—You will obtain best results by painting bunch with tincture iodine every day or two until the skin blisters, then discontinue its use for a few days, then repeat. A high-heeled shoe will afford some relief.

Sore Teats.—About two months ago, I bought a cow with a calf about one month old. I sold the calf, but as soon as I commenced to milk the cow I found she had sore teats with deep cracks. It occurs to me that on account of this soreness of the teats her milk yield has lessened. I have applied cold cream, creolin, vaseline and borax which appears to help heal sores, but they do not remain healed. I am anxious to have her cured and right away, for fear of her going dry. J. F. M., Phoenixville, Pa.—Mix together equal parts glycerine and Friar's Balsam and apply to cracks every day or two.

Acute Indigestion. — I have a very nice Angora goat, four years old, that seems to have sick spells, causing him to bloat and become quite uneasy, as if suffering pain. I feed him ground oats, a few potatoes, parsnips and hay. He drinks very little water and is a little out of condition. B. J. E., Sandusky, N. Y.—Give your goat from 30 to 60 grains hyposulphite of soda, or a teaspoonful of aromatic spirits of ammonia in one-half pint of water every hour until he gets relief. If his bowels are costive, you should give him 2 or 3 ounces of castor oil, or the same quantity of Epsom salts as a cathartic.

Hog Had Lock Jaw.—I had a hog taken sick sometime ago. When first noticed his jaws were partially locked. He was unable to eat and appeared to me as if his throat was sore. All four legs were stiff and he appeared to be feverish. His skin cracked and outer part scaled off. I called a veterinarian but he was unable to tell what ailed the hog, therefore, I decided to put the animal out of its suffering. Can you tell me what was wrong? J. J. R., Hunker, Pa.—I am inclined to believe that your hog suffered from tetanus (lock jaw) and could not have been saved. I hardly think that he died of throat trouble as he showed more clinical symptoms of tetanus than any other disease.

Feeding Calves — Cow-pox — Indigestion—Lice.—I have never been very successful in raising calves, therefore, I would like to know something about weaning and raising them. Two of my cows have sores on udder that have a scaly, warty appearance. I have been told that they might have cow-pox. I also have a cow that bloats more or less every evening. What will kill lice on cattle? H. W. H., York, Pa.—If you value the calf above the milk let the calf suck its mother for a few days, or even a few weeks. If not, take the calf off the cow at once but feed it whole-milk for at least six weeks. Then change gradually to skimmed milk, adding some boiled flaxseed to take the place of the cream. Offer the calf ground feed early, putting it dry in feed box. Equal parts ground oats and wheat bran with a tenth part by weight of linseed meal is a good mixture. Feed good clover hay as soo nas calves will e at it. Apply one part oxide of zinc and three parts vaseline to sore parts of cow's udder, daily. Give your cow that bloats a teaspoonful of hyposulphite of soda and a teaspoonful of salt dissolved in water and mixed with her evening meal. Apply 1 part coal-tar disinfectant to 29 parts water to kill the lice on your cattle.

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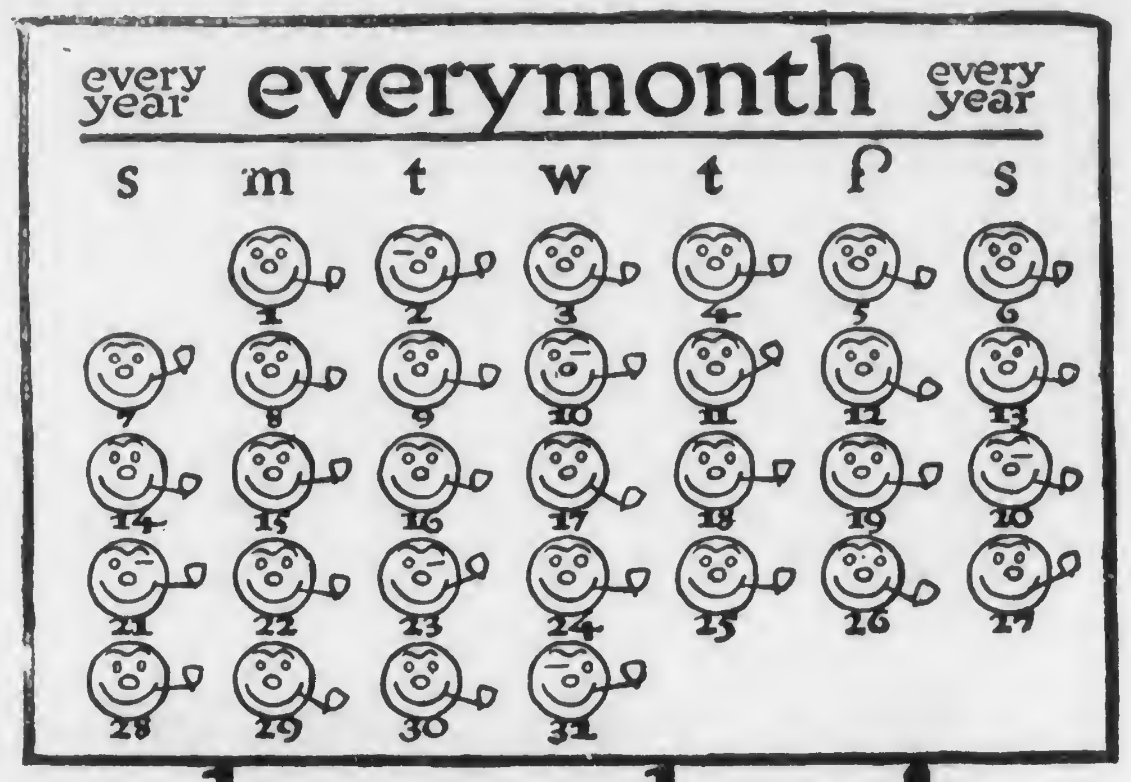

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WOODLOTS IMPROVED BY USE

By J. GORDON DORRANCE
Maryland Board of Forestry

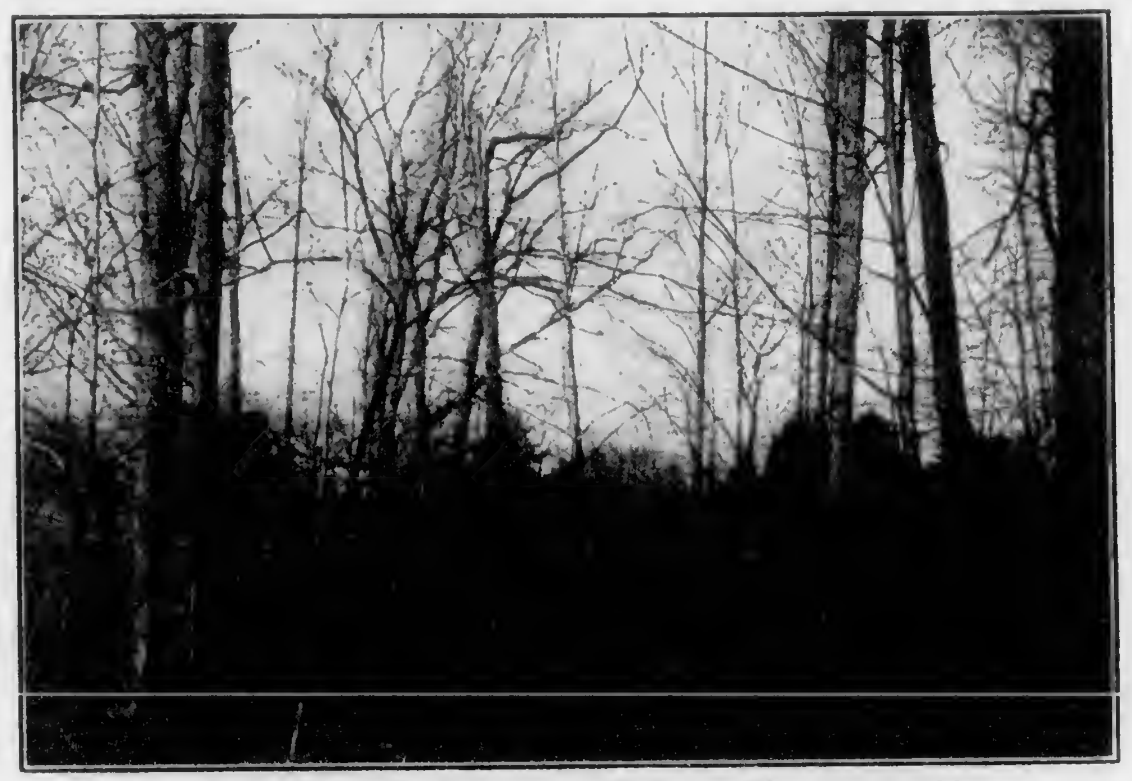
Modern times bring with them modern methods in agriculture as in all else. Ways that were once justified by a superabundance of natural resources have no place in these days of intensive utilization and a growing scarcity of many things essential to our welfare. The farmer works to increase his yields to the utmost, giving to his crops and farm lands the benefit of careful training and experience.

Yet there is one crop that has seldom in the past received the same benefits of prudent handling and wise use. That is the forest crop. Prices for nearly all products have risen rapidly in recent years, but those of the forest show an even greater increase in price and in demand than any other products of the farm.

Lumbermen's figures show that in 1850 white pine timber, log-run at the mill, was worth about $7.50 per thousand board feet. In 1908 timber of poorer quality and smaller size was bringing $35. Oaks that in 1850 were worth from $6 to $10 had, at the later date, increased in price to $25 and $30 while hard maple in that time advanced from $6 to over $20. These are only a few of many instances that may be given to show the increase in prices for lumber and timber, prices of which the farmer is peculiarly fitted to take advantage, with his small, easily worked woodlot, accessible timber, and available markets.

The value to the farmer himself of an ever-ready supply of lumber, posts, poles, railroad ties, and pulp wood, with the added advantage in exposed situations of a woodlot which may serve a very useful purpose as a windbreak, are only too evident. And this woodlot, thru intelligent use and sufficient protection, with cuttings for improvement and planting when necessary, may be given an even greater value. In the East the woodlot is an important part of nearly every farm. Some of them, in fact, would hardly show a profit without the yearly returns from the sale of wood and timber in local markets. In spite of this, only comparatively few farmers have realized the responsibilities of better forest management, and how much more productive the farm forest may be made almost without extra time or labor on their part. The problem is not alone one of producing timber for present demands, but of so handling the woodlot that it is improved thru use.

Most woodlots consist of a more or less scattered growth of trees of all ages and of many kinds. They have been cut over from year to year, the best removed, and the poorer trees left to fill in the vacant places in the forest. Such cutting is typical of lumbering methods, where the best specimens of the most valuable trees are taken out without regard to the future of the stand. The trees left are usually of worthless species, or if not are defective and diseased. The farm woodlot has been very often managed in this manner, one which does not agree with the practice of forestry, where the undesirable trees are removed for the benefit of those that make the woodland valuable.



A BADLY CULLED WOOD LOT--TREES LEFT ARE SMALL, IMPERFECT AND SCATTERED.

Cuttings for Improvement

In the improvement of the average woodlot, it is usually advisable to resort to a thinning or series of thinnings, with an eye to gradually improving the composition and consequent productiveness of the stand as a whole. As a rule these "improvement cuttings" or thinnings should be made in the fall and winter, not alone because this is a slack season on most farms, but wood cut then is not liable to damage by injurious insects, it seasons better and more quickly, while sprouts from trees cut then are nearly always more vigorous and hardy. In addition, there is less danger of injuring the young trees which must replace the old, for their leaves are then off, and the tree in its winter condition less liable to injury.

With certain trees, ash, basswood, chestnut, the hickories, hard maple, and the oaks, it is only necessary to remove the old crop to secure the new. However, there are certain rules to be observed in making a cutting even of this sort. Very old trees, and those diseased or defective in any way, are not good sprouters. Young, healthy trees not past maturity produce the best, most abundant second growth. They must be cut in the fall or winter, the stumps left smooth and slanting, and cut close to the ground. The moisture from rains cannot collect on the slanting stump, causing decay of both stump and sprouts, while the low stump forces out shoots from below the root-collar, sprouts that will show a fine, healthy growth.

In all cuttings looking to the improvement of the farm woodlot, care must be taken to favor those species which are of greatest value and most desirable kinds, the hickories, white ash, hard or sugar maple, white and red oaks. The others—the "weed trees" of the forest—such as the red maple, black and scrub oaks, sassafras, sometimes beech and at the present time, the chestnut, should be removed as far as possible. In coppicing a piece of woods, this is easily accomplished thru cutting such trees during the summer months. The sprouts, if there are any, will be much less hardy, and easily killed by the frosts which come before they are strong enough to successfully resist them. When this has been done, and the sprouts of the oak and other desirable species have gotten a fair start, go thru the woods with a brush hook, lopping off the poorer ones and leaving one or two hardy, well-formed sprouts to every stump for your second growth.

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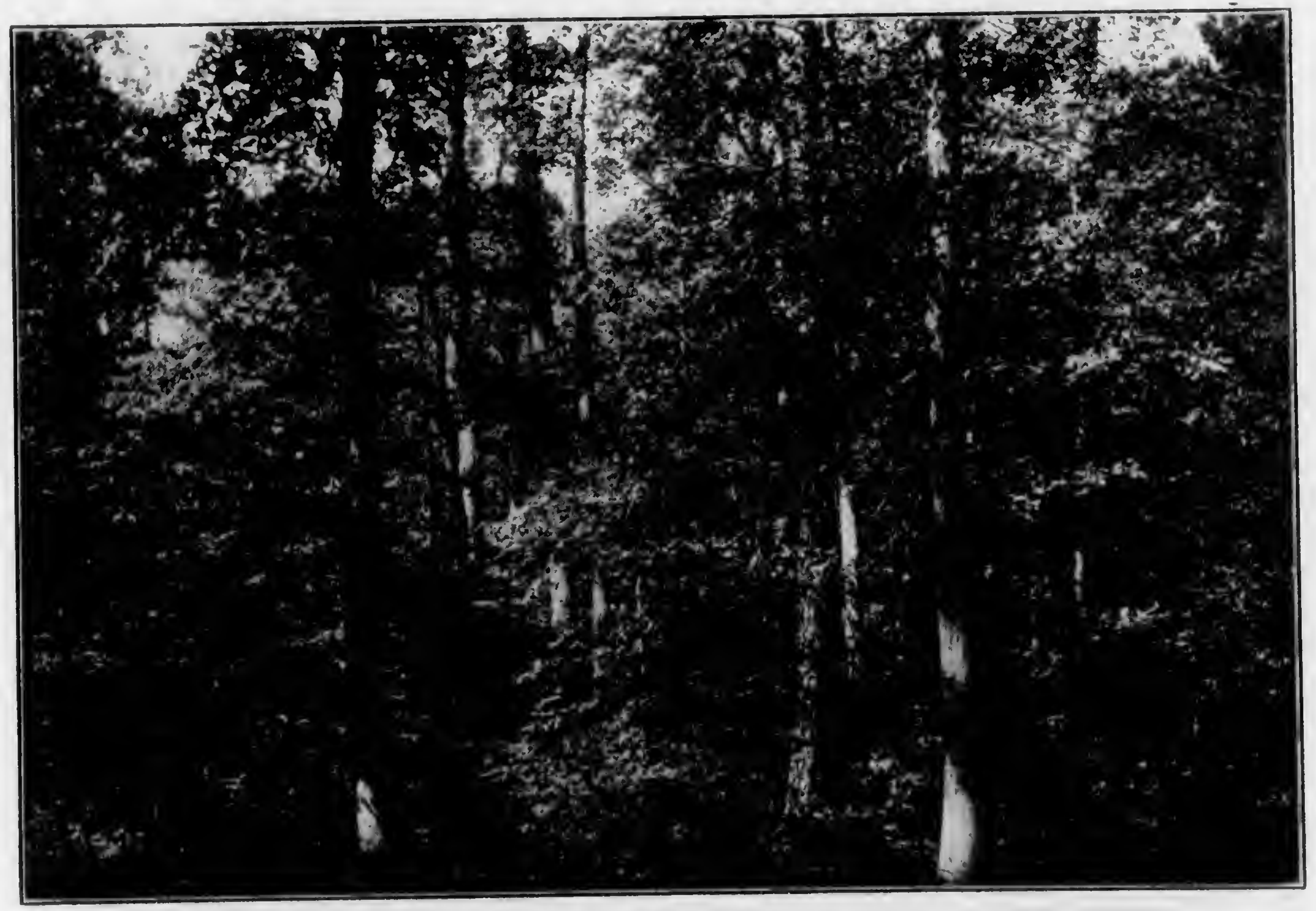


A WELL-STOCKED WOODLOT SHOWING FINE STAND OF SECOND GROWTH TIMBER.

LESSONS OF THE PAST SEASON

LESSONS ON THE DAIRY FARM

By Charles A. Row, Bucks County, Pa.

The year 1915 has been unusual. Consequently her lessons stand out clearly. Low prices received for fruits, an abundance of rain, expensive fertilizers and concentrated feeds, each and all combined with a scarcity of labor have made an impression. The question comes, how can we use these influences to improve our future conditions? We in southeastern Pennsylvania, who have a good market for our raw materials, depend too largely upon purchased fertility. This year's high prices and lack of potash have shown us that we must produce more of that fertility on the farm by growing more catch crops to gather nitrogen, and also to indirectly liberate more mineral plant food. We must fit our soils so that clover will not be an uncertainty.

Grow Our Feed.—We can not afford to pay $40 a ton for oil or cotton seed meal to feed beef or dairy cattle. In the early days, flaxseed was grown. This, with oats, made a healthy and fairly well balanced ration. Today the soybean seems to offer a cheap solution for this problem. They can easily replace oats. The two varieties which we have tried have not been satisfactory because of their low growing habit. This causes too much labor for harvesting. I am told that the variety ''Ohio 9035'' is tall enough to be harvested with a grain binder. We can grow 35 bushels of an excellent high-protein feed to the acre, and also have the ground richer in nitrogen.

Value of Equipment.—The weather is an influence beyond our control, but the harvest of 1915 has shown us the need of having all the machinery possible to handle every crop quickly. One farmer of our acquaintance was forced to plant and dig ten acres of potatoes with a plow. He did so at a loss. If one farmer cannot buy his equipment, there is usually some other who would be glad to enter into partnership with him.

Cheapen Cost of Production.—When skilled labor is so scarce one must watch the cost of each operation in the production of a crop. In one of the large laundries in Philadelphia it was found that it cost three and one-half cents to iron a shirt. The manager succeeded, by running his machinery one-third faster with the same amount of labor, to iron the same shirt for three cents. In like manner, we have found that by practicing summer pruning of peaches we can greatly decrease the cost of thinning. Also that we will not plant any more erect-growing varieties unless they have some exceptional qualities. The cost of pruning to keep an open head is, at least, 25 percent more than for a variety with a spreading habit.

Marketing. — Why do we American farmers think that if we grow an article it must be sold, even at a loss and to the disadvantage of first-grade goods? We must have standards and adhere to them. In Trenton, at the Sanitary Porcelain works, thousands of dollars' worth of usable ware is destroyed each year because of slight imperfections. They realize that their standards must be maintained. An auto-truck load of peaches was brought into Trenton last summer by a man who grows thousands of baskets, and left at a store to be sold. He could not get an offer for them. They were listed by the merchant as ''Trash'' and sold for 10 and 15 cents a basket, wood included. This man received nothing for his peaches after deducting commission, labor of picking and cost of baskets. He even lost the cost of hauling. A glut of this grade of fruit undeniably reduced the price of good fruit at least 10 cents a basket. We must force some people by education to produce less culls and to leave what culls they have at home.

This year has shown the wisdom of producing at least three cash products. They must be produced in large quantities, at a low cost and put on the market in a guaranteed form. Our sales will then be sure and our income satisfactory. Altogether, 1915 has blessed us with health, wealth and peace.

WHERE THE GLORY HAS DEPARTED IN CONNELLSVILLE COKE REGION.

AN ITALIAN FARM IN THE NEW AGRICULTURE.

THE NEW AGRICULTURE UNDER FOREIGN MANAGEMENT.

LESSON IN FRUIT GROWING

By F. H. Fassett, Wyoming County, Pa.

One lesson of the past year that has been fixed more firmly in my mind is that the man succeeds best who specializes; who grows some crop just a little better than the average of his neighbors. The old saying is that we need not put all our eggs in one basket. This is true but the man who specializes in apples can grow peaches, plums, pears, cherries and strawberries. As many of these different kinds of fruit may be grown as can be without interfering with his specialty. His energies are then along one kind of work. His equipment can be more complete, with much less expenditure of capital, because the growing of all these fruits requires practically the same equipment of tools. Then again where one specializes, he can cheapen the cost of production, which is one way of increasing his profits.

The same thing applies to other branches of agriculture. The dairyman can keep hogs, sheep and chickens. Whatever we may choose for our specialty, there is always something we can use as a side line. My observations as I travel over the state lead me to believe that the man who is really specializing in any one branch of farming is usually among those that are making good.

A great deal has been written and talked about our not getting our share of the consumers' dollar. It is very evident. The cost of getting our products on the market under the present system is faulty. It is evident that the men who handle our products, or the so-called business men, need a shaking up. The cost of handling and marketing need not take from 40 to 75 percent of the selling price. We need to pay a little closer attention to that phase of our business.

Co-operation and organization are two things that we read about and hear talked from the platform of every institute. We have heard them for a number of years. I heartily believe in them, but progress seems slow; shall we say, ''slow but sure''. Results of co-operation and organization are very evident in the potato section of New Jersey and in the apple districts of the West. In these particular sections, it appears to be much easier to co-operate on account of local conditions than it is in Pennsylvania. I believe, however, there is room for it and a need of it here. Here again, the man who specializes and has a large amount of any agricultural product is enabled to get nearer the ultimate consumer than the one who generalizes and only has a small amount or number of products.

This lesson has come to me with great force and my future operations will be to produce not only more apples, but to produce a great deal better ones. I shall also try to pack and grade better that I may be enabled to get the cream of the prices instead of the skim milk prices that so many of our growers are obliged to accept. A man to specialize must have an intense love for that specialty. The failures are more often due to the man than to the product.

Connellsville Coke Region

By J. T. Campbell, Crawford County., Pa.

''The land of yesterday'' may be fittingly applied to that part of Pennsylvania known as the Connellsville Coke region. Here was one time a land of splendid farms and even more splendid farmers who owned and farmed their own land. But lo, what a change the years have wrought! As the coal passed from the hands of the farmers into the hands of speculators and operators at what many farmers considered fabulous prices, these farmers no longer being dependent upon the labor of their hands for their daily bread, they were inclined, many—not all— to take life easy.

They moved from the farm and left it in the hands of tenants to do with it about as they chose. Many moved into the towns that their children might play thru school, and these same young men and women are now playing thru life, for the play idea of education has taken fast hold on many of our educators. (I have observed that this idea of playing thru life does not put the fiber and the character into life that is put there by real old fashioned work.) And the sons and daughters of the farmers who got rich by the sale of their coal bear abundant testimony to this truth; ''All play and no work makes Jack a Jackass.'' (Yet this moving to better school facilities is still going on. Earnest, conscientious parents are seeking the best for their children, and ever will. Do we need a revised idea of ''the best''.—The Editors.)

Here farm lands have depreciated in value for farming purposes and where once a splendid agriculture was carried on by a splendid people, much of the land has fallen into disuse or is overgrown with the growth of neglect, while the one-time splendid farmers have largely disappeared. I do not mean by this that there are no good farms or good farmers in this section. There are many such and they surely point the way to a better day.

Yet much of the land has passed into the hands of the coal and mining corporations, and of late these corporations are making an effort to put their holdings on a profitable farming basis. Many of the foreign population who came into this section to labor, by their economy have secured the means and are now buying much of this land and taking up farming. A photo shows the farm and home of one of these. The agriculture of these people is different. It is an agriculture of human muscle rather than of brains and skill. It succeeds because of the close application of the man and his entire family —usually a large family—to the necessity of obtaining a livelihood.

I, as a boy, grew up in the section of which I write, and I know many of the former conditions intimately. It now looks to me as tho the agriculture of this section will eventually largely pass into the hands of the foreign element or their descendents, because they are the ones who are willing to do the work of the fields. It looks to me as tho history will be repeated, in that those who perform the labor of the field must, in the process of time, possess the land. It links back to Eden. The Aryan civilization is predominant because this race has tilled the land and not followed polygamous marriage. In other words, the land and the home have been the foundation of the world's best civilization, because upon these things is character and the fiber of manhood established. What of the future? I am not the son of a prophet.

In many ways this coke region is a land of agricultural opportunities. Splendid markets are at the door. The soil responds wonderfully to intelligent treatment, and the winters are much less severe than in many other parts of the state. Much of the land has had the coal removed from below, and with it has gone the water, so that good drainage is secured. It looks to me as tho such land could readily be made to grow great crops of alfalfa. Here corn grows well. With corn and alfalfa and a splendid market, the live stock industry could surely be made to prosper as of old.

The disadvantages are also apparent. The only available water supply on many of these farms is from a coal company water main, where all water must be paid for. The smoke and dust from the coke ovens are injurious to some kinds of vegetation, and the air being charged with this material is not inviting to those of us who are accustomed to the pure air and water of our northern counties. Again, the largely predominating foreign element and the black element from the south make for undesirable social conditions.

The more I see of this old world, the more I am convinced that the best things of life are not bought with money, but are given as the reward for obedience to the laws of our higher being in the development of true manhood; a reward for rendering to our age the very best that is in us thru our farming and giving to the world thru our children better men and women than we ourselves have been.

Woodlots Improved by Use

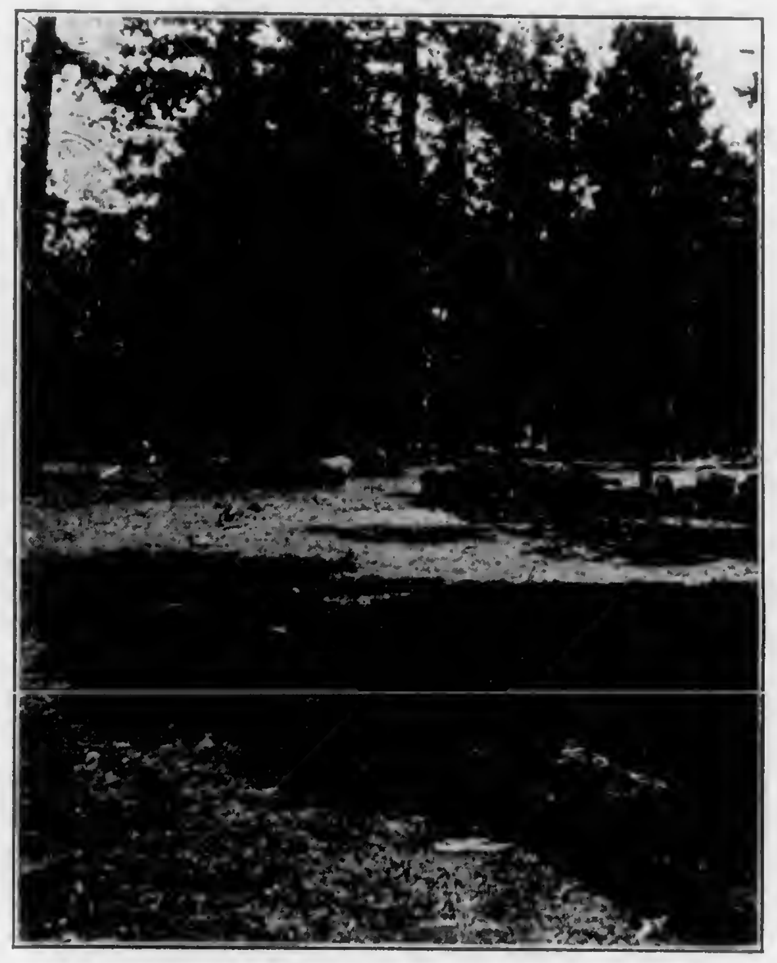
(Concluded from page 1.)

Securing the New Crop

Thinnings made to improve the composition of the stand are called, by the forester, ''improvement cuttings.'' Those which not alone improve conditions in the stand, but provide as well for young trees to replace the old, are ''reproduction cuttings.''

Improvement may be secured, and reproduction also, by a series of thinnings covering a period of 15 to 20 years. The first cutting removes the dead, dying, and defective trees, those infested with injurious insects or fungous growths, and those of inferior species. This cutting in five years' time results in a good amount of seedling reproduction of the trees left, the better species, and reproduction by seed should always be encouraged as far as possible. This is a method much preferable to coppicing, as seedlings produce better trees, finer, smoother timber, and a longer-lived forest. The sprout forest will in 30 to 40 years, produce good timber for poles and ties and in a much less time stuff suitable for cooperage and many farm uses; but for first-quality lumber the seedling type should always be favored.

Now when the improvement cutting has been made and a good seedling growth secured, the second cut is made. This may be in five years' time, and if the young growth is well established a clean cut may be made. If not, a light thinning may be resorted to instead, and the whole stand cut clear a few years later. If yearly cuttings are necessitated by home needs, the tract is divided so that smaller cuttings made annually are in time carried out over the whole tract as described above, and in the same length of time. Such methods give concentration of cut with lower logging costs, bring about rapid improvement in the forest, and provide for the next crop.



EXCESSIVE GRAZING DESTROYS YOUNG GROWTH.

Where the stand has become over-mature, the entire tract may be cut clear. If in pine, five to 10 good, root-firm trees left to every acre, or in heavy-seeded species like the oaks, from 10 to 25, will seed up the ground in a short space of time, with the additional sprout growth producing a dense, even-aged reproduction. This method converts the entire stand into merchantable products, at the same time making provision for the future of the forest.

Very often the farm woodlot does not occupy a place where it may be of greatest value to the farmer. Bare, eroded hillsides are often farmed for poor crops or furnish scanty pasture for the stock, while the woodlot may perhaps be found on the rich bottom land. Where no other crop of value will grow, trees will. Fix on the proper place for the woodlot. Clear cuttings, when necessary, and a little planting judiciously done will in time regulate this at slight expense. In cuttings made only to improve the stand as a whole, the material removed will generally more than pay for the work done. After such cuttings have been made, improvement in the rate of growth has in many instances been as high as 30 and 40 percent.

Protection from Fires and Excessive Grazing

Woodlots should not be burned over to improve grazing or bring an increase in the berry crop. These fires, which may possibly be of some slight benefit to crops whose value is insignificant when compared to the value of the forest and its products, kill the young trees outright and seriously damage the old. Many otherwise fine old trees are unfitted for lumber because of scars received from the grass or brush fires of previous years, or decaying fungous growths which entered healthy trees thru wounds made in this way.

Where reproduction is desired, unrestricted grazing should not be allowed. If the land is worth more as pasturage, the woods should go. But if the forest pays better, give to it the benefit of careful, methodical treatment. The forest responds readily to good management. It shortens the time required to bring the trees already there to maturity and salability, and makes ample provision for others to take their places, resulting in productive, well-stocked stands.

Thru careful use, the woodlot's value as a producer of wood and timber is considerably enhanced, and as a result the value of the whole farm substantially increased. Farm forestry has not as yet been tried on every farm where it would be of value. The woodland of the East is largely in farm woodlots, which in some states amount to more than 75 percent of the total forested area. Obviously, therefore, much of our supply of timber for local use must continue to come from these woodlots. Prices for forest products are still increasing, and farmers who handle their woodlots with care and skill, improving them thru use, will have proved to them that farm forestry is always practicable, and very profitable as well.

Queries and Comments

(This department is open to all of our subscribers. Queries and short comments are invited. Queries will be answered by best available authorities.)

Beginning Farming

''On the first of April, I will move onto my new farm. This will be my first venture in the farming business and I would be glad if you would give me some advice in that line and would tell me what books I should get in order to study up on the question. My place is in the gravel region and contains 41 acres with about 100 fruit trees, mostly apple of different varieties. I have never done any farming. Have a family of four small children. Do you think it best to start with one cow and breed my own, or is that not enough? I am very much pleased with your paper and learn a lot from it.'' W. E. H., Lehigh County, Pa.

We used to like to work problems in algebra which involved two unknown quantities. Questions like the above contain two unknown quantities all right—the man and the land—but the answer is harder to get, since there is no mathematical formula for working out questions in which human equation figures so largely as it does in agriculture. However we will assume that X, the man, is strong, sober, industrious, patient and possessed of good intelligence. ''Y'' is fairly good gravelly soil, capable of average production and steady improvement.

The inquirer is wise in his purpose to read some good books on the subject of farming at the beginning. Every farmer might profitably read a modern book bearing on his line of work every winter and still not be a despised ''book farmer.'' Since our friend has a goodly number of apple trees we would suggest giving special attention to them as the means for quickest returns. They probably need pruning, spraying, cultivating and fertilizing. We would recommend the book, ''Productive Orcharding'' by Sears as a good one to study. It can be furnished by this office.

We believe you should have at least two good cows. This will insure a continuous family supply of milk and butter and probably a surplus for market. From those, the herd can be increased as desired.

Bush fruits such as raspberries, blackberries, currants—in fact nearly all fruits would likely do well on the gravelly soil. Start sowly, learn the best methods and do the work thoroly and in season. Read the best farm papers and keep an eye on the operations of your neighbors and don't be afraid to ask questions. Read the ''Cross Roads Farmers' Club'' starting in this paper next week.

Feeding Molasses

''Would you tell me how to feed molasses on oat or rye straw to dairy cows?'' M. H. A., Luzerne County, Pa.

Beginning with a small quantity, molasses may be fed to good advantage on straw, gradually increasing the amount for dairy cows up to two pounds daily. It should be mixed with warm water so that it may be sprinkled on the straw with a watering can. Cut straw will take up and hold the mixture better than whole straw.

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UNIVERSAL HEAT-CHECK
Factory 496 Buffalo, N. Y.

Tells why chicks die

E. J. Reefer, the poultry expert, 9401 Farmer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure it." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

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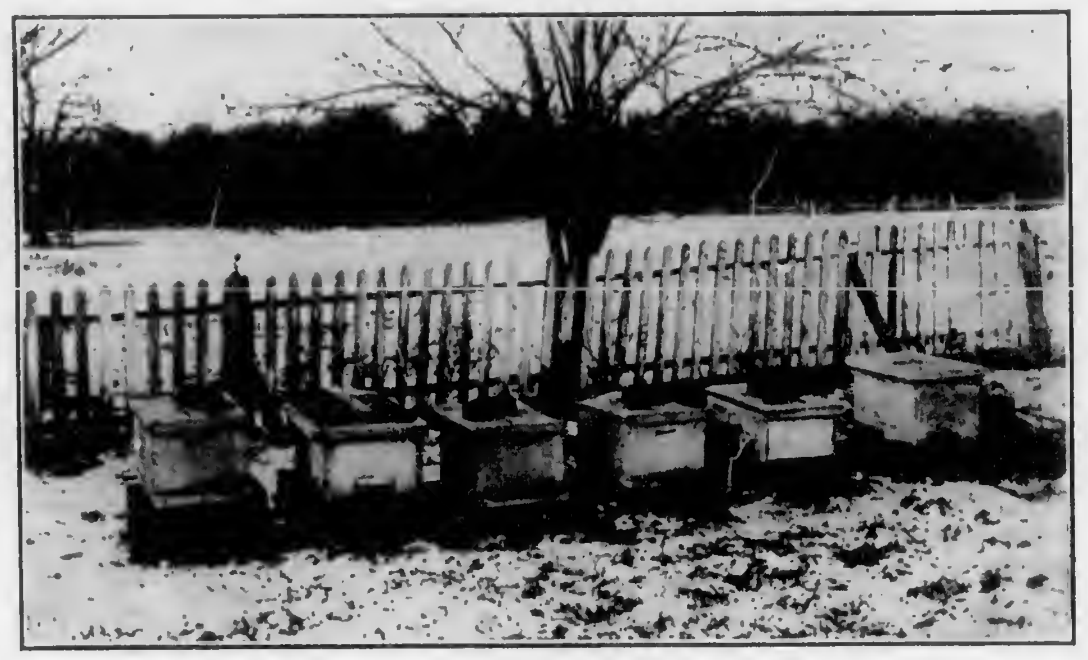
Poultry

STARTING IN BEE KEEPING

The season is nearly here when it will pay to consider keeping a few hives of bees. On almost any place, from the spare attic room in the city house to the rancher's hundreds of rolling acres, bees will prove a profitable investment. But I would emphasize especially their vaue on the small farms of three and five acres. On these, the farmers must depend upon fruits, berries, a limited amount of poultry, and truck gardening. The latter, at its best, means hard, incessant labor, with very uncertain returns.

Ten hives of bees, occupying little or no ground, and needing only a neglible amount of time for their care, will average 300 pounds of honey a year, retailing for $60—equal at least to an acre of potatoes, and requiring far less time and labor. In addition the bees are an invaluble aid in pollenizing the fruit trees and berry bushes.

Like poultry keeping, it is best to start at the beginning, with one hive, and increase as you get the hang of the business. When the flowers begin to bloom, from the middle of April to the first of May, according to locality, is the proper time to start. One modern patent hive, with queen and full colony will cost at a dealer's about $10. This will consist of one brood chamber with eight 9x16 inch brood frames, one super with 24 one-pound frames for holding the surplus honey, and the bees themselves. The outfit with about one-sixth the quantity of bees called a nucleus, can be bought for $5. It is estimated that there are from fifteen to twenty thousand bees in a full colony. In buying a nucleus, you get about a pint of bees. These however, will not swarm during the first season, nor give you any surplus honey that fall. In addition to the outlay above, an extra hive and super will be needed if a full colony is purchased to take care of any swarm there may be, also a quantity of foundation wax, costing about 50 cents to the hive. Bee veil, gloves and smoker will be needed at a cost of say $2.



A PROFITABLE POSSESSION.

The initial expense is heaviest, and cannot be avoided, but from there on, the increase is sure and rapid. You may get enough honey the first season to pay for the outfit. Very often bees can be bought in the neighborhood, at auctions, or from persons leaving their farms, at less than half the above cost. The Italian bee, light brown in color, is considered the best variety, not only for industry, but they are of a much milder disposition, and use their stings less freely.

The great bugbear to beekeeping has been the dread of handling the swarms, but this need not be, if a little care is taken. When the swarm settles, say on the limb of a near-by tree, after placing the new hive, raised about three inches from the bottom board, upon a sheet of canvas, cut the limb, and shake the bees off quietly in front of the hive. If the limb is too large to cut, scrape the bees off gently with the gloved hand into a pan, and then place them before the hive. Some bee keepers put a little sugar or syrup in the new hive as an added inducement for the bees to enter. In nine cases out of ten however, the bees if carefully handled will take up their new quarters without trouble.

In this connection I would say that the best pace for the apiary is in the close neighborhood of a number of bushes, or a small tree, to which the bees can readily fly and settle upon in swarming time. If kept in the open they are liable to circle around in the air as you may have seen them, and not finding a favorable place to light, strike for the nearest timber, possibly a mile away.

It is advisable to make the start as early as the season will permit, so that the bees will swarm in May or June and have the full length of the summer to lay up honey. The old saying runs:

"A swarm in May is worth a load of hay.
A swarm in June is worth a silver spoon.
A swarm in July isn't worth a fly."—

Henry Robinson, N. J.

THE POULTRY MITE

Everyone knows the gray poultry mite which takes on a distinct reddish cast after the blood-meal. It is most common in dark, damp, dirty poultry houses where it thrives upon filth, and the logical remedies recommended by T. J. Talbert, of the Missouri College of Agriculture, are sunshine, ventilation, and cleanliness. The hen-house should be so constructed that it can easily be kept clean and that there will be no cracks or crevices in the roosts or elsewhere to furnish hiding-places for the mite during the day time when they are not on the fowls. They feed at night, crawling from fowl to fowl, so that one infested bird may introduce them into the entire flock.

Sunshine is one of the best disinfectants as well as a great foe to the mite, and it should be given access to just as much of the hen-house as possible. Regular spraying with kerosene emulsion, strong tobacco solutions, or commercial stock dips will help greatly. Commercial lime sulphur and miscible oils put on the market in such form that they will mix readily with water for use in spraying orchards are also helpful in combating the mite.

One application is not enough and the spray should be repeated in about a week in order to kill the young which may have developed from the eggs laid about the roosts or in the filth before the first spraying. It should be applied with sufficient force to penetrate all cracks and crevices.

Kerosene emulsion properly prepared at home will give us good results as anything. Mr. Talbert gives the following directions for making it: "Dissolve half a pound of laundry soap, or a pound of lye soap, in a gallon of soft water; take the solution off the fire and add two gallons of kerosene before cooling. Mix them thoroly by churning ten or fifteen minutes and use one part of the emulsion to eight or nine parts of water when ready to apply.

One part boiled lime sulphur made exactly as for orchard spraying may be mixed with eight parts of water, and the commercial stock dips may be used in accordance with printed directions usually furnished with them. Strong tea made by boiling tobacco stems in water gives good results, and white-washing should not be neglected.

Spray pumps of many different sizes and types will give good results. Bucket pumps, knapsack sprayers, and automatic sprayers will be useful in the garden and orchard as well as in the hen-house, altho a longer hose or extension rod will be needed in the orchard. A barrel pump or power sprayer may be used with good results if it is already on hand, but is more expensive than the average farm needs for hen-house work.

THE SMALL INCUBATOR

In buying incubators many buy machines of small capacity. These purchasers reason that since they have had no experience in artificial incubation, they will likely have better success in operating a small machine, and that the risk of spoiling hatches will be less. If the directions that come with machines are followed, the beginner stands as little chance of spoiling hatches as one who is experienced, and he can operate a machine of large capacity as well as he can a small machine.

The cost in time and money of operating a machine of three hundred-egg capacity is very little more than the cost of operating one of but fifty-egg capacity. With a small machine one will have to hatch several times in order to get the required number of chicks, and quite frequently, hatching must be done late in the season. This means lots of work, not only in running the incubator, but in caring for the separate flocks, which require different care and feeding. And besides the final results are not satisfactory Some of the chicks will reach laying maturity in the fall, and some of the late-hatched, will not likely lay until the following spring.

The farmer who realizes the advantages of hatching early will purchase a large incubator and will operate it but once or twice during the season. Very little more work is required in attending to a large flock than in attending to a small one. And the chicks reach laying maturity at nearly the same time.

The farmer who has two large machines will find a little machine handy in keeping his large machines going at full capacity. Thus, one of the large machines and the little machine could be started at the same time. At the end of ten days enough infertile eggs will have been tested out that the large machine can take all the good eggs in the small machine, and the little machine can be re-set simultaneously with the other large machine.—T. Z. R.

KEEPING A POULTRY RECORD

It is a very difficult matter to keep an exact record of the farm poultry since the flock is continually changing. Old hens are sold and new ones raised, however if a daily record of eggs produced is kept and an inventory of the flock is made occasionally, we can get a pretty close estimate of what the hens are doing. Last year we commenced business with 60 hens. Ocassionally a hen was killed for home use and some were lost from depredations of foxes and minks so our flock of old hens was reduced to 40 by the end of the year. We raised sufficient young chickens to get 60 pullets to keep after culling out a few of the pullets and all of the cockerels.

We kept an egg record. This was done by hanging up a large calendar near the egg basket. The eggs were put by themselves as they were gathered during the day and at night counted and the number jotted down on the calendar just above the proper date figures. Quite a number of the hens were used to hatch and care for chickens. Our daily record for the year gives an average for the year gives an average of about 80 eggs to the hen for the year, however, as I have said, an exact average can not be made from our record. The record shows that the greatest egg production was in July. we secured 66½ dozen eggs in July. This is accounted for by the hens having free access to the wheat and oats fields and there was also plenty of insects for them to get. The next best month was April, followed closely by August and September. The price for eggs was considerably better from July on thru the season than it was in April. However, a little extra feed would have evidently increased the productiveness of the flock materially but we had doubts whether the feed at $2.25 per 100 pounds of cracked corn and middlings would pay when eggs were only worth 15 cents per dozen. We are better prepared to feed our chickens this year and hope to increase the egg production materially thruout the season.—A. J. Legg, Nickolas Co., W. Va.

EARLY HATCHING

The advantages of hatching early cannot be too strongly impressed upon the farmers of the country. If the fowls of the larger breeds are kept, hatching should be done in March and April, preferably in March. When grown under ordinary farm conditions, chicks of the larger breeds require six or seven months to reach laying maturity, and the main idea for hatching early is to have the pullets reach laying maturity before cold weather sets in. A pullet that does not begin to lay before cold weather will rarely lay until spring. Late-hatched chicks return their owners little, if any profit in their pullet year—the year when they ought to show their highest profit.

A secondary advantage of early hatching is that one can dispose of the cockerels and undesirable pullets as broilers when prices are high. My experience is that broilers marketed in May and June return double the profit realized from those marketed later.

Leghorn chicks, when well-fed, will reach laying maturity before cold weather is still warm. Such early layers, will, most likely, begin to moult, and thereafter, will lay little better than old hens. However, early-hatched Leghorn chicks can be "held back" and their growing period extended by making the youngsters hustle for the greater portion of their food.—T. Z. Richey, Ind.

The best layers have large crops and are particular to see that they are full by roosting time. They like to work for their living. The good layers prefer the corn buried beneath a foot of litter to the food fed in troughs and hoppers.

Eggs should be gathered often during severe weather. Eggs that freeze and burst open are often eaten by the hens, which may result in the formation of the egg-eating habit.

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Growing Early Tomatoes--I

From Seed to Market

By C. C. Hulsart, Monmouth Co., N. J.

Originally an American contribution to horticulture, the tomato was first used as food by the Latin races of Europe. In this country, the first account we have of any importance is in 1779 when the fruit was used in catsup in New Orleans. In 1798 the tomato was introduced near Philadelphia, but was not sold as a vegetable until about 1829. In 1836, however, it had begun to be popular as food. Up to this time there were but two varieties—the large red and the cherry. Their use gradually increased, and in 1841 they had become almost an indispensable dish thru the summer months on every table. In 1847 there were six or seven varieties all very much alike. By 1860 hundreds of acres were planted to this fruit in the vicinity of Philadelphia alone. At this time there were but four varieties, aside from the yellow sorts, and but two of these were widely known. In 1865 the tomato was a universal favorite. It had become a commercial staple and one thousand acres are said to have been devoted to its cultivation in the neighborhood of Philadelphia. But better varieties were needed, and during that year the "Tilden" appeared and at once took first rank and was soon followed by several other good sorts.

The above is a condensed sketch of the opening of the tomato industry of this country. It took considerably over a century to develop and build a foundation for what has now become one of the leading crops of not only the eastern United States but the whole country. Where a thousand acres were planted to this crop 50 years ago, hundreds of thousands are planted to it today. Where we had four varieties of poor, crooked, watery fruit, today we have something like 300 varieties, practically all of which have come forward in the last half century. Of the late sorts there is little to be desired, but there is still room for improvement among the earlier ones.

Varieties

The market gardener or truck farmer who makes a business of tomato growing for the early market is constantly looking for and striving to get something better than yet introduced. The great trouble with the early sorts is their shape (flat), excessive acidity, poor color (a very light red) and weak foliage. All the varieties that I have seen having any merit as to earliness had also one or more of these faults; hence it requires close study and very careful handling to succeed. But for those who can grow the crops successfully and are sufficiently close to a market where the crop can be disposed of, I know of no crop that is more profitable.

The Maules Early, one of the older sorts, is still grown largely by some, but many like the Sparks Earliana better. That variety is largely grown in New Jersey at the present time by commercial planters. It has a weak foliage, hence blights quite easily when not handled as it should be. The King of the Earlies is another of the early sorts. It is a good cropper and quite as early as either of the others with a better colored fruit. But the fruit is too flat to be popular in the general market, hence does not sell as well. There are one or two others of less significance that about complete the list of early varieties.

There is another group commonly known among tomato growers as "second early." In this group are several very fine varieties, including Twentieth Century Dwarf Stone, John Baar, Bonny Best and a few others. But these are all too late in maturing to bring fancy prices, even tho the fruits are much more solid and better colored. For this reason the early tomato grower does not plant any of these varieties very largely. There is another reason, too, for planting lightly of these second-early varieties. In the early part of the ripening season any of these second early varieties are slow in ripening and when they do begin to ripen in quantity they come so fast that it is difficult to handle them at the right time. Furthermore the excess quantity most always causes a glut in the market.

There is still another group known as late varieties. Among this lot we find the can-house stock. The varieties in this group are legion, many of them duplicates. Among them are found many of our best table fruits, including the old Paragon, Matchless, Success, (very good), Stone, (fine fruit but very light cropper), Enormous, and Globe. The last two are exceedingly large but useless as a market variety because of their abnormal size and time of ripening, which is rather late. In a second article I will discuss methods and practices, beginning with the hot-bed.

The New Onion Culture

By Prof. R. L. Watts, Penna. State College.

A good many years ago, two prominent horticulturists, Prof. W. J. Green of the Ohio Experiment Station, and T. Greiner of New York, working independently and without any knowledge of each other's operations, discovered that the transplanting of seedling onions was decidedly valuable in increasing the size of the bulbs. Numerous experiments have since been made by the Agricultural Colleges and all show advantage in what has been termed "The New Onion Culture". In many instances yields have been more than doubled. To quote from Prof. Green's report: "Transplanting onions increased the yield 100 percent in some cases and gave a decided gain with all varieties. The varieties that gave the best results were Pompeii, Prizetaker and White Victoria."

Not only are the bulbs larger when the transplanting method is followed, but they are much more uniform in size than those grown from seed sown in the open ground. This is a great advantage when a fancy trade is to be supplied. There are practically no culls and seconds, if the system is properly followed.

The transplanted onions also ripen from three to four weeks earlier than those grown from seed sown in the open ground. This often means a better price and the ground may be used that much sooner for some other crop.

The extra labor and expense involved in growing and transplanting the seedlings is largely, if not altogether, offset by the saving of labor in weeding and by the finer product which commands higher prices than ordinary bulbs from common varieties.

This method of growing onions is gradually gaining in popularity among commercial growers. It is most common to find areas of less than an acre, tho I have known of several men who grew eight acres or more by this system.

As indicated by Prof. Green, it pays best to use varieties of the foreign type, such as Prizetaker and Denia. The former variety is used almost exclusively by northern gardeners for transplanting. It is mild in flavor, attains a very large size, matures early and commands good prices. The bulbs are especially desirable for selling in crates or special packages. The Denia is grown quite largely in the South, but also does well, with proper management, in the North. The accompanying photograph shows some choice Denia bulbs grown by the Vegetable Gardening Department of Cornell University, and exhibited on Pennsylvania Day at The Pennsylvania State College. It has been found at Cornell University that extra large bulbs for exhibit purposes may be grown by sowing the seed under glass in November, instead of two or three months later, and then transplanting single plants in small pots. This plan, of course, would not pay on a commercial scale.

SPECIMENS OF DENIA ONIONS.

Ordinarily, the seed of Prizetaker or Denia should be sown in the hotbed or greenhouse in January or February. Some growers do not sow until March but early spring sowing is necessary to get large plants, and large plants are essential to large bulbs and large yields. The earlier the sowing the larger the plant at the time of transplanting into the open ground. Space may not be available for early sowing but every possible effort should be made to sow not later than February 1.

The soil should be fine, rich and not subject to serious baking. One part of sand, one part of rotten manure, two parts of good garden loam and a little lime make an ideal seedbed for starting onions. Flats or plant boxes may be employed or the seed may be sown in ground beds or on benches. The rows need not be more than three inches apart, tho most writers advise four inches, but I do not see any special advantage in allowing such liberal spacing between the rows. The drills should be half an inch deep and 10 or 12 seeds to the inch of furrow should give a good stand of plants. Sowing at this rate should result in 8000 or 9000 plants under a 3x6 ft. hot bed sash. When the plants are set in the field 4x15 inches apart, 170,000 will be required to plant an acre.

A temperature suitable to the starting of cabbage plants will be satisfactory for the onion. Careful watering is exceedingly important. It has been found that if the seedbeds become excessively dry and then water is applied freely, damping off is likely to occur. In other words, the beds should be watered often enough to maintain a uniform supply of moisture. Ventilation should also have daily attention.

When the plants attain a height of five inches they are cut back with scissors to four inches and this operation is repeated every week until the plants are set in the open ground. This seems like a severe practice but it is absolutely necessary for the development of strong, stocky plants. The stems should be as thick as slate pencils when the plants are set in the field, and then they are cut back to 3 inches.

When so much care has been taken to grow good plants, every possible effort should be made to have ideal field conditions. Rotten stable manure should be used with freedom. Commercial fertilizers should be employed if there is any uncertainty about the productive power of the soil. The ground should be prepared as early as possible in the spring and left in a smooth, level condition preparatory to transplanting the onions. Very severe frosts will injure or even kill Prizetaker and Denia plants, so that it is safer not to set them until there is little or no likelihood of hard frosts. From the tenth to the fifteenth of May is early enough in the most northern districts.

THE FARM GARDEN

The farmer's garden should be located where it is generally level for uniform fertility, well-drained and protected, if possible, by a wind-break. It should be where it can be easily and economically cultivated and convenient for a gathering of its products.

If the garden requires too much hand labor, it is expensive from the viewpoint of the average farmer.

In my locality many farmers have abandoned the garden-plot method and cultivate their vegetables for the home table in field rows. Of course, this is in a trucking section.

This method has one disadvantage and that is the tendency to cultivate too few kinds of vegetables. He plants some beans or peas, a row of beets and perhaps one or two other things and forgets to plant anything else. Probably there is an oversupply of what he does plant.

The housewife in her quest for variety often buys canned vegetables that could have been home-grown, etc. Therefore it seems wise to define some space for a garden. As a concession to the busy man the farm garden should have enough space between its rows of vegetables to allow its being worked with a horse cultivator. On most farms it is less expensive to allot twice the space for the garden so that it can be horse worked than to furnish the hand labor necessary to keep the close-planted garden in order.

The farm garden should have the first plantings of peas, beets, carrots, turnips, onions, spinach, radishes and such hardier vegetables made about April 1st and by the latter part of May, the peas, spinach should offer something for the table. From this time, the garden should yield a regular supply until fall.

Family tastes differ and there may be some vegetables that are discarded from the garden list but the individual

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STRAWBERRY Plants, $1.65 per 100. True composed and valuable illustrated catalogue free. Mayer's Plant Nursery, Merrill, Mich. Bohemian Nurseryman.

Farmer Agents write for 1916 agency for Diddie-Blitsen Rods. Best Lightning Rod sold. L. F. DIDDIE CO., Marshfield, Wis

Use Hammond's Upper Window Springs to ventilate kitchen in winter. Sample 10c; or 1 upper and 1 lower 16c. W. S. HAMMOND, Lewisberry, York Co., Pa.

characteristics of each vegetable have a distinct bearing upon health so that a variety ought to be eaten and an effort should be made to induce the use of greater variety upon the family table.

Children are often capricious in their choice of vegetable foods and if one youngster declares that he doesn't like string beans, for instance, the other children will follow his lead and the family may become beanless. Often this is due to the manner of cooking and the farm gardener should give himself a little latitude and grow some things which the family may not favor at first. Successions of peas, radishes, lettuce, beans, sweet corn, should be provided for so that these vegetables may be had at their best. Radishes and lettuce are not so desirable in late summer as hot weather impairs their quality but they may be planted so as to satisfy the fall appetite.

The fertilizing of the farmer's garden need not require purchased materials. Much goes to waste in dump heaps that would keep the garden in fine fertility. A fine garden is achieved by the use of leaves, chicken feathers, wood ashes from the kitchen stove, soot cleanings from the chimney and litter and manure from the chicken coops.

My finest garden yield was obtained by plowing the cleanings from the poultry house into the soil and spreading wood ashes upon it.

I used a small one-horse load of poultry house cleanings part litter and part manure and the wood ashes taken from the kitchen stove from April 1st to June 1st. This on a 40x40 ft. plot. — M. Roberts Conover.

NEW JERSEY APPLE GROWER WINS PRIZE

In the competition held in connection with the meeting of the N. Y. State Fruit Growers' Association at Rochester, January 4, 5 and 6, Mr. John H. Barclay, of Cranberry, N. J., won the first prize of $50 for the best three boxes of apples exhibited. In the contest there were entries from the Ontario Department of Agriculture and the states of Washington, Idaho, Virginia and New York.

Mr. Barclay exhibited a box of White Ohio Pippins, a box of Stayman's and a box of Rome Beauties. The second prize was taken by the Ontario Department of Agriculture for three boxes of Spy, and the third prize was won by a N. Y. state grower by three boxes of Baldwins. Mr. Barclay's score was 93 7-12 out of a possible 100. The Ontario Department of Agriculture's rating was but 1-12 of a point lower.

New Jersey is certainly honored by her painstaking grower who has won first place in a contest with the best apple growers from the so-called best apple growing sections in the country. —Harris T. Kille.

SOWING AND PLANTING CABBAGE

The Pennsylvania Agricultural Experiment Station has just issued a bulletin No. 137 on experiments with cabbage which should be of interest to everybody growing this crop. In one experiment it was found that Jersey Wakefield, when sown in the greenhouse January 15, gave an increase of 12 percent for the first cutting and 20 percent for the first third of the cutting season as compared with sowing February 15. In another experiment of early cabbage, it was found that there is practically no difference in earliness or productiveness between large and small plants regardless of whether the grading be done at the first transplanting or when planted in the field.

When Jersey Wakefield was planted in rows 24 inches apart and the plants set 18 inches in the row, there was a gain of more than $12 an acre as compared with that planted in rows 28 inches apart, altho the variety Early Spring gave a loss of $10 an acre when set at this distance. In the growing of late cabbage it was found that when the field planting is made, it is best to use only large, vigorous plants. Another experiment with late cabbage planted in rows 32 by 32 inches apart and cultivated both ways as compared with planting 18 by 32 inches and cultivated one way shows that the closer planting gave the more profitable results.

A bulletin may be secured by addressing the director of the Experiment Station, State College, Pa.

THE APPLE TREE BORER

Specialists of the Department of Agriculture state that woodpeckers destroy great numbers of the borers by drilling into the trees and removing them from their burrows. The marks made by these birds in searching for borers may be found in the trunks of trees in almost any infested orchard. In some cases from 50 to 75 percent of the borers are destroyed in this way. Most of the borers devoured are taken from the pupal chamber or while they are making their ascent of the trunk. Probably both the hairy and downy woodpeckers feed on the borers.

Since the insect in its borer stage lives and feeds under the bark where no poisonous or contact sprays or washes can be directed against either its food or its body, and cannot be poisoned in htis way, it has always been considered a difficult pest to control. Modern insecticides have not been used so successfully against it as against many other common insect enemies of the orchard. However, there are practicable methods whereby the borers may be destroyed, or egg laying prevented, and injury thus greatly reduced or entirely eliminated, even in orchards that have suffered severely. Removing the borers from trees by the use of a knife and piece of wire, a practice commonly known as worming, is one of the oldest and, when thoroly done, one of the most effective ways of dealing with this insect. During the first few months of its life the borer is easily found and destroyed, but after it has been feeding a year or more the difficulty of locating it is increased, since at that time its burrows extend more deeply into the tree. However, with a little practice one becomes rather adept at securing the borer regardless of its age or the position it may occupy in the wood.

Paints and washes of various kinds have frequently been recommended for use on the trunks of trees, both to prevent the beetles from depositing eggs and to kill the borers within the trees. Experience has shown that it is easier by such means to prevent the eggs from being laid than to kill the borers. The Department of Agriculture has recently published a Farmers' Bulletin, No. 675, which deals with the control of the roundheaded apple-tree borer. —Byrd.

The gullying of land can be checked by planting trees. The head of the gully is the important point to attack, since it is there that the gnawing back take place. A small gully just starting can sometimes be stopped by throwing in stones and brush, altho such methods are only temporary.

The department of forestry of the Pennsylvania State College, advises the planting of black locust to prevent erosion. Trees of that species have a widespreading, compact root-system that is well-fitted to hold the soil.

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For nearly 50 yrs. the House of Ebeling has been noted for wonderfully hardy and prolific seeds. **Alfalfa**—American grown. Government tested. From best alfalfa state. **Oats**—Alberta Cluster. From the great Alberta land of Canada. **Corn**—Genuine Virginia grown Eureka Ensilage. Biggest, best and tenderest. 1 acre produced over 70 tons ensilage—keeps 7 cows a year. **Potatoes**—York State muck grown, immature. Early and late. Called the best by Scotch and English experts. Big 1916 seed CATALOG free. Special prices.
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Seed Cleaner No. 1 Clipper grain, seed and bean cleaner, in perfect condition. Only $12—cost $26.50. J. H. Nellis, Rt 1, Paterson, N. J.

The Dairy

MAKING THE SOIL FEED THE DAIRY COWS

The highest success in dairy farming is attained by keeping the cow with largest in-bred capacity for production, and growing the largest quantity of forage, that is most nearly a balanced ration, on the farm and so reduce the cost of purchased grain to a minimum. Drawing milk to the creamery and grain from the feed store is more a transportation business than good dairy farming. This was the keynote of an address given by Prof. H. H. Wing, of Cornell University at the New York State Dairymen's Convention. His subject was Forage Crops for New York State. Following is a digest of his address:

Any farmer's business will depend for its success on the use he makes of his soil. A good animal is essential, but the land should be made to largely feed her. Of first importance is forage pasture grass. The production of it could be doubled or trebled in the state. A large part of New York is suitable for little else. It is our natural crop. The soil and climate are adapted to it. To improve pastures, first prevent too close cropping. We pasture too close in June and July by putting on too many animals. With soiling crops to supplement them, this may do all right but too few provide such supplements. Methods of improvement in bare places; drainage by taking off surplus water with tile or simply making ditches; cutting off such woody plants as brushes and large weeds and let more useful plants occupy the land; fertilization of pastures by helping nature out by scattering a load of strawy manure on bare knolls. To get rid of wild carrot, paint brush, etc., put some manure on them and perhaps a little grass seed with it, and give the grass a chance to grow.

About soiling or supplementary crops, prices of grains have changed in the last year or two so protein foods do not cost as much relatively as a few years ago. This affects the choice of soiling crops. Still I would grow high protein soiling crops, partly because of their benefit to the soil. We should consider palatability, or what the animal likes, the cost of growing the crop, the amount of yield of the crop and adaptability to soil and climate.

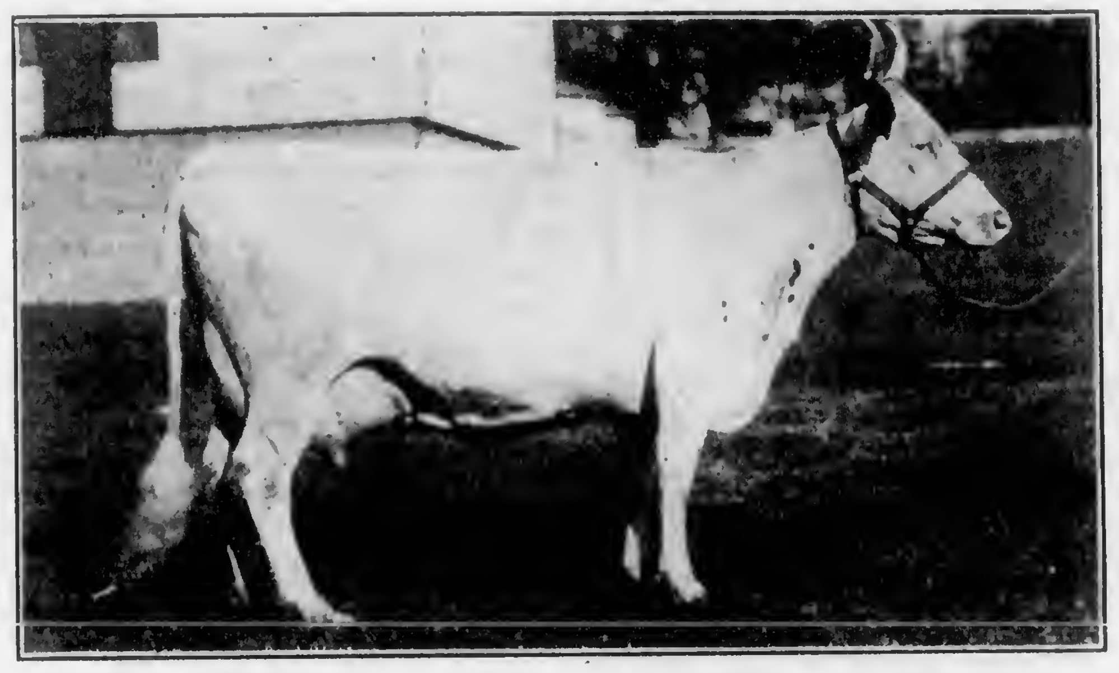
Timothy must be given due importance, yet I must state that it should have little place in the ration on the modern farm. The best thing for the dairyman to do with it is to sell it. Its commercial price is in excess of its value to the dairy animal. The plant that is more useful to man and animal than any other plant is corn. All parts of the corn plant are highly palatable and digestible for animals. The man that grows the most corn at the least cost is solving the question of economical forage production. Corn is preeminently the silage crop.

Leguminous or protein forage crops that rank the highest are alfalfa and clover. They naturally go with corn. Alfalfa makes higher demands on the skill of the cultivator. No plant approaches it in its palatability, quantity produced and results in milk production. Clover and alfalfa culture, I believe, will increase rapidly now that we know more about soil needs, and that one of these is lime.

Ninety percent of the forage crops in New York is furnished by timothy, corn, clover and alfalfa, and our study should be to make the most of these. The time is coming when we will depend more and more on soiling forage crops, for we want to keep more animals than the pasture will fully feed all summer. The silo provides for the best soiling system. With it we can provide corn silage to supplement pasture. Then if it is balanced up with legume crops, so much the better. Next to clover and alfalfa, oats, peas and barley are desirable as a summer soiling crop. Roots especially the mangels should be given due place in forage crops. We get an increased milk production from them which we cannot explain from their dry matter content. Roots are expensive to produce, but to make good records we can hardly do without them. The best dairymen now say "We have got to have roots."

Sorghum should perhaps be mentioned. When sown broadcast in warm soil late in summer it comes on quickly and soon covers the ground and makes cheap carbonaceous food. Millet is over-estimated as to value. As part of the regular supply of forage, it should have little place, altho for an occasional catch crop it has its uses. Vetch is less palatable than most protein forage crops, but sometimes it may help out. Soudan grass is in the same class as such large grasses as Johnson grass, etc. In its beneficial effect on the digestive organs of cattle, cabbage ranks close to roots, and the refuse especially should be utilized.

The white kind of sweet clover is quite palatable, but the ordinary sweet clover the animal will leave in the pasture. Soy beans with corn silage is worth working for, for they are most desirable. Some farmers have been successful in growing the combined crop. There may be some difficulty in cutting the combined crop with the old corn harvesters, but perhaps the new machines will handle the crops well. Some farmers prefer to grow corn and soy beans separately and mix them in the silo. Corn and soy bean ensilage is near a balanced ration, and will save a large part of the grain bill.—J.



GARCLAUGH MAY MISCHIEF 27944, NEW CHAMPION AYRSHIRE COW, OWNED BY PENSHURST FARM, MONTGOMERY CO., PA.

NEW WORLD'S CHAMPION AYRSHIRE COW

The accompanying illustration shows Garclaugh May Mischief, 27944, the new World's Champion Ayrshire cow. She has just completed a year's test, producing 25,328.7 pounds of milk and 1,056 pounds of butter. Garclaugh May Mischief was bred in Scotland, being born February, 1906. She was imported in 1910 by Percival Roberts, Jr., of the Penshurst Farm, Montgomery Co., Pa. She commenced her test under Advanced Registry on December 27th, 1914 and completed it December 26, 1915. Her average milk production was about 69½ pounds per day, giving 50 pounds per day at the end of her test. Her average milk test for the year was 3.54. Her food cost was $177.46. Her 25,328.7 pounds of milk, amounting to 11,780 quarts, sold wholesale at 6 cents per quart, was worth $706.80. Deducting cost of feed, of $177.46, she left a profit for the year not counting cost of keep and care, of $529.34. She is owned by the Penshurst Farm, and is due to calve March 3, 1916, by Auchenbrain White Beauty Champion 18175.

AYRSHIRE ASSOCIATION MEETING

The 41st annual meeting of the Ayrshire Breeders' Association was held at Philadelphia, Pa., with over one hundred members and friends present. The report of the Secretary showed 106 new members received the past year, and the Association in a flourishing condition. The Treasurer's report showed an increase in receipts over that of last year.

The report of the work in the Advanced Registry department showed a most encouraging advance during the past year, both in the increased number of breeders having their herds tested, and in a higher dairy yield. The report of the French Silver Cup contest was most satisfactory, with four records that made the contestants champions of the breed. Owing to the generosity of Miss C. A. French of Massachusetts, in presenting the Association with $1,000 to add to her former gift of $1,500, all seven of the classes received a handsome silver cup. Of the eight cows making breed records during the year, five are Pennsylvania cows. This state has the Champion Ayrshire cow, junior and senior champion four-year-old cows and junior and senior three-year-old cows.

The following officers were elected for the ensuing year. President, Percival Roberts, Jr., Narberth, Pa.; Secretary-Treasurer, C. M. Winslow, Brandon, Vt. It was voted to enter a protest to the Interstate Commerce Commission against their order to railroads to charge for return passage on live stock exhibited at fairs. Mr. W. E. Skinner of the National Dairy Council spoke on the need of a campaign of education in the use of dairy products, and strongly advocated the necessity of upholding the National Dairy Show. It was voted to endorse the Eastern National Dairy Show to be held at Springfield, Mass.

EXPERIENCE WITH A TILE SILO

The illustrations on next page shows our hollow tile silo at time of filling. This silo was built during the summer of 1914, this making the second season in which I have used it. I have found it very satisfactory in every respect. A year ago we had a very severe winter in this section which gave the silo a severe test. I found that while the silage froze slightly in my tile silo during the most severe weather, it was not frozen nearly as much as in my wooden silo; and by keeping the silage dug

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The Hershey Farm Co., of Hershey Milk Chocolate fame, Hershey, Pa., have purchased their 8th *Hinman Milker* outfit. They write us that the machines are giving them "splendid results in saving of labor, economical repairs, simplicity in construction and operation."

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Most every herd has one or more cows that seem sluggish and low in yield without any apparent reason. In many cases this may be due to some vital organ becoming overworked. Proper treatment is needed to build up the system and fortify the cow against serious disease.

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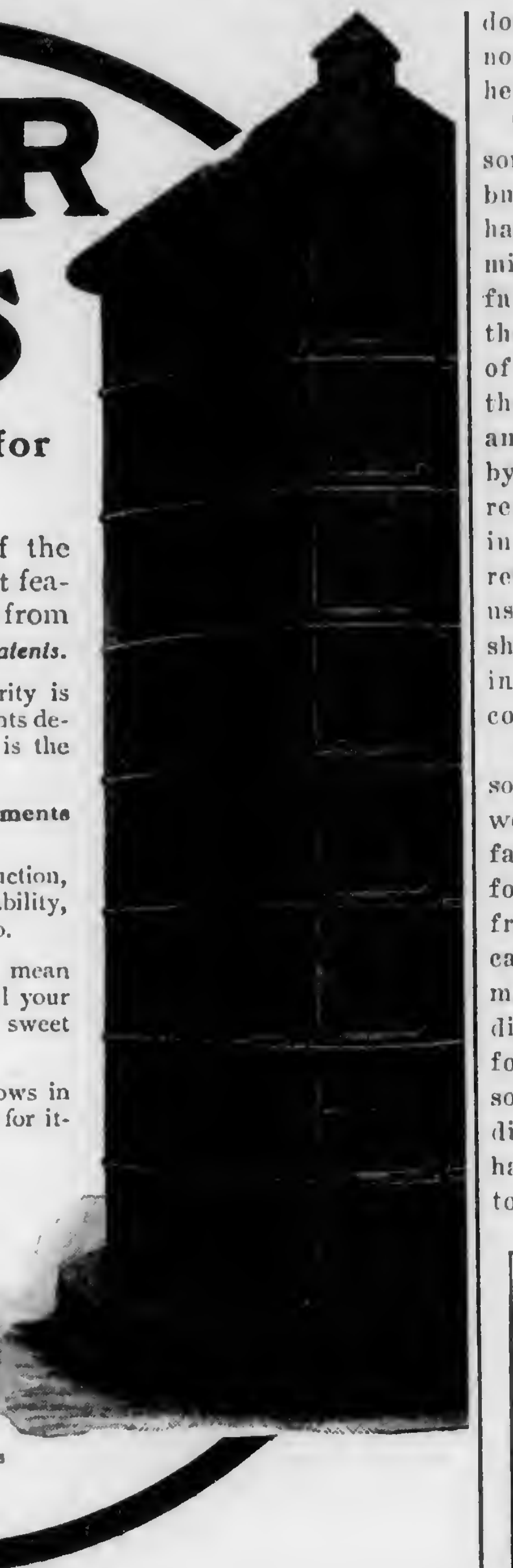

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The U. S. Government and many State Governments have adopted the Harder Silo.

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down a little around the walls, it was not necessary to leave any ensilage adhering to the walls at any time.

The cost of the hollow tile silo is somewhat in excess of the wooden silo, but not as much as many suppose. If hauled home in the winter, as I did mine, during the slack season on the farm, the necessary cash outlay for the silo need not be so far in excess of a better grade of wood silo. And there is no future expense for painting and tightening hoops. My silo is 12 by 30 feet, inside measurements. It is reinforced with steel bands imbedded in every row of blocks, and I see no reason when laid up in good cement (I used 1 part of cement to 2 parts of good sharp sand) why the silo should not last in good condition for generations to come.

The cost of erecting a tile silo is somewhat more than that of erecting a wood silo, but here again the careful farmer can cut down the expense. The foundation should be, of course, below frost level, but a very good foundation can be made by digging a circular ditch, making the circle a little less than the diameter of the silo, making the ditch a foot and a half in width and in ordinary soil about three feet deep. Fill this ditch with well-mixed grout and you have a very good foundation on which to erect your silo. Then later, a few inches of grout can be placed in the bottom of the silo, and smoothed over with cement.

SILO FILLING ON FARM OF A. L. DUNHAM, JEFFERSON CO., PA.

In erecting the silo, one mason with two helpers (I used the help on the farm) can erect the silo in a few days. The mason must be careful that the cement adheres to the ends of the blocks when placed in the wall, otherwise there will be a leak. But this danger has been mostly overcome by the manufacturers who now make a block with a perforated edge to hold the cement. Masons for this work here charge $3.50 to $4 a day and board. It took about six days to erect my silo, but some of the same size were erected this year in four and five days.

Our silo is storm proof and fire proof, and it also adds greatly to the general appearance of the farm buildings.—A. L. Dunham, Jefferson Co., Pa.

DAIRYMEN'S LEAGUE ACTIVE

Advises Co-operation

Following is copy of letter addressed to each stockholder in The Dairymen's League. It presents a review of the work done which should be of interest to every dairyman:

The officers of the Dairymen's League have acted during the past summer and fall toward a constructive policy for the future. Various methods of operation have been considered, some very aggressive and forceful, but upon careful consideration, the directors have arrived at the conclusion that under existing conditions and laws, the most practicable, safe, and only permanent policy lies along co-operative lines. Looking back over the past two years the League has influenced prices in a number of localities. Well-known milk companies have been afraid of co-operation on the part of the producers, and the efforts that have been made by the League have tended to draw from the milk companies a little higher prices in order to stifle the co-operative effort. In some localities where the local branches of the League have been active there has been an increase of from 10 to 20 cents a hundred and even one-half cent per quart over what would normally have been paid by the milk companies. A considerable number of the local branches are now so prepared.

The League has kept to the front the idea of co-operation, which has drawn the attention of the Attorney General's office of New York State, the State Department of Foods and Markets, the schools, colleges, and the District Attorney's office of New York City, to the value and pressing necessity of co-operative effort. These agencies are all considering this very large problem. A keen interest is being shown to assist the League upon some constructive plan. The League took a definite stand on the standardizing of solids in milk. When efforts were made to readjust rational standards, the League lent its support to the establishment of the present standard, which altho open to improvement, is much better than the old one.

Perhaps no greater piece of work has been done by the League than by its effective effort to get thru the Legislature a bill bonding milk gatherers. No other organization stood behind this so solidly as the League, and today the stability which the milk producers may have in this respect comes from this measure. The League has ever been on the look-out to oppose unreasonable methods of inspection of the dairies. While the League believes that the consumers are entitled to a good wholesome product, it does not desire to see too much of the inspection placed on the producer and too little on the transportation between the producer and the consumer. Therefore, it lent its aid a year ago to kill in the Legislature a bill proposed by New York City interests who were working for every interest excepting that of the producer.

While the League has not been able to build up its local branches as strongly as it would like, yet there exists in the League a number of receiving stations and butter factories owned cooperatively by milk producers. These plants have been able to protect themselves in the matter of selling their product, and today are the outstanding examples of encouragement in co-operation in the milk business. From every authoritative source comes the report that each branch of the Dairymen's League should make every effort to centralize its co-operative forces into a solid co-operative society at home. When this is done each such successful co-operative society can reach out to its neighbor and so in time build up a band of such societies. Each such branch or society should diligently inquire of its neighbors what other such societies are ready to counsel with each other and act co-operatively at the right time. Even five or ten such societies could materially increase profits. The key to the situation is "own your own plant". Such an effort will meet with the general approval of the State authorities and the public press, and is to be heartily commended to all branches of the League.

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Remarkable Holstein Productiveness. In 1915, from April 22 to April 28, the records of 670 cows were accepted to entry in the Holstein-Friesian Advanced Registry. As evidence of the high efficiency of purebred Holsteins these 670 cows, of which over one-half were heifers with first or second calves, produced in seven days, 279,121 pounds of milk containing 10,067 pounds of butterfat, an average per cent of 3.61 butterfat. Average production for each animal was 28 quarts of milk per day and 17 pounds of commercial butter per week. This is just a random showing of the wonderful things of which the big "Black-and-White" is capable.

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Interested in Holsteins?

If so our herd is the place to find them. You can see more in one day in our barns than in a week in most places. And quality—Come and look them over or write us for information. The Home of King of the Pontiacs.

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Crystal Spring Farm Registered Holsteins

Heifer and bull calves. Golden Segis De Kol Korndyke 70534 and Allamuchy Fayne Hengerveld Hartog 94180 breeding. Well marked. Write for pedigrees, pictures and farmers' prices.
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Jersey Bull ready for service. Dam's record over 400 lbs. butter in a year. Sire's dam 22 lbs. in 7 days; granddam, who is also his great-granddam, 991 lbs. in one year. Write us.
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Holstein Herd of 20 head of the highest grade Holsteins. Each cow has a complete cow testing association record. Registered Pure Bred Bull calves for sale at all times.
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Holsteins 4 bull calves $30 each, 2 mos old, Korndyke breeding. 5 heifer calves $100 each, 2 mos. old, fine individuals; light colored and well bred.
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BARTLETT CO., Mill L, Jackson, Mich.

Registered Holstein bull calves, by son of a 23 lb. cow, and from dams of good breeding. Price $30.
J. B. WINKELBLECH, Lewisburg, Pa.

Holstein bull calves for sale, grandsons of the $50,000 bull, King Segis Pontiac Alcartra No. 79602 WILLOWHURST FARMS,
R. O. Williams & Sons, Canton, Pa.

Jersey Calves both sexes. Fine stock, of the most noted pedigrees in the world. Fred O. W. Runk, Allentown, Pa

Guernsey Bulls Calves and yearlings at prices to please.
FRED W. CARD, Sylvania, Pa.

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Registered Holsteins Desirable calves for sale at prices that are right. Satisfaction guar't'd Ideal Farm, Conyngham, Pa

Guernseys Special February sale yearling bulls and bull calves, A. R. Breeding.
EDWIN B. MAULE, Parkesburg, Pa

In the meantime, negotiations are under way to secure full information as to the methods and cost of distributing milk in New York City, of transportation facilities, and of collecting the milk thru co-operative plants and otherwise in the country. With this data as a foundation, it will be possible for any co-operative society to state what its figure will be at which it can afford to sell its products, either as milk or in any other form. This is the first step in a substantial policy of establishing a fair price. It is possible that many of our stockholders do not fully appreciate the effort it has cost to bring so large a number of dairymen together into one organization. It has required much time and money. A record of all receipts and every expenditure has been carefully preserved for reference. The subscription for stock was placed at a very nominal figure and proved barely sufficient to pay the expense of organization. Only by rigid economy were the officers enabled to accumulate a small balance in the treasury which is used for necessary expenses.

If any particular co-operative society of milk producers or branch of the League desires to get special information as to how its problems may be worked out, plans and the cost of building, equipment, etc., inquiries will be welcomed at the office of the Secretary, Albert Manning, Otisville, New York.

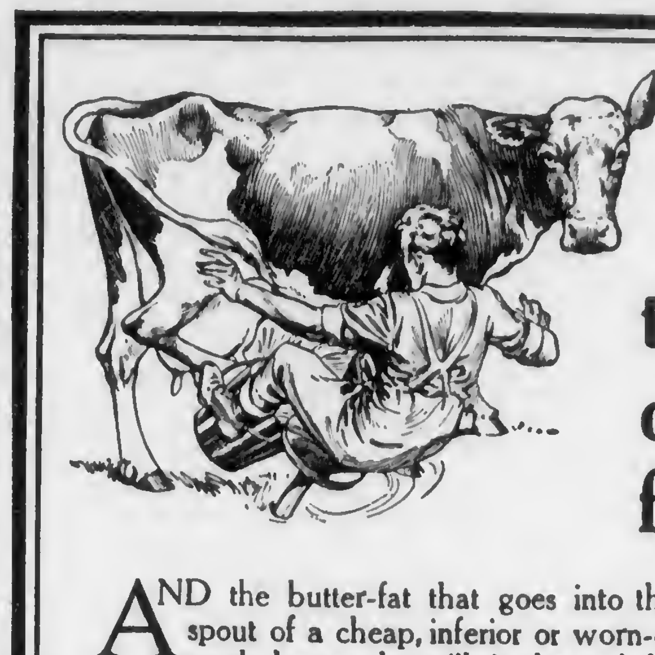
ANOTHER COW-TESTING ASSOCIATION IN DELAWARE

Thru the efforts of the Dairy Extension Department of the Delaware College, a second association known as the Middletown Cow-Testing Association has been organized. On account of hesitancy on the part of some of the dairymen, quite a large area is covered, including Mt. Pleasant, Middletown, Townsend, Clayton, Delaware and Warwick, Maryland. This association began operations December 1, with the following officers: President, W. D. Bradford; vice president, John Piser; secretary-treasurer, Wm. Price, with E. H. Shallcross and P. B. Messick in addition to make up a board of five directors.

Mr. Mark VanDusen, a graduate in the two-year course at the Pennsylvania State College, is the official tester. Milk in this community is sold on a test basis, so there was hardly a herd in the association that did not have its surprises the first month. On account of such a small variety of grains for sale at the local feed stores it is hard for the dairymen to make up the best possible home mixtures of balanced feeds.—F.

PENNSYLVANIA DAIRY UNION MEETING

The Pennsylvania Dairy Union will meet in joint session with the State Live Stock Breeders' Association in Pittsburgh, Pa., February 23-24, 1916. Meetings will be held at the Monogahela House on Wednesday and Thursday. An interesting program has been arranged. Such well-known speakers as Mr. Carl Vrooman, Assistant Secretary, U. S. Department of Agriculture; Mr. Charles E. Patton, Secretary State Department of Agriculture, and Mr. W. E. Skinner, Secretary of The National Dairy Show, will address the meetings. The Monongahela House will be the headquarters for the Dairy Union, and the managers have agreed to furnish the meeting rooms without charge. Members should give this house as much business as possible. It is hoped that this will be the best joint meeting ever held in Pennsylvania. Full program will be announced later.



The milk in the pail the cow kicks over is lost forever

AND the butter-fat that goes into the can through the skim-milk spout of a cheap, inferior or worn-out cream separator is just as surely lost as the milk in the pail the cow kicked over. If you are trying to get along without a cream separator, or with an inferior or worn-out machine, you are losing butter-fat right along and butter-fat is money.

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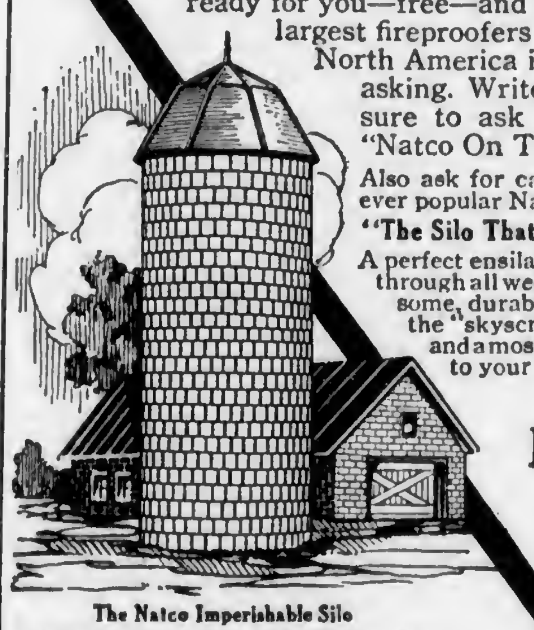

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Member Standard Farm Paper Association and Audit Bureau of Circulations

Philadelphia, Pa., January 29, 1916.

A VALUABLE FEATURE

A feature of timely value to every thinking farmer in this state will be published in the next several weeks. Hon. Wm. T. Creasy is writing a series of articles on Taxation in this state. The first article will be published next week. The second article will take up the different systems of state and local taxation. Mr. Creasy is an accepted authority on this question, particularly as applied to taxation of farm and rural property. He made a careful study of the subject while a member of the State Legislature and while Master of the Pennsylvania State Grange. Mr. Creasy is now Secretary of the Legislative Committee of the Pennsylvania State Grange; Secretary of the National Dairy Union; Vice President of the National Marketing Committee and Director of the National Rural Credit Association. He will present matter that deserves the most thoughtful attention of every farmer. Watch for the first article next week.

MARKETING EXPERIENCE

We have set aside a small space in Pennsylvania Farmer for a Department on Marketing. For this we ask our readers to send accounts of actual experience in disposing of their products. A great deal has been given in the way of advice, and many theories put forth as to what should be done to create better market conditions, and to realize greater returns, but what we want is concrete examples, and methods that have succeeded. What advertising have you done and how was it done? Give experience in methods of displaying and showing products. Explain how prepared and packed so as to be attractive without greatly increasing cost. What experience have you had in the hamper method? Does close grading pay? How does the Parcel Post work? There are a hundred things that are talked about in generalities, but let us hear your story of how they work out. We have but one caution, be brief.

POTATO MARKET

When Selmarad, in his market report early in November, prophesied $1.00 potatoes before Christmas and a further advance after the first of the year, some readers thought he was too optimistic. Yet potatoes reached that point in the local market the week of December 14, and were quoted as high as $1.10 per bushel by January 1. Present prices are firm with the tendency upward and no one dares prophesy what price may be reached before new potatoes are available next spring. A report just issued by the U. S. Department of Agriculture places the supplies of potatoes for market on hand January 1 at 38 percent less than on same date last year, 15 percent smaller than two years ago, 30 percent smaller than three years ago and but 16 percent larger than four years ago. Stated in figures of actual quantity, the supply on January 1 of this year is given as 105,345,000 bushels, compared with 169,554,000 a year ago, 123,292,000 bushels two years ago, 149,845,000 three years ago and 90,778,000 four years ago. It will be remembered that potatoes, four years ago (in the winter of 1912) sold up to $1.25 per bushel in the eastern markets and were going still higher when prices were checked by the arrival of imported stock. Potatoes from Ireland sold in quantities at from $2.25 to $2.80 per sack of 168 pounds, and domestic stock did not go above the $1.25 mark except in irregular lots. Supplies at present are reported 16 percent greater than on January 1 of that year. But as there is no possibility of competition with imported stock this year, the effect of this slight advantage in supplies is neutralized, and prices should reach the high point of 1912 at least before spring. Marketing under present conditions is a gamble at the best, but it would seem that farmers who are able to store their potatoes well, and whose stock is keeping well, might look with confidence to a strong market for several weeks to come. About 45 percent of the season's crop is still unsold, 83,909,000 bushels in growers' hands and 21,436,000 bushels in dealers' hands, and there is every reason to believe that all will be needed before the new crop begins to arrive from the South.

AMONG THE WORKERS

A prominent agricultural leader and institute speaker in this state writes: "We have just finished a very interesting series of institutes in which attendance and interest were very good. Several farmers came to me and asked if I would not take their subscription to your paper. I told them to send subscriptions direct to your office. I hear more favorable comments on Pennsylvania Farmer than on any other paper published." Thank you. Favorable comment, acknowledging practical and helpful service to the plain, every-day working farmers, is our idea of a chosen seat among the mighty. Expressions of this character are particularly gratifying as our aim has always been to serve this class of farmers and in this particular field; to serve the home people in the home field with an all-around Home Farm Paper. And we can best reach this end thru comments, criticisms as well as commendations, from our readers.

PROGRAMS FOR FARMERS' INSTITUTES

We criticised a few weeks ago the apathy found in many farmers' institute audiences and which throws the burden of discussion upon the state speakers, and suggesting that most all speeches should form the basis for a round table discussion in which the audience joins in with questions, opinions and discussions. Only in this way can the greatest good be derived. This week we wish to mention a less common error, altho of sufficient frequence to warrant mention, and that is the tendency in some localities to make the farmers' institute an occasion for the display of home talent almost entirely. We know of instances where the visiting speakers have been almost entirely omitted on the program, and the time occupied by local people on subjects foreign to the purpose of the meeting. Sometimes the sessions could not be distinguished from a district school entertainment, or the meeting of a local church society. However commendable such meetings may be in their time and place, it is not the purpose of the state to furnish and finance the occasion. We believe that local people should have a place on the program but their contribution should be in line with the purposes of the institute which is to improve agriculture and develop the rural community in all that tends to make a more intelligent and happier people. For this purpose the state speakers are supposed to be able to lead and suggest, and in most instances we believe they are fully competent, and it is a duty and an opportunity for the local people to assist. But the meetings are not held to give a chance solely for local talent to display its ability at entertaining, or for politicians to get off spread-eagle speeches. The farmers' institutes have done a great deal of good and will continue to do so if the people lend their best efforts towards making them useful. But it should be understood that the voice of criticism and the eye of suspicion are both directed their way and they must measure up in purpose and efficiency.

TWO BLACK STATES

State-wide prohibition made a big advance step on January 1 of this year. Seven states were added to the list in dry territory. Iowa, Colorado, Oregon, Washington, Idaho, Arkansas and South Carolina closed their saloons on that date as the result of the verdict of the people in the last election. Virginia also passed a state-wide prohibition law which will not go into effect until November 1 of this year. There are now nineteen states in the Union that have voted out the saloons and are enjoying state-wide prohibition. In addition, all but seven states have large areas of territory made dry by local option legislation. Only seven are over half "wet" as classified by area rather than by population, and only five are practically all wet in area. That is, there are only five states that have not passed local option laws and given their citizens an opportunity to eliminate the saloons by townships and counties. These five are Pennsylvania, New Jersey, Minnesota, Montana and Nevada. On the prohibition map of the country, these five states show solid black, and Pennsylvania and New Jersey make up the solid smudge on the eastern half of the country. It is not the fault of the farmers of these two states that they head the list in black territory. It is not the fault of the farmers that local option laws have not been passed here. They have been foremost in the struggle for local option, just as farmers in other states have been most active in voting out saloons under the local option referendum. In these states we have all our work before us. Local option should be a big issue before the present session of the New Jersey legislature, and one of the primary issues in the selection of candidates for the Pennsylvania legislature next fall. And in both states, farmers must head the fight.

ATTENDANCE AT FARMERS' MEETINGS

On January 15, we published an article entitled "Attendance of Farmers at Important Meetings," in which it was shown that it is a matter of common occurrence for farmers to absent themselves from meetings which are held ostensibly in the interests of agriculture. We have attended many state meetings of this kind in Pennsylvania and the same criticism holds good, the attendance being but a handful when compared with the whole number of farmers, fruitmen, or market gardeners who are, or should be, interested in state organizations. Such organizations are conceded to be necessary by most people because strength of numbers is necessary to obtain just recognition before legislative bodies and transportation companies, and to form any effective co-operative body for buying and selling. For these reasons the state associations should have enrolled practically all who are engaged in the several special industries. But they do not. The producers excepting a few earnest men are not even in attendance, much less active members. Very few in the immediate nighborhood are ever present. Why? Whose fault is it? We are not sure that we know, but we will venture two assertions. First, a lack on the part of the rank and file to appreciate the needs and possibilities of organization; second, failure on the part of the leaders, in many instances, to take up subjects and matters for consideration in which producers are most vitally interested. At the risk of being considered chronic fault-finders on this question, we will say that we know from the honest expression of practical men that what they want most is not how to produce more stuff, but how to sell it so as to realize a profit. In view of the experience of the past two seasons the average man is not interested in increasing his out-put, or even in making it "first-class," since his best efforts, rewarded as they were with unquallified success in production, failed to return labor cost let alone a profit. At a recent state meeting occupying eight sessions all the questions except one had to do with producing more and better goods. While comparisons are considered odious, we can not help but call attention to a report of a meeting held in an adjoining state published in our columns last week, and another this week where hundreds were in attendance and the program as well as the resolutions adopted show why the attendance and interest was what it was. We doubt the expediency or the necessity of explaining to a body of active, business producers a great deal that is purely technical and best adapted to the class room. In these days of books, bulletins and institutions it is possible for a person to find out anything he wishes to know within a few hours. These things are known and recorded. But equally vital matters are not solved, and will not be solved except by large numbers meeting, studying, planning and working together to that end. This end of organization work must be depended upon to bring the profit-bearing dollar. We repeat, it takes large numbers. However wise and well-intentioned a few men may be they alone can not solve the questions. The rank and file owe it to themselves and to their calling to lend their aid and attendance to movements which are potentially able to solve vexing problems. In the meantime, let the small number now forming state organizations start something along the lines of greatest need, follow it up with constructive work and we venture the prophecy that numbers will follow such leadership.

HARRISBURG NOTES

Financial Situation. — The money situation as it stands is giving the financial officials of the state grave concern. The state has not many sources of new revenue that could be used without imposing hardships. The anthracite tax which it was planned would raise the money for roads has fallen and the additional revenue to be raised by the stock transfer, the escheat and other acts will not be as great as hoped. The state fiscal authorities have a year in which to work out the problem. The revenue will not be much increased, the additions being more or less taken up by diversion to special funds. The school system will require more money and a better system of payment because three-quarters of a million dollars is still due which should have been paid before December 1; the roads will require more money if any construction work is to be done; the compensation system is going to cost more money and there will be the usual demands for increases, while the governor's plan for advancement of agriculture and the increase of the food supply will require a larger appropriation for the Department of Agriculture. The latter proposition is one of the biggest in the State in view of the prevailing industrial conditions and it is going to take generous allowances to enable the state to do the work outlined. The problem which will have to be worked out in the year will be whether the hospitals not under state control will be given as much as before or be required to take less in order to supply the funds for the public works and the expanding governmental activities.

Lime Inspection.—The State's inspection of lime, paint and putty has been started and samples are being taken. Considerable lime has been received for analysis from consumers under the offer of Secretary Patton to have the chemical experts of the state accessible for everyone. The service is too new to give any results, but in the next few months it is likely that some data will be available to show just what the farmers have been getting in the shape of lime, marl and similar materials for agricultural use.

Fertilizer Situation.—Careful studies are being made from the records of the licensing of fertilizers during the year just closed. It is feared that the state revenue may be less, but what is concerning officials more is how the trade is meeting the shortage of potash supply. The fertilizers sold in the state have been checked up and analyzed to an unusual extent and the adoption of some new rules is said to have been imperative. It is likely that this subject will be taken up in great detail when the soil conservation work is undertaken.

War Takes Horses.—The fact that the number of horses in the state, as shown by the State Department of Agriculture, is just where it was a year ago and that the average price per head has declined is taken to mean that the war has taken between 12,000 to 15,000 horses from Pennsylvania. This has been the normal rate of increase lately. The number of horses is given as 596,000, when it was the hope a year ago to have them go over 600,000. The value is given as $72,116,000 and the average price $116 per head.

Fewer Creameries.—A Department bulletin shows that the number of creameries in the state has decreased in the last two years. The number was given as 666, whereas only a short time ago it was about 700. Bradford County leads with the creameries and the northern and southern tier counties have most of the enterprises. The decrease is attributed to the shipment of milk in bulk from farms to New York State cities for a farm supply and for the manufacture of ice cream. There has been no information given out as to the standing of the allied enterprises, there being 86 cheese factories, 26 milk condenseries and 55 canneries. The location of the plants shows that the centre of activity is about the same as ten years ago. The northern tier leads in dairying matters and the York-Lancaster region in the canneries.

State's Cattle.—Some interesting statistics have been made public by the Department of Agriculture concerning cattle in the state following statement of the Dairy and Food Comissioner that it is a matter of public concern that the number of dairy cows has not increased. He is in favor of an organized effort to have the cows increased from one million to three million. He says the food supply and other considerations demand it, and that the farmers and the land owners owe it to the public to have larger herds. The number of milk cows in the state on January 1 is given as 952,000, worth something over $52,800,000 and of other cattle 644,000 worth $18,675,000. The average price of a milk cow is given as $55.50. The same bureau reports that hogs numbered 1,186,000, worth almost $14,000,000; sheep 806,000 worth $4,352,000. These figures are rather eloquent of what the state needs and offer a field for study as to the reason for the present status and how to increase the number. — Hamilton, Harrisburg, Jan. 24.

NEW JERSEY FARM NOTES

Department Reorganization. — Senator Gaunt has reintroduced his bills providing for a State Department of Agriculture and which Governor Fielder vetoed last winter. He expects they will be enacted, changes having been made to meet the executive's objections. His plan is intended for a working combination of the State Board of Agriculture and all the other bodies now concerned in the conservation of the farm and development of agriculture and horticulture. The bills provide for the division of the state into eight districts, and that the state board shall be chosen by a convention of farmers representing the allied interests of the state and including the Grange, county boards and horticultural society. The new board would also select the Secretary for Agriculture and the control of the board would be continued in the hands of the farmers themselves. The department would be divided into different bureaus in charge of assistant secretaries. In carrying out this plan, the work of the animal industry and diseases of animals would be put under one bureau. It is proposed to have a publicity bureau that would collect data of value to farmers, such as the number of farms for sale, their price and location, the distribution of labor, immigrants and anything of this character. The land bureau is another important department which would have charge of the rural credits, bulletins and land registration, with the collection of data along the lines that would prove of benefit to the farmers. Briefly, the plan is comprehensive and calls for the centralization of the work similar to the plan under which the State Board of Education is operating. The general efficiency of the department would be promoted.

Girl Creates Industry.—Miss Elizabeth C. White, daughter of Joseph J. White, the millionaire cranberry king has given to this state an entirely new industry which is expected to equal that of growing cranberries and which will probably give employment to at least 10,000 within a few years. She has successfully demonstrated that waste lands may be made to produce the highly profitable "big blue" swamp huckleberries, which the Department of Agriculture calls "blueberries". She has several acres of cultivated blueberries propagated from the choicest wild plants.

Exchange Profitable. — Altho 1915 was a year of glutted markets and low prices, the South Jersey Farmers' Exchange did business amounting to $746,686, with net profits of $14,123. The exchange operated 17 stations in Salem, Cumberland and Gloucester counties and established a record in the handling of white potatoes. It handled 1,078 cars as against 799 in 1914 and 722 in 1913. There are 733 farmers in the three counties who are members of the exchange.

Saves State Thousands. — In his annual report to the Governor, State Commissioner of Public Reports Benjamin B. Bobbitt says a saving of at least $18,000 has been made during the past year in the printing of the reports of the various departments and institutions.—L.

NEW YORK LETTER

Pasteurization.—There is likely to be a hot fight in the legislature over a bill to make pasteurization of skimmed milk and whey compulsory. Prominent stockmen have been in Albany the past week to advocate the measure while it is just as earnestly opposed by the officials of the state grange and others. The one side contends that pasteurization is one of the best means of combating bovine tuberculosis and they quote Denmark as evidence. Mr. Brockway places the loss of cattle and swine from this disease mentioned at $100,000 each year in this state and by the proper treatment of the by-products he believes that healthy stock would be raised. The grange officials are quoted as saying that they are in favor of educational work in this matter but it is useless to make pasteurization compulsory as the law would be impracticable and expensive, and when farmers see it to their advantage they will need no law to make them do it.

Commissioner Wilson's Report.—This document, full of interest, was presented to the legislature January 19. It appears that the large sum of $718,251.81 was paid last year as indemnity payments for cattle afflicted with foot and mouth and tuberculosis and horses that had glanders. The sum of $250,000 was distributed among the agricultural societies of the state in payment of premiums. About 2,000 head of cattle were killed by the state and 1,200 horses affected with glanders. The indemnity value was about $180,000. The foot and mouth disease cost the state $500,000, one half of which will be paid by the federal government. During the year the farms of the state were supplied with 3,869 farm hands in 86 families, representing 25 nationalities. The department sold 475 farms, the aggregate value being $2,770,675. It appears that about half of the farms sold were bought by Scandanavians and Germans. They were largely former immigrants who had settled in the west but who have returned east and taken up these farms. The crops of the state were valued at $266,000,000 and if animal products are included the total would be $475,000,000. During the year 380 regular farmers' institutes were held. There were also 288 special women's sessions with a total attendance of 12,000.

Important Matters of Legislation.—One of the most important proposed changes in the agricultural laws is to establish a standard to fix the minimum amount of butter fat and the maximum number of bacteria in milk sold by dealers. Another is to the effect that a dealer may be found guilty of selling or offering for sale adulterated milk provided one can in a lot be found deficient. Another is to permit tubercular cattle purchased by the state to be loaned for breeding purposes to public institutions only. At present they may be loaned to individuals. It is also proposed that the cattle may be retained by the owner under the Bang system and that the owner may arrange for the transfer of such cattle in compliance with the regulations of the department. Among other recommendations are these: That there be no change in the apple packing law; that the department be permitted to examine fertilizers and lime selling at less than $5 per ton, striking out the $5 clause; that the state Vegetable Growers association make recommendations establishing the size of packages and grades of celery and lettuce; that the commission men's law be extended so as to include all forms of live stock and produce; that the Federal oleo standard be made a part of the state law; that there be legislation for the destruction of tent caterpillars on the highways and that an adequate law be enacted for the protection of the sheep industry against dogs.

Horticulturists to Meet.—The state Federation of Horticultural Clubs will hold its annual meeting at Ithaca on Feb. 9. Lectures, exhibits and practical demonstrations of interests to horticulturists will be on the program

Holstein Sales.—At the two days sale of Holsteins at Earlville the past week the round sum of $100,000 was realized from the sale of about 350 head. More than 800 stockmen attended the sale on one day.—D.

PENNSYLVANIA FARMERS' INSTITUTES

First Section.—Dauphin County, Jan. 31, Feb. 1; Halifax, Feb. 2, 3; Linglestown, Feb. 4, 5. Speakers, Sheldon W. Funk, E. L. Phillips and S. C. George.

Second Section.—Blair Co., Geeseytown, Feb. 1, 2; Newry, Feb. 3, 4; Bellwood, Feb. 5. Speakers, D. H. Watts, M. H. McCallum and W. Theo. Wittman.

Third Section.—Armstrong County, Spring Church, Jan. 31, Feb. 1; Brick Church, Feb. 2, 3; Cowansville, Feb. 4, 5. Speakers, E. B. Dorsett, F. H. Fassett and Fred W. Card.

Fourth Section.—Warren Co., Sugar Grove, Feb. 1, 2; Youngsville, Feb. 3; Warren, Feb. 4, 5. Speakers, Wm. M. Patton, Prof. Wells W. Cook and C. M. Barnitz.

Fifth Section.—Bucks Co., Springtown, Jan. 31, Feb. 1; Sellersville, Feb. 2, 3; Bristol, Feb. 4; New Hope, Feb. 5. Speakers, J. T. Campbell, Leon Otice VanNoy and John D. Herr.

LATE BULLETINS

Top-Dressing Grass Lands and Pastures, bulletin No. 7, issued by The American Agricultural Chemical Co., Boston, Mass. This bulletin advises and gives many helpful sugestions on the matter of top-dressing grass, telling how, when and why it should be done. It is well illustrated.

Quack Grass Eradication, bulletin No. 151, issued by the University of Minnesota, Agricultural Experiment Station, St. Paul, Minn. This bulletin contains helpful information on the nature of the plant, habits of growth, and gives methods of eradication. These methods are proper rotations and the right kind of cultivation.

Alfalfa In Delaware is the subject of a valuable bulletin recently issued by the Delaware Experiment Station, Newark, Del., edited by Prof. A. E. Grantham. The author takes up the successive subjects of soil, climate, preparation, seeding, harvesting, etc., and states that under good conditions four tons of hay per acre is grown in that state.

FARM MEETING CALENDAR

N. Y. Tobacco Growers' Association, Baldwinsville, N. Y.	Jan.29
N. Y. State Grange, Jamestown, N. Y.	Feb. 1- 4
N. J. Board of Agri., Trenton, N. J.	Feb. 2- 4
N. Y. Farmers' Week, Ithaca, N. Y.	Feb. 7-12
N. Y. Vegetable Growers, Ithaca, N. Y.	Feb. 8-12
American Berkshire Congress, New Brunswick, N. J.	Feb.22-24
Alfred University Farmer's Week, Alfred, N. Y.	Feb.22-25
Penna. Breeders' Ass'n, Monongahela House, Pittsburgh	Feb.23-24
Penna. Dairy Union, Monogahela House, Pittsburgh	Feb.23-24
Long Island Cauliflower Association(Riverhead, N. Y.	Feb.26
Mercer Co., Board of Agriculture, Trenton, N. J.	Feb.28
N. Y. Holstein-Friesian Club, CyraCuse, N. Y.	Mar. 1
American Jersey Cattle Club, New York City	May 3
Holstein-Friesian Association of America, Detroit, Mich.	June 6
International Apple Shippers' Association, New York	Aug. 2
National Dairy Show, Springfield, Mass	Oct.12-21

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Live Stock

INCREASING THE PROFITS IN HOG RAISING

Profitable hog production is dependent at the start upon the cost of maintaining the brood sows which will deliver the litters. An experiment is in progress at The Pennsylvania State College to determine the cost of maintaining brood sows by the use of different feed combinations. This experiment will run for five years, but the results of the first year's experiment show that a ration can be selected which is economical and properly balanced for the maintenance of the sows. Either alfalfa hay with a limited amount of corn, or a combination of 10 parts corn and 1 part tankage are cheaper than a mixture of equal parts of corn meal, wheat middlings and ground oats. The latter mixture is one which is in quite common use by Pennsylvania hog men, and this experiment shows that either one of the first named rations had better be substituted for the one which is in most common use.

To produce pork economically the hog raiser must use during the growing season pasture crops for forage for the pigs. In addition to the pasture crops a satisfactory grain ration should be supplied to keep the pigs growing and in proper thrift. Three years' experiments at the Pennsylvania State College with the growing of pigs during the summer months indicate that pigs that are grown on pasture attain a greater weight, make more rapid gains, are more healthy and thrifty and return a much larger profit than hogs which are confined in the dry lot. Some satisfactory forage crops for hogs are rape, oats and Canada peas, oats and rape, alfalfa and clover pasture.

EASILY CONSTRUCTED, SANITARY CONCRETE HOG HOUSE.

The Department of Animal Husbandry during the past summer also compared the feeding of pigs in dry lots and on pasture with the use of the self feeder. The idea of allowing the pig to eat as much as he wants and to balance his own ration is a new one, but the experiment for the first season showed that where one is growing very many pigs he will be able to make a larger profit and attain a greater weight on these pigs by the use of the self feeder. The old idea that the pig did not know what he wanted to eat has thus been disproved. When given liberty the pig will select amounts of different feeds as are necessary for his growth and development. He knows what he wants and what his body needs, and in return for the privilege of being allowed to eat what he wants he gives the owner a neat profit in the gain which he makes.

During the summer period the pasture lot fed on the self feeder made for the total summer period a profit of $79.85 against a total profit of $16.72 in the dry lot pigs. This wide range of profit should certainly cause hog raisers to start preparations for the growing of forage crops for their hogs for the coming year.—H. H. Havner, in Penna. Farmers' Week Talk.

WEIGHT OF HORSES FOR FARM WORK

High priced land and labor have led our farmers to study methods of reducing costs in farm work. The advantages draft horses have over light horses in farm work are many. The tractive power horses can exert is governed by weight, strength and temperament. Under extraordinary pressure horses can exert from 4 to 6 horsepower, but under conditions of daily work exert a pull which is about one-tenth of their working weight. The horse power traction required to move farm implements depends on the soil, climatic conditions, and the condition of implements used.

Under favorable conditions five draft horses weighing 1,600 pounds or over will pull a two-plow gang of 14-inch plows a little more than 20 miles, averaging from five to five and a half acres per day. It will take seven horses that weigh from 1,100 to 1,300 pounds to do the same work, and it is not practicable to work seven horses on one gang plow with the ordinary class of farm labor. It will therefore require two men on single plows, one with four and the other with three light horses, to do the same amount of work that one man will do with five draft horses. The same general ruling applies in seeding, disking and harvesting, for while one man can readily handle five draft horses on the implements needed, he cannot advantageously nor safely use enough more light horses to give his equivalent power. The use of draft horses therefore increases the amount of work one man can do in the field; and in actual practice the work is better done when drafters are used. When to this we add the fact that less barn room is needed, and less labor required in handling the heavy horses than is necessary where enough more light horses are used to make up equivalent power, the advantage becomes marked.

Besides this, the heavy horses sell more readily and at higher prices, when surplus is to be sold. Light-weight horses have been bought at prices ranging from $110 to $150, while draft horses have brought from $200 to $300 each. This is an important factor, for every well-managed farm has a few surplus horses to sell annually, and the more ready sale and higher prices realized for draft stock are factors which must appeal strongly to all thinking farmers. Maximum cash returns are what we are all interested in, and this we obtain from drafters used in farm work.—Wayne Dinsmore.

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FARM SCALES PAY FOR THEMSELVES

We frequently hear of the application of modern business methods upon the farm, and of examples where they have been the means of saving the farmer considerable money. We know of nothing along the line that is of more assistance than a set of farm scales. Upon most general farms scales of this kind can be made to pay for themselves in a few years. The day when one could be content to guess at the weight of a load of hay or a bunch of stock has passed and now, with present high prices and keen competition, accuracy is absolutely necessary if the greatest profit is to be secured.

On a farm, for example, where stock of various kinds is being fed, the only sure method by which the feeder is able to tell whether or not his animals are making the gains that they should is to weigh them every week or so. In order to determine further as to the profit in the gains it is necessary to use the scales again and weigh the feed that the animals receive. With farm scales all of this takes but little time. If, on the other hand, there are no scales on the farm and in order to get any weighing done it is necessary to go some distance, in all probability the weighing is never done until the stock is sold. The feeder just feeds on until the stock is ready for the market without knowing to any degree of certainty what the feed is costing him or whether his stock is being fattened as economically as possible or not.

This is but one way that a good set of scales show their value. They play an important part at the time of the public sale or the sale of stock at any time. When the buyer comes along the owner of a set of scales has no fear of being cheated. The buyer has the advantage of the average farmer because he is dealing with stock constantly and as he sees stock weighed every day is naturally better able to determine an animal's correct weight by guess. Instead of the trade being made on the estimated weight of the animals as placed by the buyer, who is sure to under estimate their weight by from 5 to 20 pounds per head, the farmer who has scales has his animals weighed when the buyer is present and then he gets the market price on actual weight. If a man sells much stock, or even buys them, it will not take very long for the scales to save for him the price he paid for them.

It is not only on the live stock farm that there is found use for the scales, but on the grain farm they are as essential. In selling grain, hay and other farm products, it is advisable to have all weighed before they leave the farm so that mistakes may be avoided. When one neighbor sells to another a pair of scales on the farm saves a long trip to town to get the weighing done.

One of my neighbors had an experience not long ago that shows the value of scales on the farm. He had two wagon loads of wheat to haul to the market. The first load was taken to the elevator without being weighed. The weights that he received by the scales at the elevator did not altogether satisfy him, so before the second load left the farm it was weighed. At the elevator the same unsatisfactory weights were received as with the first load. When the weigh-master's attention was called to the matter he, of course, thought that his scales gave the correct weight. However, an investigation was made and it found that some dirt and rubbish had clogged in them in such a way as to make them unreliable. The obstruction was removed and it was found that the weights of my friend's scales and those of the elevator almost tallied. The weigh-master was an honest man and paid for the difference in the weight, and for the two loads it made an increase of $16.

Altho such a case as this might not happen once in several seasons it shows the advantage of the scales on the farm. Instances of a great many varieties are sure to turn up both in buying and selling, and the farmer's scales will always give him a square deal.—C. H. Wheatley.

CALVES NEED CARE IN FIRST SUMMER

The first year of a calf's life is the most important with respect to its growth. Unless animals are kept growing during this period their final development will be much retarded, and the chances are they never will reach the scale which their inheritance would give them.

On the best regulated dairy farms calves are born in the autumn and early winter, and they should receive skim milk in moderate quantities thru much, or all, of the summer following birth. On farms having hand separators there is no difficulty in providing the sweet milk for calves, morning and evening; but farmers who patronize whole-milk creameries or who still skim by hand should remember that after the first few weeks milk for calves should either be thoroly sweet or fully sour, that the most dangerous condition is the half-sour stage. If milk is fed to calves when it is in this changing condition it is almost certain to cause indigestion. It should not be half sour nor sour one day and sweet the next, but always one or the other.

Clean feeding pails must be used, otherwise the germs of fermentation and diarrhea will be brought to the infant cow from the slime of the dirty drinking dish, and with young calves it is important that the temperature at which the milk is fed be nearly that of the body. Older animals may receive milk of the temperature of the milk-holding tank.

While it is very important that heifers should have free access to pasture during the second summer, to develop strong bodies, the calf need not have pasture the first summer. In fact, for calves born after the first of the year, pasturing may be a disadvantage. Most young calves in this country are better off chewing tender hay in the quiet and half-dark stable than fighting flies, panting from the heat, and cropping tough grass in the pasture. — R. M. Washburn in Minn. News Letter.

Churning in Winter.—For the trouble some have in churning in winter, I give my rule, tried for many years without a failure. When you have the cream ready, before it sours heat it to 80 or 85 degrees. Then cool to 62, and add the starter. Keep as near to 62 as possible. When it thickens it is ready to churn.—I. G.

State Farm for High School.—The state farm rented by the Sinclairville High School, Chautauqua Co., N. Y., has been deeded to the school district and will now be worked more extensively in connection with the agricultural department of the high school.

I'LL PUT YOUR STOCK
in a thriving condition, make the ailing ones healthy and expel the worms.

Remember, I have no peddler's wagon and horses expenses to pay; that's why I can sell you my Stock Tonic through a local dealer in your town—a man with whom you trade every week—at rock-bottom prices.

Why Pay the Peddler Twice My Price?

I urge every farmer to see to it right now that his work horses are put in condition for the hard work of spring and summer, so that when the sun shines your horses will be rid of their old coats, full of stamina and ready for business. And don't overlook the spring pig crop—the mortgage lifters. Start them off free from disease—free from worms. Be sure, also, that your milk cows are thoroughly conditioned for the long, heavy milking season, and that those with calf are vigorous and fit. Remember, your stock have been cooped up for the last few months and have been on dry feed. As corn or oats, hay and fodder do not contain the laxatives and tonics so abundantly supplied in grass, your stock are pretty apt to be out of fix. Some of your animals are liable to be constipated, rough in hair, their legs may have become stocked, or they have dropsical swellings, but the most common disease of all, especially among hogs, is worms—worms.

DR. HESS STOCK TONIC

25-lb. Pail, $1.60. 100-lb. Sack, $5.00

Highly Concentrated, as the Small Dose Quantity Proves

Now, as a worm expeller, I will go the limit in guaranteeing my Stock Tonic. To clean out your hogs, put in the swill one tablespoonful of my Tonic to every two hogs twice a day and you'll make short work of the worms. Dr. Hess Stock Tonic is

A Sure Worm Expeller—A SPLENDID TONIC

This preparation of mine is 24 years old, farmers everywhere have tested it. I feed it to my own stock, for I know that it contains the necessary ingredients for enriching the blood, improving the digestion and assimilation, keeping the entire animal system clean and well regulated.

So sure am I that Dr. Hess Stock Tonic will put your animals in a thriving condition, make the ailing ones healthy and expel the worms, that I have authorized my dealer in your town to supply you with enough for your stock, and if it does not do as I claim, return the empty packages and my dealer will refund your money

And here are my prices—just half what the peddler charges: 25-lb. pail, $1.60; 100-lb. sack, $5.00. Smaller packages as low as 50c (except in Canada and the far West and the South). Sold only by dependable dealers who are known for square dealing.

Dr. Hess Poultry Pan-a-ce-a

This is just the time you should be giving your poultry this splendid tonic. It will put them in fine condition, make your hens lay, ensure fertile hatching eggs and strong, vigorous chicks. Very economical—a penny's worth is enough for 30 fowl per day. Sold only by reliable dealers—1½ lbs. 25c; 5 lbs. 60c; 25-lb. pail, $2.50 (except in Canada and the far West). Guaranteed.

Dr. Hess Instant Louse Killer

Kills lice on poultry and all farm stock. Dust the hens and chicks with it, sprinkle it on the roosts, or, if kept in the dust bath, the hens will distribute it. Also destroys bugs on cucumber, squash and melon vines, cabbage worms, etc. Comes in handy, sifting-top cans. 1 lb. 25c; 3 lbs. 60c (except in Canada and the far West). I guarantee it.

I have a book about Dr. Hess Stock Tonic that you may have for the asking.

DR. HESS & CLARK, Ashland, Ohio

If you have a sick or injured animal, write me at once, giving symptoms, and I will send you prescription and letter of advice free of charge. Send 2c stamp for reply.

ROBES. We custom tan and dress out soft, pliable, moth proof, from a beef hide a beautiful robe for you at $3.50. Green plush lining comes extra at $3.50, or $7.00 complete job with a beautiful flowing border. Send for catalog today. W. W. Weaver, Custom Tanner, Reading, Michigan.

The South—The Homeland

FOUR TO SIX TONS OF ALFALFA, 50 to 100 bushels of corn to the acre, $100 to $500 an acre from fruit or truck, opportunities for the stock raiser and dairyman, a climate which means two to four crops a year, pleasant home locations, attractive land prices, are things the South offers homeseekers. Our publications and special information on request.
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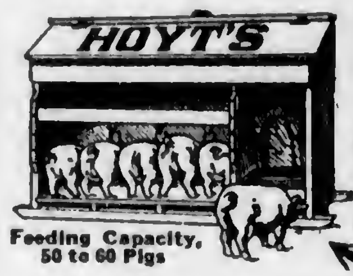
Yes, it's a fact. You can get the agency for this superb 30 h.p. 5-passenger BIRCH Motor Car with electric lights and starter, and have the opportunity to get a car free. Make $3,000 to $10,000 a year in the automobile business. I will show you how. Special offer now. Write quick—before too late. Address Ralph Birchard, Pres., BIRCH MOTOR COLLEGE, Inc., Dept. 138 Tower Bldg., Chicago

TANKAGE for HOGS

Every experiment station test shows *Tankage* the cheapest and best feed for hogs and growing pigs. Build big frames to carry fattening. Use Roberts *Tankage* and *buy direct* from manufacturer. Write for prices.

Ellwood Roberts Co., 675 Drexel Bldg., Phila.



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Earns its cost first month--Sold on 30 Days' trial
"Self-fed pigs gain faster" says Iowa Experiment Station. **This new self-feeder meets all their requirements. Endorsed by breeders. Saves feed and labor.** Six separate bins for salt, corn, tankage, middlings, oil meal, etc. Water proof. **Keeps feed dry and sweet.** Strong, handsome, well built. Has adjustable trough made of 2 in. lumber. Sliding bar to keep out larger pigs. Automatic agitator.
MAKE MORE MONEY IN HOGS THIS YEAR
by having this self-feeder. Sold on 30 DAYS' TRIAL. Write today for full particulars.
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CIRCLE X BRAND — BAR Z BRAND — OWL BRAND — CUB BRAND — DOVE BRAND — FOX BRAND — KRISP KAKE

Selected Quality Cotton Seed Meal
CRACKED CAKE (NUT AND PEA SIZE) COTTON SEED HULLS
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Headquarters for Cotton Seed Products
GOOD FOR

They Need Protein. Feed Balanced Rations. Our Booklet, "Science of Feeding," Free for Distribution.

Home Treatment for Minor Ailments

By Martha B. Lyon, M.D.

In dealing with the treatment of minor ailments, one must be sure that the ailment is minor and not the forerunner of some more serious trouble, for which a doctor should be called; nosebleed, fainting, nausea or vomiting may all pressage acute conditions or they may be only the expression of some slight indiscretion of diet or unhygienic surrounding.

Nosebleed

Slight nosebleed in well children comes mostly from the front part of nose or from the septum. It is often due to falls, blows, picking the nose, or to a small ulcer. It is rather frequent with chidlren who are kept indoors too much. The blood usually comes drop by drop from one nostril. Have the child sit up with head thrown back and arms stretched above; never lean over as this increases the flow of blood. Place a cold wet towel upon the back of neck and bridge of nose. If this does not check the bleeding snuff up a cold solution of salt water (1 teaspoonful to pint) or cold tea; or pass the salt water or cold tea gently up one nostril and out the other by means of a fountain syringe, placed about a foot above the patient, having the child keep its mouth open to avoid choking. As a final means of checking the hemorrhage, pack the bleeding nostril with a loose roll of absorbent cotton about 2 or 3 inches long, pushing it up gently with something blunt. A doctor should be called in such cases. The nose should not be blown for some time after the bleeding has stopped. The building up of children subject to this kind of nosebleed with plenty of fresh air, outdoor exercise and good food must not be neglected.

Fainting

Fainting is due to lack of blood in the brain, and very often occurs in overheated crowded places, as theatres, motion picture halls, churches, etc. It may be caused by emotion, pain, exhaustion, cold, heat, tight clothing, heart disease or hemorrhage. The latter two are serious and require a doctor, but hemorrhage can be checked before his arrival. The face becomes pale, often covered with perspiration, the breathing quick, the pulse hard to find. If consciousness has been lost, place in a recumbent position with the head lower than the feet, so the blood will flow toward the brain. Loosen all tight clothing as neck bands, waist bands and corsets, and give plenty of air by opening all windows and keeping away the crowd. Bathe face and chest with cold water and use smelling salts to the nose, but be careful about using ammonia as the strong fumes may injure the nasal lining. As a stimulant, black coffee is better than whisky, which, if given, should be diluted with plenty of water. Fainting may sometimes be checked by placing the head between the knees and opening the windows.

Burns

Slight burns are those confined to small portions of the skin, and do not take in the deeper structures. These slight burns result from dry heat as fire and from moist heat like hot water or steam; the latter are known as scalds. Many burns, especially among children, may be prevented by keeping matches out of reach; by wearing woolen dresses or by fire-proofing the cotton ones; fire-proofing of cotton is effective by rinsing in an alum solution just before the garments are dried. Burning clothing should be extinguished by smothering the fire in a woolen rug or blanket; if there is nothing handy roll the child on the floor and beat out the fire with the hands; never carry from place to place as the draft produced increases the fire. When the skin is simply reddened relieve the pain by keeping out the air thus: Cover the part with a paste made of water to which is added baking soda, starch or flour; or with vaseline, olive oil, castor oil, fresh lard or cream. Bandage lightly after the application is made.

When small blisters are formed use the above treatment without opening, but if the blisters are large, open with a sterile needle at the junction of the unburned skin and the blister, gently press out the fluid without breaking the skin over the blister and apply the above remedies and dressing. This keeps out the air and dirt. The end of the needle used to open the blister is sterilized by heating it in a flame for a few minutes.

Corns

Corns, both hard and soft, have given much pain and annoyance. They are prevented by wearing well fitting shoes and keeping the feet scrupulously clean. Hard corns occur on the outside of the toes and upon the bottom of the feet; soft corns are found between the toes where there is more or less secretion. Never cut a corn, as blood poisoning may follow. After soaking the foot for about 20 minutes, rub off the hard callous skin. The softening of this callous skin is helped by applying a mixture of 1 part salicylic acid in 9 parts flexible collodion with a small glass rod or toothpick over the top of the corn, and allowing it to dry. In 24 hours this may be soaked off and another application made, repeating until the corn is removed. The collodion mixture is better than an ointment, as it remains where it is applied and requires no bandage, while the ointment is apt to spread to the surrounding parts and cause some soreness. Keep the collodion away from the flame as it contains ether, and will readily catch fire. Soft corns between the toes must be kept thoroly dry by means of starch or talcum powder. Place small pieces of gauze between the toes to prevent rubbing.

Colds

Bacteria play a most important part in colds, which are now known to be infectious. One member of a family catches cold and it attacks the entire household, one after another, mildly or seriously, depending on one's resistance. Living in a closed, badly ventilated house, going to stuffy moving-picture shows, and poorly ventilated churches or theaters tend to make one more susceptible to colds; as do also dust, too much candy and cake between meals, and enlarged tonsils and adenoids which serve as store-houses for bacteria. Here prevention is worth much more than cure. Keep away from colds as much as possible, don't kiss anyone who has a cold. If you must attend to small children, especially babies, while you have a cold, tie several layers of gauze around the nose and mouth, when close to them; sneeze and cough into your handkerchief; and see that each child has its own handkerchief pinned to its dress. With these precautions you may save your children from middle-ear disease, deafness, pneumonia, and many other dangerous infections.

A good routine of living, as sleeping in a well ventilated room, sponging the throat with cold water followed by a brisk rub in the morning, a regular habit of going to stool, a good breakfast, outdoor exercise, no sweets or pickles between meals, no neck furs, dry feet, clean hands, and the removal of diseased tonsils and enlarged adenoids will eliminate colds.

Prickly Heat

Prickly heat is common in babies with delicate skin who have been too warmly dressed. Bathe the skin either in a solution of 1 part grain alcohol to 3 parts water or in ½ teaspoonful of baking soda to a pint of tepid water, pat dry (do not rub), then dust on talcum powder or cornstarch, and lessen the amount of clothing.

Indigestion, Colic, Diarrhea, Constipation

Indigestion, which takes various forms, as abdominal cramps, diarrhea, constipation, nausea, vomiting and hiccough, is due to indiscretions in eating or living. Prevention here means the proper food, properly cooked, and eaten at the proper time. Abdominal cramps (colic), nausea and vomiting are relieved by getting rid of the indigestible food and expelling the accumulated gas from the stomach. The vomiting is encouraged by drinking a pint of tepid salt water or a cup of mustard water (½ teaspoonful to a pint of water), while the pressure from the gas is relieved by soda mint tablets, by ½ teaspoonful of baking soda in a cup of water or by a few drops of peppermint in hot water.

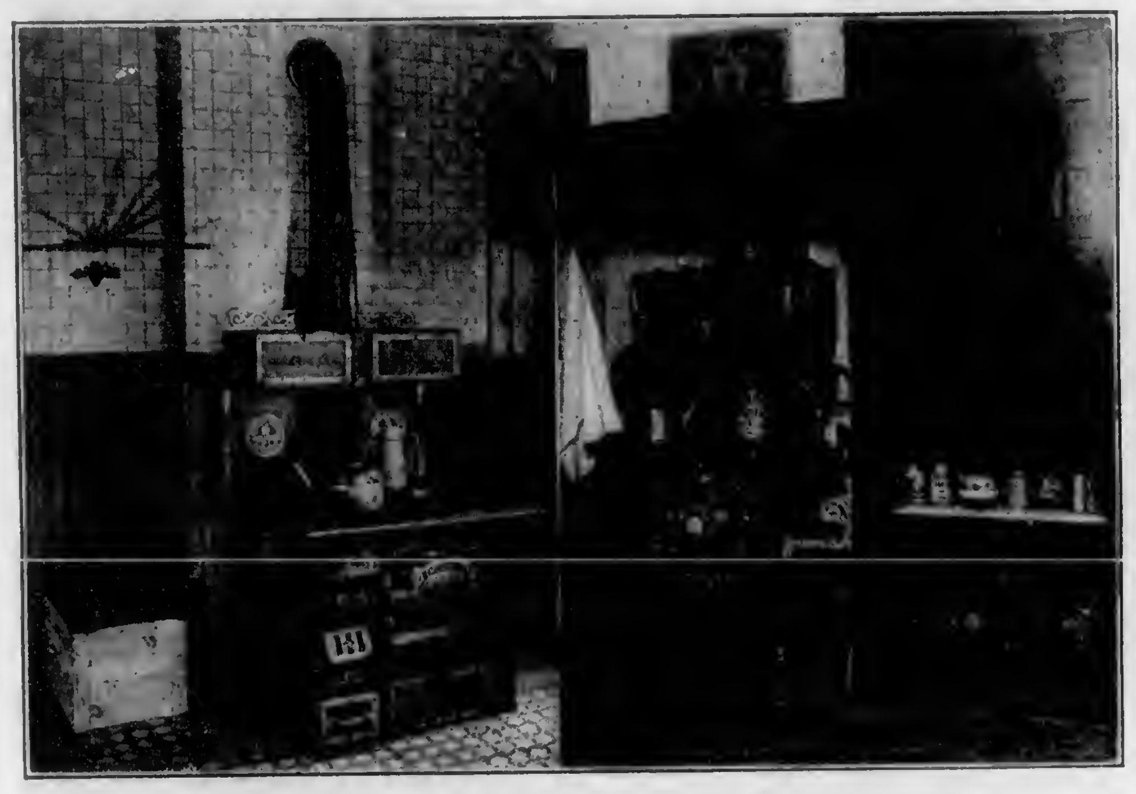
In diarrhea the intestine is trying to rid itself of irritating material. This can be helped along by giving castor oil to older children, and to adults 1-10 grain of calomel in 6 doses ½ half hour apart, followed by a dose of Epsom salts or a Seidlitz powder 2 or 3 hours later. Diarrhea in babies should always be brought to the attention of a physician. After the intestines have been thoroly evacuated, the diet for older children and adults should be milk with more solid foods added gradually.

Constipation is controlled by hygenic living, as drinking plenty of water at meals and between meals; eating bulky food like vegetables, fruits, oatmeal, going to stool at a regular time each day, and by outdoor exercise. Salts and other remedies should be used only in acute cases needing immediate relief.

Hiccough

This is due to spasmodic contraction of the diaphragm. This is sometimes stopped by forcing the diaphragm down and holding it there by a long breath, or by drinking a cup of water sip by sip without breathing. Any attack of indigestion no matter what form it may take may become serious. If simple remedies do not relieve quickly, do not temporize, but send for a doctor.

(Inquiries about feeding and care of children, as well as adults' symptoms will receive the advice of our doctor. —The Editors.)



ADVANTAGE OF SEPARATE VS BUILT-IN WOODBOXES.

Karo The Best Liked Syrup From Ocean to Ocean

AMERICA is the land of cakes—and Karo is the National Syrup. Everybody likes Karo—on corn cakes, wheat cakes, buckwheats and on all the rest of the tempting cakes that come hot off the griddle.

Karo, too, is a wonderful aid in cooking, preserving and candy-making. Housewives all over the country are sending for the Corn Products Cook Book and *making use of the Karo recipes.* The book is *free*—send for it.

Be sure to keep plenty of Karo on hand—order by the half dozen or dozen.

Housewives Save $1.40 on This 10½-inch Solid Aluminum Griddle

As long as they last, we will send one of our Karo Aluminum Griddles—that sell regularly at $2.25—for 85 cents in stamps or money order, and labels from 50 cents worth of Karo.

Thousands of women have already received theirs.

Without a doubt this Aluminum Griddle bakes the finest griddle cakes in the world—that's why we are making this special offer. We want every Karo user to share in the opportunity.

Easiest griddle to keep clean and bright *on both sides.* Can't rust. Needs *no greasing*—therefore no smoke. Heats *evenly* all over—every cake baked all over.

Get the Karo today—and send for your griddle at once.

Corn Products Refining Company
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Scott's Coffee
Better Flavor and Price

A coffee with the full flavor of fresh roasting that costs less than inferior brands because you're buying direct from the roaster.

5-lb. PACKAGE, $1.00.

Parcel Post prepaid within 150 miles. Guaranteed to satisfy or money cheerfully refunded. Our tea at 30c lb. is exceptional value. Sample free. State if black, mixed or assam is desired.

Wm. J. Scott, 2202 South Street, Philada., Pa.

We Will Give You Six Nickel Silver Spoons
for securing only 4 trial subscriptions to Pennsylvania Farmer, for 3 months at 10 cents each.

The spoons are made of the same metal thruout and are guaranteed to wear well. The design is beautiful and they are good enough to use on all occasions. Class A premium No. 400.
PENNSYLVANIA FARMER, 261 S. 3rd St., Phila., Pa.

BUILT-IN VS. SEPARATE WOOD-BOXES

The cut on the opposite page shows the advantages of a built-in over a separate wood-box for kitchen stove feeding. With the separate wood-box the wood must be loaded onto the arm and brought into the kitchen and dropped into the box, which is accompanied by the dropping of more or less litter. Besides, it takes time. With the built-in wood-box the wood is put onto the box platform thru a door at the back which opens directly into the woodshed near the wood pile. Such a wood-box in our farm-house kitchen has saved miles of steps since it was installed about 14 years ago. In another farm-house in our neighborhood a similarly placed wood-box is filled by lowering the platform into the cellar, where the wood is kept. In both of these cases the box is alongside of the firebox end of the stove. In the wood-box shown here, the box had to be on the other side because it was not possible to get the opening to the wood-house on the other-side. Such arrangement as described and illustrated here will save the cook many wearisome steps and much brushing up of litter in a year and a lifetime of years. Put it in for her as soon as you can. And if you have similar arrangements and conveniences, we would like to have you write and tell us about them.—The Editor.

DISHES MADE OF RABBIT

Rabbit en Casserole.—Hang the rabbit outside to chill thoroly—if it freezes the flavor will be improved. Disjoint and lay in salted water for several hours. Butter a casserole or deep earthen dish and, after thoroly dredging the pieces with flour and seasoning well with salt, pepper and paprika, cover them with water, and set in a moderate oven. Cover with the lid and watch to see that it cooks steadily and that there is sufficient water to prevent burning. An hour before serving, add 2 diced carrots, 1 onion and 1 cup of potato cubes. Continue cooking until the vegetables are tender, and just before serving add 2 cups of strained tomatoes. Serve hot in a deep vegetable dish.

Fried Rabbit.—A dish which is equal to chicken is fried rabbit. The rabbit should not be too old—if there is doubt as to its age, parboil first, dredge with flour, season well and fry slowly in hot fat. When the pieces are well browned, remove to a platter and, adding 1 tablespoon of flour and 2 cups of hot milk to the remaining fat, make a cream gravy; pour the gravy over the rabbit and serve with hot biscuits.

Rabbit Salad.—If rabbit is boiled in salt water, allowed to cool and diced, it with an equal amount of diced celery will make a delicious mock-chicken salad. In fact it has been enjoyed by people who declare they can not eat rabbit. The dressing should be especially well seasoned. — Mrs. Effie P. Loomis, Delaware Co., Pa.

SPRING PATTERN BOOK

Send 10 cents in silver or stamps for our 1916 Spring & Summer Catalogue, containing over 400 designs of ladies, misses' and children's patterns, as well as the latest embroidery designs, also a comprehensive article on dressmaking, giving valuable hints to the home dressmaker. Address Pennsylvania Farmer, 261-63 South Third street Philadelphia, Pa.

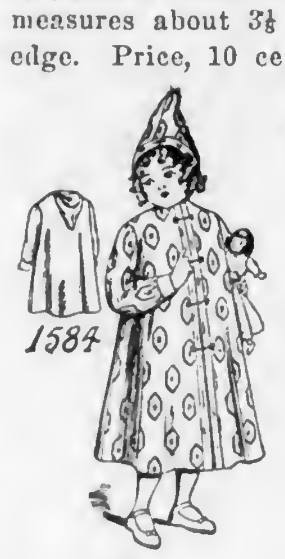
PENNSYLVANIA FARMER PATTERNS

Be sure to give the figures and letters of each pattern exactly as printed at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-63 So. Third Street, Philadelphia, Pa.

1584.—Child's Sleeping Garment. —Cut in 5 sizes: 2, 4, 6, 8, and 10 years. It requires ¾ yard for the hood and 3⅜ yards for the robe of 27-inch material, for an 8-year size. Price of pattern, 10 cents.

1569.—Ladies' Shirt Waist.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 3¼ yards of 36-inch material for a 36-inch size. Price, 10 cents.

1568.—Ladies' Costume.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. Size 36 will require 6⅜ yards of 44-inch material. The skirt measures about 3⅛ yards at its lower edge. Price, 10 cents.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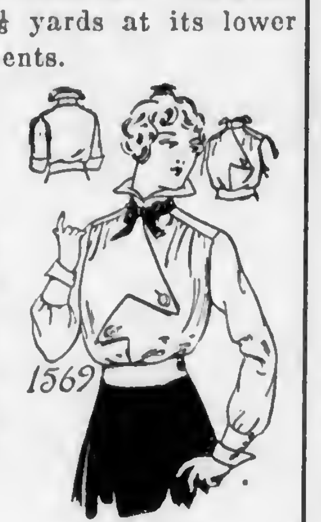
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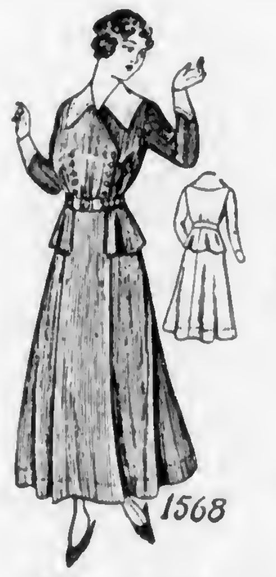
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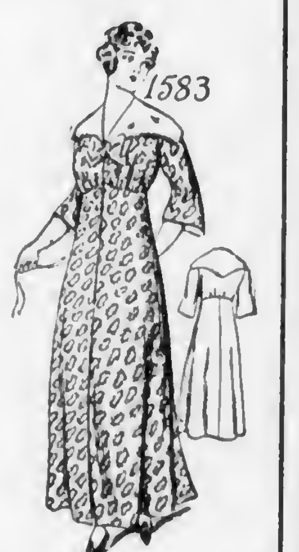
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1583.—Ladies' Kimono.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 6 yards of 44-inch material for a 36-inch size. Price 10 cents.

Are you paying to sit in the dark—

Paying to ruin your eyes, paying to smell burning wick and the odor of poor kerosene? Are you doing these things?

Unless your home is equipped with **Rayo Lamps**—you probably are. And what's more, you are paying the identical price that would buy you the flood of brilliant, eye-soothing, steady light that beams from a **Rayo Lamp** filled with slow-burning

ATLANTIC Rayolight OIL

Rayo Lamps are beautiful—an ornament to any room. And they burn brightly, without flicker or smell. Your dealer can show you a special design for any room, ranging in price from $1.50 up. No matter what sort of light you've got, the addition of a few **Rayo Lamps** will make your home brighter and the folks happier.

But **Rayo Lamps** are at their best when burning **Atlantic Rayolight Oil.** It is the one kerosene that burns without smoke or smell—that is always the same. It gives the brightest light and the greatest heat for the least money.

The use of **Atlantic Rayolight Oil** doesn't stop with burning and heating; thousands of housewives have written us that it's the very finest thing to brighten faded carpets, keeps the moths away from closets, shelves and drawers, cuts grease better than anything else, and that for washing windows it's without equal.

THE ATLANTIC REFINING COMPANY ATLANTIC

*Be certain to ask for **Atlantic Rayolight Oil** by name—it costs no more than the unknown, unreliable kerosene.*

The dealer who displays the sign

ATLANTIC Rayolight OIL FOR SALE HERE

can always supply you

ATLANTIC REFINING COMPANY
Philadelphia and Pittsburgh

Among the Granges

Indiana County. — Pomona Grange No. 56 met with Cush Creek Grange No. 573, of Wilgus, December 30, 1915. Routine business was taken up and disposed of. Indiana Co. Pomona goes on record as favoring twenty miles as the maximum rural route for free mail delivery. It is absolutely impossible for a carrier to cover more than that amount in daylight during the winter months when these hills are either piled high with snow, or mud a foot deep.

We are also going to try to have a Farm Bureau of Information started and a Committee was appointed to see what could be done.

A Grange Institute will be held at the county seat during this month under the auspices of Pomona. It will be open to the public and everybody welcome.

Worthy State Master John A. McSparran will talk on Why the Farmer Should Belong to the Grange; and Worthy State Chaplain H. G. Teagarden will discuss What the Grange Means.

Pomona Grange was entertained by Cush Creek Grange. Altho Cush Creek is small in numbers it was declared large in grange spirit and hospitality. The reports from subordinate granges show them to be in a thriving condition and a reasonable amount of business transacted thru the Keystone Grange Exchange.

A good literary program of farm and household topics, along with readings, recitations and music was enjoyed by all present.

Thru the activities of Cush Creek Grange a farmers institute was held in the Grange hall, December 3 and 4. The County Chairman declared it was by far the best one held in the county, both in attendance and interest. One state speaker said we had the finest display that he had seen anywhere he had been in the state. Even Old Lancaster with all her agricultural wealth did not excell it. Adjourned to meet with Purchase Line Grange, March 27 and 28, 1916.—R. B. T.

Lycoming Co., Pa.—The Rose Valley Grange, No. 1616 held an interesting meeting one night recently, it being the occasion of the installation of their newly elected officers. This grange has become a live wire in the county, their latest plan being to erect a new Grange hall. A number of new members have been added to the grange which necessitates a new building. The Beech Valley Grange accepted the invitation to be present on this occasion and aid in the installation. Grover Winner, Past Master of the Grange, acted as installation officer, while Miss Beatrice Winner and Mrs. J. T. Eddy assisted. The installation was public and the hall was crowded. Owing to the fact that the sleighing was good, crowds from the surrounding neighborhood filled bobsleds and drove over to the Grange Hall. An interesting program was carried out at the close of the regular installation. The Master of the Grange, J. W. Steiger, was then introduced and spoke briefly on the advantages of being a member of the Grange. He referred to the many things that had been accomplished and to the social activity which the Grange had brought into their community. A number of the visiting patrons followed with brief talks all along the line of the workings of this organization.

At the close of the regular meeting an oyster supper was served by the ladies of the Rose Valley Grange. The proceeds of this supper will be added to the fund already started for the new building.—D. D.

Bucks County.—On January 11, a most successful institute was held at Sergeantsville, N. J. Speakers were Alva Agee, Charles Barton, of Barton Brothers, County Agent Hankinson, of Mercer Co., Director of Institutes Clark and finally in the evening Mrs. Rose Morgan, New York City, on Songs that Live. The meetings were alive and full of help and interest.

. . . . .

The Northampton Farmers Club will celebrate its 25th anniversary on February 16th at Richboro Chapel. Delegates are expected from other organizations as invited.

Cumberland Co., Pa.—Newton grange of Cumberland County held an open meeing on Friday evening, January 14 at which time they dedicated their new grange hall in the presence of a large audience of interested patrons and friends. The program consisted of an address of welcome by Bro. Clarke Shelly of Newton Grange, and a responce by Worthy Past Master Dr. H. H. Longsdorf, of Penn Grange. Several fine selections of suitable music were rendered and a short play "The Bashful Young Man" by the Township High School. The address of the evening was given by Worthy State Master John A. McSparran. Any one who has ever heard our Worthy State Master discourse on the purposes and plans of our great organization, what it what needs it fulfills in the rural communities, etc., need not be told that has accomplished for humanity and he delighted his audience and sent every granger home filled with fresh enthusiasm for his work in the order.

Newton grange is four years old and heretofore has been holding its meetings in a little school house, a detriment to efficient grange work. Several months ago they purchased a two story building in the town of Oakville and started to remodel it. The first floor is let to a grocery merchant, a member of the order, and the second floor has been fitted out complete into an up-to-date grange hall. Two hundred new chairs have been purchased, also a piano. Radiators in the floor allow the heat from the store room below to come up and insure comfortable heating.

This grange holds two meetings a month, one open and one closed meeting while at present they number not above sixty members, yet they are a wide-awake, enthusiastic people and we predict for them a successful year. —Mrs. G. D. M.

OFFICERS AND COMMITTEE MEMBERS OF PENNSYLVANIA STATE CRANGE.

New York State Agricultural Society

The 79th annual meeting of the New York State Agricultural Society held in Albany January 19-20 was not a large success as to attendance but measured up well with past meetings as to papers and addresses on live farm topics. Alleged unfair tactics of railroads in affording western farmers an easier opportunity to reach good markets than is given New York State farmers; alleged opposition of vested interests to organizations among New York farmers; the lack of such an organization, efficiently equipped, and the cityward movement were a few of the reasons given for the high cost of living and low profits of the New York farmers, at the opening session of the convention. President Dillon, in his address, went largely into the work of his Department of Foods and Markets with special reference to the auction sales of apples. It was Mr. Dillon, however, who stirred up the representatives of the railroads present by saying that the railroads in general were giving western farmers a better opportunity to reach New York markets than they gave New York farmers.

"The selling agencies of other states and other countries have powerful allies in the organized system of distribution" said Mr. Dillon, beginning his charge, "and in the companies that control the transportation facilities of the country. The railroads are naturally influenced by large receivers of farm produce, who have it in their power to direct large shipments over the lines that best serve their purposes.

"This means, of course, that they have it in their power to punish the roads that refuse their demands. The receivers and agents of the railroads are in constant touch. A tip from one and a service from another create a working arrangement between them. The burden of any neglect or disposition of either of them is easily shifted to the producing shipper. The railroads naturally have a preference for long hauls. For reasons of their own, dealers have a preference for distant shippers. The interests are therefore common." The railroad men promptly took exception to the statements but the farmers were with president Dillon.

The sessions were crowded full of papers and addresses, almost too many possibly to be digested well by the auditors. The question of the distribution and marketing of farm products was always uppermost in the discussions. Daniel Dean of Nichols(N. Y., discussed "Growing and Marketing Potatoes", and F. E. Embree of Maine told about the Farmers' Union in general and the growing and marketing of Maine potatoes in particular. Mrs. Frank Tabor of Poughkeepsie told how to save some of the farm wastes. Hon. E S. Brigham, the Vermont commissioner of Agriculture, advocated the standardization of farm products. This should be done on the farms. He favored farmers owning shipping stations which need not cost more than $15,000. Among the benefits of standardization he names the use of surplus crops, and the elimination of some of the middlemen. He advocated the use of state brands on all standardized farm products. Marcus M. Marks, borough president of New York, speaking on "The Lower Cost of Living" asked the New York State farmers to stand solidly behind Mr. Dillon. Mr. Marks topic was "City Markets" and he knew what he was talking about for thru his initiative and influence four city markets have been established which serve as many as 100,000 people who save about one third in cost of supplies.

In the evening Geo. W. Perkins, of New York, treasurer of the Progressive party, blamed the high cost of living to the fact that the state has no method of helping the people in their food supply question.

"This condition is not due to the lack of food," said Mr. Perkins, "for plenty is being raised, and we all know that producers of foodstuffs are complaining bitterly because they cannot get their foodstuffs from the point of production to the city and market them, at a price that pays them for the raising. Something is radically wrong. In my judgment, the trouble lies in the fact that the state has almost entirely neglected to render the service it might have rendered to the people in the matter of their food supplies. From time to time the state has created departments whose sole business it is to look after the people's interest in the matter of transportation, education, health, and so on. All these departments to a greater or lesser degree lead up to an independent, centralized board or commission whose sole responsibility it is to look after the particular activities entrusted to its care. But in the matter of markets, which has to do with supplying us with our food, chaos reigns."

Representative Hatton W. Sumner, of Dallas, Tex., who has a bill in Congress for the establishment of a Farm Produce Exchange, predicted that unless something was done to remedy the matter quickly, a nation wide shortage of food would be faced. The cityward movement, due to the fact that the farmers are discovering they can get more for their labor in the city than they can on the farms is the cause of this, Mr. Sumner said.

Wells A. Sherman, specialist in market surveys of the Department of Agriculture at Washington, D. C., discussed the national marketing of farm products.

Dr. Kenyon L. Butterfield, president of the Massachusetts Agricultural College, presented an excellent paper on the "Vital Issues in Rural Organizations". He stated these issues to be, first, a belief in the necessity of organization. Second, that this rural organization must be as comprehensive as the rural problem itself. Third, local rural community building is the foundation of permanent agricultural progress We must be rid of the idea that the individual can act for himself alone but he must act for the community in which he lives.

Commissioner Wilson in discussing the educational policy of the Department of Agriculture considered that phase of the question relating to the dissemination of information about our agricultural laws. He said the plea of ignorance was frequently made relative to the apple grading and packing law, by men who had been charged with violating it. In 75 percent of the cases, ignorance was the plea. The present agencies for the dissemination of information are the agents of the Department in the field; the county fairs where State exhibits and demonstrations are conducted, and the Farm Institute force. But all these seem inadequate to a proper and complete dissemination of the information the farmers ought to have. The department will use its best endeavors to enlighten the agricultural public along these lines.

Dr. V. A. Moore, dean of the state veterinary college, read a paper, highly technical in character, on the pasteurization of skimmed milk for feeding calves and J. W. Helme, Dairy and Food Commissioner of Michigan, told the New Yorkers how they did things in the Wolverine State to make dairying a success. Apparently the commissioner has practical views as he keeps 40 head of cows on 55 acres of land and buys but little feed, the most of it being raised on the small farm. He sells cream to the city trade. He described the system adopted in the organization of new creameries in which each stock holder must take a $10 share in order to become a patron of the creamery. Each share has a vote. A state butter brand is soon to be established in Michigan and when this appears on a package containing butter it can be sold without examination. Butter must have a 92 percent score and be right as to quality, color, salt, texture, etc. Marketing farm products he considered the greatest problem now before the farmer and dairymen.

W. E. Skinner, of Chicago, described the work of the National Dairy show and announced that the next one would be held in Springfield, Mass.

F. E. Lacey, of Poughkeepsie, discussed, in an excellent paper, the opportunities of the Farm Bureau Agent. General Batten, of New York, and advertising agent of long experience presented a plan for advertising farm products. B. S. Parker, president of the new State Land Bank, was enthusiastic over its success and Prof. L. S. Hawkins, of the Education Department, closed the program with an illustrated talk on Agricultural Education in the High Schools.

The resolutions approved by the society endorsed the Foods and Markets departments and the Bureau of Cooperation and asked the legislature for larger appropriations. Also endorsed the Land Bank and urged the organization of local farm loan associations. Federal legislation for rural credits was favored and Congressman Sumner's bill for the establishment of a Farm Produce Exchange by the Agricultural Department at Washington, was approved.—D.

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Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., Jan. 25, 1916.

With the extreme weather changes in the past week the potato market declined from 10 to 15 cents per bushel, but in the beginning of this week's market, sales were resumed at from $1 to $1.20 per bushol. Offerings were fairly liberal, as many as 144 cars having accumulated on the tracks during the cold weather. Delaware is contributing in goodly measure to the present supply, and among them are large quautities of Hoosier which sell at from 10 to 20 cents per bushel below the average market on white stock. Maine Green Mountain potatoes are arriving in good condition and commanding top prices. Pennsylvania stock is scarce but shipments from the neighboring counties receive the preference at top quotations. Sweet potatoes are plentiful, Jersey sweets selling at 40 to 50 cents per basket and Delaware sweets in hampers at 65 to 75 cents. The Virginia sweets in barrels are moving at $1.50 to $1.75.

Vegetables

The market on cabbage appears to depend entirely on the existing weather conditions. With the cold spell early in last week prices on Danish were maintained at $10 to 12 per ton. The milder weather places the market at $8 to $10 per ton and larger quantities are being moved. Onions continue at $2 to $2.75 per 100-pound bag; number two stock at 75 cents to $1.25, with the supply lighter than in the past week.

Norfolk growers are making heavy shipments of spinach and kale daily, which results in the prevailing low price. Spinach is selling at 75 cents to $1 per barrel, some fancy stock bringing as high as $1.25. Kale is selling at 60 to 80 cents per barrel.

Celery from the near-by Pennsylvania farms is in light supply and meeting with quick sales at 9 and 10 cents a bunch. New York State celery is showing poor quality and arriving in small quantities. Sales are being made at 15 to 40 cents per bunch.

Root crops are moving at slightly advanced prices on the fancy grades. Carrots are in good demand at $1.75 to $2.25 per barrel. White turnips are in light supply and selling at $1.50 to $2 per barrel. Yellow turnips continue at 65 to 70 cents per barrel. Beets and parsnips are in abundant supply compared with the demand. The top price secured on beets is $2 per barrel and parsnips are selling at $1.20 to $1.50 per barrel.

Southern Fruits and Vegetables

All lines of southern fruits and vegetables are in fair supply and meeting with excellent demand at the following quotations: Florida beans, $1.50 to $3 per basket; peas, $2.50 to $4 per basket; peppers, $1.75 to $2.25 per carrier; eggplant, $2.25 to $3 per crate; lettuce, $1 to $1.50 per basket; tomatoes $2.50 to $3.50 per crate; strawberries 25 to 35 cents per quart. Lettuce is also being received from North Carolina and Texas. North Carolina stock is selling at 75 cents to $1 per basket; Texas at 60 to 75 cents per basket.

Mushrooms in fairly liberal supply are selling at 25 to 40 cents per pound. Hothouse tomatoes of good quality sell at 20 to 25 cents per pound.

Fruits

Receipts of apples are light and prices have been sustained on the strictly fancy stock. An average of 20 to 25 cars were unloaded or released from the storage daily. York State Kings are selling $2.75 to 3.50 per barrel; Hubbardstons, $2.25 to 3; Greenings, $2.50 to 3.25; Spys, $2.50 to 3.25; Baldwins, $2.50 to 3.25; Jonathans, $2.75 to 3.50; Grimes Golden, $2.50 to 3; Winesaps, $2.50 to $3.25; Rome Beauties, $2.50 to 3.25; York Imperial and Twenty Ounce, Pippin, $2 to 3, Ben Davis $1.75 to 2.50. Number 2 grades were in good demand at $1.25 to 1.50 per barrel. Apples in bulk moved at 75 cents to $1.50 per 100 pounds.

Poultry

There was an active demand for dressed fowl and prices were slightly advanced by the scarcity of fancy stock. Fresh killed, dry packed fowls brought 16 to 19½ cents according to size; old roosters brought 14½ cents. Dressed chickens of a desirable size and quality were closely cleaned up at the following: Jersey broilers, fancy, 24 to 26 cents; other near-by fancy broilers, 22 to 24 cents. Dressed turkeys were scarce and firm, near-by stock selling at 27 to 28 cents; near-by stock, good to choice, 23 to 26 cents; old toms, 21 cents. Receipts of ducks and geese were limited and demand good. Near-by spring ducks brought 18 to 20 cents; near-by geese, 16 to 18 cents.

Only a fair demand was good for the liberal supply of live fowls and chickens. Fancy live fowl brought 16 to 18 cents per pound; roosters, 12 to 12½ cents; spring chickens, 16 to 18 cents. Turkeys met with slow sales at 20 to 22 cents. Ducks and geese were plentiful and sold at 15 to 17 cents.

Eggs

The egg market has displayed during the past two weeks its absolute dependence on weather conditions. With the more mild weather in the later part of the past week, prices declined 4 cents one day and 2 cents in another. Today the market is quiet, with fancy near-by extras selling for 31 cents; near-by firsts, 28 cents and current receipts 27 cents. Western extra firsts are selling at 24 cents; first at 27 cents and seconds 21 to 23 cents. These prices show a general decline of from 4 to 7 cents per dozen compared with one week ago. Fancy selected fresh eggs jobbed at 33 to 35 cents per dozen.

—Selmarad.

NEW YORK PRODUCE

New York City, Jan. 24, 1916.

The butter market is somewhat weaker owing to increased receipts. Cheese market continues firm. The supply of eggs is ample and the prices are being forced down by lower prices in retail chain stores. The demand for dressed poultry continues good and receipts small. Apple trade weak and irregular, with prices tending downward. Strictly fancy potatoes selling at about last weeks prices.

Butter. — Creamery extra, (92 score) per pound, 33c; higher score, 34c; thirds to firsts, 24@32c; state dairy, 27@31c; packing stock, 17@20c.

Cheese. — Whole milk specials, 18c; Daisies, 18¼c; skims, fresh choice, 15¼c.

Eggs. — Fresh gathered, extra, 30@31c; firsts, 28@29c; thirds, 24@25c; dirties, 20c; near-by whites, fine to fancy, 35@36c doz.; ordinary to good, 31@34c; browns 32@34c.

Dressed Poultry.—Fresh soft meated—Barrels, Philadelphia and Long Island, fancy, 3 to 4 pounds to pair, 40@42c; Philadelphia and Long Island, average, 3 to 4 pounds to pair per pound, 28@30c; fancy roasters, 24@25c. Capons, 25@50c. Fowls, 16@18c. Old roosters, 14c; squabs, $2.25@6 dozen. Spring ducks, per pound, 14@20c. Turkeys, dry picked, 22@26c.

Apples.—These prices show the range from "B" to "A". Jonathan, bbl., $2@4; York Imperial, barrel, $2.25@3.50; Winesap, barrell, $2.50@4.50. Twenty Ounce, barrel, $2 @2.75; Greening, barrel, $2@3.25; King, bbl., $2.25@3.25; Northern Spy, $2.25@4; Baldwin, bbl., $2@3; Hubbardson, bbl., $2 @3; Ben Davis and Gano, bbl., $2@3; Common, bbl., $1.50@3.

Vegetables.—Beets, per bbl., $1.25@1.50. Carrots, bbl., $1@2. Cabbage, near-by, ton $3@6. Danish, $8@12. Cauliflower, bbl., $1 @6. Celery, choice, crate, $3@4. Turnips, barrel, $1.00@1.50. Onions, yellow, $2@ 2.50 bag. Squash, Hubbard and Marrow, $1.75@2.25 bbl. Potatoes, Jersey, $3@3.50 bag. Long Island, $4 bag. Sweets, $1.75 @2.50 barrel.

Country Dressed Veals:

Choice	@16½
Prime	15½@16
Fair to good	13½@14½
Coarse, heavy	13½@14½
Common	12½@13
Buttermilks	11 @12
Grassers	10 @11

YORK PRODUCE MARKET

York, Pa., Jan. 24, 1916.

There were decided advances in several lines of produce the past week. Potatoes which could hardly be given away two weeks ago are being hunted up by the house-wife as well as the corner grocery. Then this and that was wrong with the stock, now just so it is called a potato it will bring from $1 to $1.25 per bushel. Cabbage is in much better demand. Apples are selling readily at good prices. Butter and eggs, especially, are very slow. Poultry is stronger. Grains advancing, and feeds with them.

Eggs.—24@28 cents per dozen.

Butter.—Country, 28@30c lb; separator, 32@35c lb. Milk, 6 cents per quart.

Poultry.—Hens, 13@15c lb; dressed, 50 to 90 cents each.

Vegetables.—Potatoes, 10@15c ½-pk; $1 @1.30 per bushel. Cabbage, 5@7c per head. Beets, 3@5c bunch. Onions, 4@6c bunch; 10@12c ½-pk. Radishes, 5@7c bunch. Lima beans, 25c quart. Soup beans, 14@16c quart. Lard, 13@14c lb. Cucumbers, 3 @5c each. Turnips, 8@10c ½-pk. Spinach, 10c ½-pk. Sauer kraut, 8@10c quart.

Fruit.—Apples, 10@25c ½-pk. Pears, 12 @15c ½-pk. Grades, 10@12c a basket.

Retail Grain Market.—Wheat, $1.30; corn, 90c; oats, 60c; rye, 90c; bran, $1.40 cwt.; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.20; corn, 80c; oats, 52c; rye, 82c; bran, $25 ton; middlings, $27@30 ton.

BALTIMORE PRODUCE

Baltimore, Md., Jan. 24, 1916.

Butter. — Creamery fancy, 33 @ 33½c; choice, 32@32½c; Maryland and Pennsylvania rolls, 19c; dairy prints, 19@20c.

Eggs. — Nearby firsts, 35@36c dozen; Westerns, 25@26c; Southerns, 24c.

Live Poultry.—Prices, per pound: Chickens, large, 19c; small, 18c; old hens, 16@ 17c; do., light, 13c; old roosters, 10@11c; ducks, spring, 14@17c; White Pekins young, 17@18c. Pigeons, per pair, 15@20c. Guinea fowls, each, 50@55c; turkeys, young 25@ 26c; do., old, 22c. Dressed turkeys, 25@26c; chickens, 25@26c.

Vegetables and Green Fruit. — Potatoes, Pennsylvania per bu. $1.10@1.20; near-by, $1@1.10 bushel. Sweets, $1.85@$2. Apples, per barrel, $1@1.50. Pennsylvania, $1.75@ 2.50. New York, $2@3.50. Cabbage, per ton, $6@7; Danish, $12. Celery, per bunch, 30@60c. Onions, $1.15@1.25 bu. Turnips, per bu., 20@25c.

Wheat. — Native, $1.10@1.32; No. 2 red western, $1.40.

Corn.—Prime yellow, 80@81c; Ear corn, $3.95@4.00 barrel.

Oats.—No. 3 white, (new) 54@55c.

Rye.—No. 2 rye, $1.06@1.07; No. 3, $1.01 1.01½; bag lots, 95c@$1 as to quality and condition.

Mill Feed.—Prices per ton in 100-lb. sacks. —Spring bran, $24@24.50; white middlings, $29@30; winter bran, $24@25.

Hay.—No. 1 timothy, $21.00; do., No. 2 $20@20.50; No. 3, $15@17; light clover mixed, $18@18.50. Choice clover, $16.50 @17. No. 1 $15@16. Sample hay, $10 @13.

Straw.—No. 1 straight rye, $13; No. 2 $12; No. 1 tangled rye, $11@11.50. No. 1 wheat straw, $8@8.50; do., No. 2 $7@7.50; No. 1 oat straw, $10@10.50; No. 2 do., $9 @9.50.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., Jan. 24, 1916.

Receipts for the week ending Saturday evening, January 22:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	...3,241	5,990	10,952
Previous week	...3,292	7,153	7,708

Calves. — Total receipts of calves for this week were 1,069 against 1,201 last week.

Beef Cattle.—Ohio, Illinois, Virginia and nearby cattle, in seasonable but ample supply, were on sale, an inactive and draggy undertone prevailing. Bulls and cows that were choice closed strong, but the best steers ruled a fraction easier, as well as calves.

Best steers	$8.60@8.75
Choice	8.50@8.60
Good	8.25@8.50
Fat cows	5.25@6.75
Thin cows	2.75@3.75

Veal Calves.—

Exceptional lots	$11.25@11.50
Good to choice	11.00@11.25
Medium	8.50@ 9.00
Common	6.00@ 7.00
Southerns and barnyards	4.00@ 5.00

Sheep and Lambs.—The market was dull, but steady, and shipments were not so liberal.

Wethers, extra,	$8.00@ 8.25
Choice	7.25@ 7.50
Good	6.75@ 7.00
Medium	4.50@ 5.00
Ewes, heavy, fat	6.00@ 7.00
Lambs, extras	11.25@11.50
Good to choice	10.75@11.00
Medium	9.75@10.00
Common	8.00@ 8.50

Hogs.—There was a normal demand at well-sustained values. Westerns, as to size and quality, $10.50@10.75.

City Dressed Stock.—Every description of strictly first-class meats closed steady, with trade fairly satisfactory.

Steers	10 @14
Heifers	9 @13
Cows	8 @11
Veals Calves	14 @16
Extra calves	18 @
Southerns and barnyards	10 @13
Country dressed	12 @14
Extras	15 @
Sheep	11 @12
Extra wethers	14 @
Lambs	16 @17
Extra lambs	18 @
Hogs	10¾ @11

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., Jan. 24, 1916.

Cattle.—Today's receipts were 105 loads, and the market sold about steady with last week's close, with good to choice selling at $8.50@8.75; good, $8.15@8.50.

Calves.—Today's receipts were 500 head, and the market was active at prices about steady with last week's quotations. Veal calves sold at $9@11.75.

Hogs.—Today 60 double-deck loads were received and they sold 15 to 20c higher than Saturday's prices. Following are the quotations: Prime heavies, $7.80; heavy mixed, $7.80; mediums, $7.80; heavy Yorkers, $7.80; light Yorkers, $7.50; pigs, $6.75 @7.00.

Sheep and Lambs.—Today's supply was 15 double-deck loads, and with a good demand the market ruled active and higher on sheep and best lambs, and steady on other grades of lambs. Prime wethers, $8.25@8.50; lambs, $7@11.25.

CHICAGO HORSE MARKET

Chicago, Ill., Jan. 24, 1915.

Horses were in the usual supply and demand last week at unchanged prices, with the principal trading in army horses. The poorer horses sold around $60@100 and the choicer class of drafters on the basis of $240 @285, with wagoners at $150@200. Light weight drafters were salable at $200@235.

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., Jan. 24, 1916.

Hay and Straw.—There was a slight advance on hay of top grades during the week. Trading is not heavy but receipts are light and prices rule steady to firm at quotations. Straw is quiet but steady.

Grains. — Wheat continues to advance. There is some fluctuation with speculative prices, but prices advanced 6 cents per bushel during the week. Offerings here are only moderate and a fairly active demand holds the price firm. Supplies of corn are small and the market rules steady at last week's quotations. Trade is quiet. The oat market is firm and about 4 cents per bushel higher than last week. The demand is about equal to the limited offerings.

Hay.—No. 1 timothy, $21@21.50; No. 2 do., $19@19.50. No grade, $10@14. Clover, light mixed, $18.50@19. No. 1 do., $18@ 18.50; No. 2 $15@16.

Straw.—No. 1 straight rye, $13.50@14; No. 2 do., $12.50@13. No. 1 wheat straw, $9.50@10. No. 2 do., $8.50@9. No. 1 oats straw, $9.50@10; No. 2 do., $8.50@9.

Feed.—Car lots, in 100-lb. sacks; winter bran, $24.50@25. Spring bran, $23@23.50.

Wheat.—In round lots, No. 2 red, $1.31@ 1.33. No. 3 red, $1.31@1.33. Rejected A, $1.28½@1.30½. Rejected B, $1.27@1.29.

Corn.—No. 2 yellow, 84@85c; steamer yellow, 82½@83½c; No. 3 yellow, 80@ 82c. New ear corn, 80@81c per 70 pounds.

Oats.—No. 2 white, 57@58c bu; No. 3 do., 54@55c; sample, 49½@51c; standard white, 56@56½c.

Flour.—Car lots winter clear, $5.50@5.90; patent, $6.35@6.60. Favorite brands, $7.00 @7.50. City mills, choice, $7.00@7.50. Rye flour, $5.50@6.00 as to quality.

NEW YORK HAY AND GRAIN

New York City, Jan. 24, 1916.

Hay and Straw.—The hay market is rather dull with top quotations seldom realized on the deliveries from track which still make up the bulk of the receipts. Trading in large bales of timothy ranges chiefly from $24 down to $19, a decline of $1 to $2 per ton from last week. Trading in small bales is at from $23 down to $18, with some defective stock going still lower. Straw is also lower, rye straw alone moving at normal rate.

Grains.—Wheat reached a new high level last Saturday. The market has shown consistent strength of late, the foreign situation being the chief source of strength. The condition of export demand is most encouraging. There appears to be plenty of wheat to supply the needs of European countries, but the conditions in transportation are bringing most of the demand here. Argentine is reported to have plenty of wheat of good quality, but freights to Liverpool are nearly as high as the cost of the wheat itself. Thus England is taking beef from Argentine and coming here for wheat. Great Britain is reported buying from Australia and steam ship service will be put on there. Nevertheless some observers believe that $1.50 per bushel will be reached here before the new crop is ready. The domestic demand for wheat has been good and the markets firm. Corn is rather irregular. The domestic demand is slow while the export movement has been retarded by lack of shipping facilities. Oats are active and have reached new high levels. Rye and barley are firm at quotations.

Hay.—Large bales—No. 1 timothy, $25@ 25.50; No. 2 $22@24; No. 3 $20@21; fancy clover, $22.50@23.50; No. 1 $20@21; No grade, $14@17.

Straw.—Per ton, No. 1 rye, $13.50@14. Oat straw, $9.

Wheat.—No. 1 Northern, $1.55¼; No. 2, $1.53⅝; No. 3, $1.48⅞.

Corn.—No. 2 yellow, 89½c; No. 3 yellow, 86c.

Oats.—No. 3 white, 55½@56c; No. 4 54½@55c; ordinary to fancy, 55½@59½c.

Rye.—$1.08½@1.09.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $24. Standard middlings, $24.50; flour, do., $27.50 to arrive. Red dog, to arrive, 140-lb. sacks, $31. Oil meal, $40.25@41. City feed, bulk bran, $22.60. Heavy feed in bulk, $22.60. Red dog, $32. Flour middlings, $31.50. Middlings, $22.60@31.50.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., Jan. 24, 1916.

Hay.—Receipts of hay are still running remarkably light for this season of the year, the better grades of timothy and No. 1 mixed, also No. 1 clover, being in active demand but the lower grades are a drug on the market. No. 1 timothy, $19.25@19.50; No. 2 timothy, $17@18; No. 3 timothy, $14@15; No. 1 light mixed, $16.50@17.50; No. 1 clover mixed, $15.50@16.50; No. 2 clover mixed, $12@13; No. 1 clover, $14.50@15; No. 2 clover, $9@12; No. 3 prairie, $11@11.50; No. 4 prairie, $8.50@9.

Straw.—Demand for straw has shown an active increase; market has much better feeling. Receipts very light. No. 1 oat, $8.50@8.75; No. 2 oat, $7.75@8; No. 1 wheat, $8.50@8.75; No. 2 wheat, $7.75@ 8; No. 1 rye, $9.50@10; No. 2 rye, $8.25@ 8.75.

Ear Corn.—Demand for ear corn good while receipts are only normal; market advancing. New, No. 2 yellow, 77@78c; No. 3 yellow, 72@75c; No. 2 high mixed, 75½ @76½c; No. 2 mixed, 73@74c.

Oats.—Oat market soaring. This is in sympathy with the bullish western market. Prices higher. No. 2 white, 53@53½c; Standard, 52@52½c; No. 3 white, 51@ 51½c; No. 4 white, 49½@50½c; Rejected 43¼@46¼c.

PHILADELPHIA BUTTER MARKET

Philadelphia, Pa., Jan. 24, 1916.

The local butter market was unchanged thruout the week. Wholesale trading is rather slow but supplies of desirable grades of both solid-packed and prints are light and prices rule steady. The cheese market holds firm under light offerings and a fair demand.

Butter. — Fresh, solid-packed creamery, fancy specials, 36c; extras, 34c; firsts, 31 @32c; seconds, 26@28c; near-by prints, fancy, 37c; firsts, 28@32c; seconds, 26@ 28c; special, fancy prints, 40@43c.

Cheese.—N. Y. full cream fancy, 18@ 18½c; fair to good, 17¾@18¼c; part skims, 10@15c.

ELGIN BUTTER MARKET

Elgin, Ill., Jan. 22, 1916.

All butter sales were made today at 31 cents; 75 tubs sold at 31 cents per pound.

NEW YORK MILK MARKET

New York City, Jan. 24, 1916.

The market is snug again. This condition is due in part to the excellent demand and in part to the fact that the demand for dairy products is so good that the factories usually relied upon to make up any deficiency are not entering the fluid market with their foods. The open market with daily auction sales of milk proposed by John J. Dillon, the New York State Commissioner of Foods and Markets, does not appeal to the dealers as practical. The perishable character of the foods works against the successful accomplishment of the proposal. Receipts last week increased 2,702 cans of milk and 599 cans of cream over those of the preceding week. The market value is approximately 4⅛ cents a quart for Grade B in the so-called 26-cent zone.

The receipts of milk and cream in 40-quart cans for the week ending January 22, were as follows.

Railroads	Milk	Cream
Erie	43,790	2,250
Susquehanna	9,412	51
West Shore	16,480	952
Lackawanna	55,275	1,195
N. Y. Central (long haul)	79,095	1,145
N. Y. Central (short haul)	21,250	30
Ontario	40,369	2,189
Lehigh Valley	40,332	777
Homer Ramsdell Line	3,465	30
New Haven	7,138	105
Pennsylvania	6,231	133
Other sources	1,150	19
Totals	323,987	9,876

TOBACCO MARKET

It is not strange that tobacco matters were at great disadvantage last week owing to the very low temperature, but it is warmer now and growers are again busy stripping and delivering. There will probably be little cessation to the hustle until deliveries are completed, as buyers want their purchases and growers will soon have to turn more or less attention to the early preparation for another crop. There has been less than the usual amount of quibbling on the part of buyers, indicating, it is said, that growers are learning to be more efficient in handling their tobacco. It was also noted that buyers were more lenient than usual, in some instances even assisted growers in plucking and otherwise fitting their deliveries.

There is so little unsold tobacco that quotations are not practical. It is probable, however, that past values are well sustained, as was indicated by the sale of a seven-acre crop in Little Britain township at $11.75 per cwt. for wrappers and $3 for fillers. In the general tobacco market there was noted a big demand for Pennsylvania tobacco, especially that of 1914. There was an attempt there to circulate a claim that the 1915 crop had been bought too high, but that claim was so fallacious as to amount to little more than a joke. It was reported that buying had ceased in Ohio cigar leaf sections and that in New York buying continued quite active, the crop in the latter section being compared to the "short horse soon curried." In Connecticut the existing difference of opinion on the part of sellers and buyers was given as the reason of a deadlock in the movement, no sales being reported. Yet much of the crop is unsold.—H. E. Tweed, Jan. 24, 1916.

Hepsey Burke

By Frank N. Westcott

SYNOPSIS OF PRECEDING CHAPTERS

Donald Maxwell, a young minister, has spent several months in his first ministerial charge at the little town of Durford. Hepsey Burke, a widowed member of his flock, has proved his most faithful and efficient helper. The senior Warden, Sylvester Bascom, is an important, if not the most loved, factor in dictating the affairs of the church. Miss Virginia Bascom, his daughter, was an enthusiastic worker as long as Mr. Maxwell remained single. When he brought his young wife, Mrs. Betty, to Durford, there was a decided change. While all of Durford accepted Mrs. Betty as a welcome addition to the community life, Miss Bascom sought every opportunity to snub her. Jonathan Jackson, the Junior Warden, becomes Mrs. Betty's faithful supporter. Upon Mrs. Betty's suggestion, he proposes to Mrs. Burke, but is made to wait for his answer. Hepsey is kept too busy with neighborhood affairs to consider marriage. Mr. Bascom shows his opposition to Mr. Maxwell, The Maxwells, with the assistance of Mrs. Burke and the Boy Scouts, move out of the rectory and into a tent pitched on the church property. The have just settled themselves comfortably when Mr. Bascom sends a second order to vacate the church ground, at least until a permit shall be secured from the official board of the church. Mr. Maxwell refuses to move and defies Mr. Bascom to enforce his orders.

CHAPTER XVIII (Concluded.)

Nelson was visibly disturbed by the rector's firm hold on the situation.

"But," he stuttered, "Mr. Bascom is the richest man in the parish, and his influence is strong. You will find that everyone defers to his judgment as a matter of course."

"All right; then let me add, for your own information, that I can earn my living honestly in this town and take care of myself without Mr. Bascom's assistance, if necessary; and do my parish work at the same time. I have two muscular arms, and if it comes down to earning a livelihood, independent of my salary, I can work on the state road hauling stone. Williamson told me yesterday he was looking for men."

"I can scarcely think that the parishioners would hold with their rector working like a common laborer, Mr. Maxwell," admonished Nelson.

"We are all 'common,' in the right sense, Mr. Nelson. My view is that work of any kind is always honorable when necessary, except in the eyes of the ignorant. If Mr. Bascom is mortified to have me earn my living by manual labor, when he is not ashamed to repudiate a contract, and try to force me out of the parish by a process of slow starvation, his sense of fitness equals his standard of honor."

"Well, I am sure that I do not know what I can do."

"Do you want me to tell you?"

"If it will relieve your feelings," Nelson drawled insolently.

"Then get out of this place and stay out. If you return again for any purpose whatever I am afraid it is I who will have to eject you. We will not argue the matter again."

"Well, I regret this unfortunate encounter, and to have been forced to listen to the unguarded vituperation of my rector." With which retort he departed.

Soon after Nelson had left, Mrs. Burke called in, and Betty gave her a highly amusing and somewhat colored version of the interview.

"You know, I think that our theological seminaries don't teach budding parsons all they ought to, by any means," she concluded.

"I quite agree with you, Betty dear; and I thank my stars for college athletics," laughed Maxwell squaring up to the tent-pole.

"What did I tell you," reminded Hepsey, "when you had all those books up in your room at my place? It's just as important for a country parson to know how to make a wiped-joint or run a chicken farm or pull teeth, as it is to study church history and theology. A parson's got to live somehow, and a trade school ought to be attached to every seminary, according to my way of thinking! St. Paul made tents, and wasn't a bit ashamed of it. Well I'm mighty glad that Bascom has got come up with for once. Don't you give in, and it will be my turn to make the next move, if this don't bring him to his senses. You just wait and see."

CHAPTER XIX

Couleur de Rose

Hepsey had been so busy with helping the Maxwells that for some time no opportunity had occurred for Jonathan to press his ardent suit. Since his first attempt and its abrupt termination, he had been somewhat bewildered; he had failed to decide whether he was an engaged man open to congratulations, or a rejected suitor to be condoled with. He tried to recall exactly what she had said. As near as he could recollect, it was: "I'll think it over, and perhaps some day—" Then he had committed the indiscretion of grasping her hand, causing her to drop her stitches before she had ended what she was going to say. He could have sworn at himself to think that it was all his fault that she had stopped just at the critical moment, when she might have committed herself and given him some real encouragement. But he consoled himself by the thought that she had evidently taken him seriously at last; and so to the "perhaps some day" he added, in imagination, the words "I will take you"; and this seemed reasonable.

The matter was more difficult from the very fact that they had been on such intimate terms for such a long time, and she had never hitherto given him any reason to think that she cared for him other than as a good neighbor and a friend. Ever since the death of his wife, she seemed to feel that he had been left an orphan in a cold and unsympathetic world, and that it was her duty to look after him much as she would a child. She was in the habit of walking over whenever she pleased and giving directions to Mary McGuire in regard to matters which she thought needed attention in the house. And all this had been done in the most open and matter-of-fact way, so that the most accomplished gossip in Durford never accused her of making matrimonial advances to the lonesome widower. Even Jonathan himself had been clever enough to see that she regarded him much as she would an overgrown boy, and had always accepted her many attentions without misinterpreting them. She was a born manager, and she managed him; that was all. Nothing could be more unsentimental than the way in which she would make him take off his coat during a friendly call, and let her sponge and press it for him; or the imperative fashion in which she sent him to the barber's to have his beard trimmed. How could a man make love to a woman after she had acted like this?

But he reminded himself that if he was ever to win her he must begin to carry out the advice outlined by Mrs. Betty; and so the apparently unsuspecting Hepsey would find on her side porch in the morning some specially fine corn which had been placed there after dark without the name of the donor. Once a fine melon was accompanied by a bottle of perfumery; and again a basket of peaches had secreted in its center a package of toilet soap "strong enough to kill the grass," as Hepsey remarked as she sniffed at it. Finally matters reached a climax when a bushel of potatoes arrived on the scene in the early dawn, and with it a canary bird in a tin cage. When Hepsey saw Jonathan later, she remarked casually that she "guessed she'd keep the potatoes; but she didn't need a canary bird any more than a turtle needs a tooth-pick; and he had better take it away and get his money back."

However, Jonathan never allowed her occasional rebuffs to discourage him or stop his attentions. He kept a close watch on all Hepsey's domestic interests, and if there were any small repairs to be made at Thunder Cliff, a hole in the roof to be mended, or the bricks on the top of the chimney to be relaid, or the conductor pipe to be readjusted, Jonathan was on the spot. Then Jonathan would receive in return a layer cake with chopped walnuts in the filling, and would accept it in the same matter-of-fact way in which Hepsey permitted his services as general caretaker.

This give-and-take business went on for some time. At last it occurred to him that Mrs. Burke's front porch ought to be painted, and he conceived the notion of doing the work without her knowledge, as a pleasant surprise to her. He waited a long time for some day when she should be going to shop at Martin's Junction, — when Nickey usually managed to be taken along,—so that he could do the work unobserved. Meantime, he collected from the hardware store various cards with samples of different colors on them. These he would combine and re-combine at his leisure, in the effort to decide just what colors would harmonize. He finally decided that a rather dark blue for the body work would go quite well, with a bright magenta for the trimmings, and laid in a stock of paint and brushes, and possessed his soul in patience.

So one afternoon, arriving home burdened with the spoils of Martin's junction, great was Mrs. Burke's astonishment and wrath when she discovered the porch resplendent in dark blue and magenta.

"Sakes alive! Have I got to live inside of that," she snorted. "Why, it's the worst lookin' thing I ever saw. If I don't settle him," she added, "— —paintin' my porch as if it belonged to him—and me as well," she added ambiguously. And, catching up her bonnet, she hastened over to her neighbor's and inquired for Jonathan. "Sure, he's gone to Martin's Junction to see his brother, Mrs. Burke. He said he'd stay over night, and I needn't come in again till tomorrow dinner-time," Mary McGuire replied.

Hepsey hastened home, and gathering all the rags she could find, she summoned Nickey and Mullen, one of the men from the farm, and they worked with turpentine for nearly two hours, cleaning off the fresh paint from the porch. Then she sent Nickey down to the hardware store for some light gray paint and some vivid scarlet, and a bit of dryer. It did not take very long to repaint her porch gray—every trace of the blue and the magneta having been removed by the vigorous efforts of the three.

When it was finished, she opened the can of scarlet, and pouring in a large quantity of dryer she sent Nickey over to see if Mary McGuire had gone home. All three set to work that evening to paint the porch in front of Jonathan's house. At first Mullen protested anxiously that it was none of his business to be painting another man's porch, but Mrs. Burke gave him a look which changed his convictions; so he and Nickey proceeded gleefully to fulfill their appointed task, while she got supper.

When the work was quite finished. Hepsey went over to inspect it, and remarked thoughtfully to herself: "I should think that a half pint of dryer might be able to get in considerable work before tomorrow noon. I hope Jonathan'll like scarlet. To be sure it does look strikin' on a white house; but then variety helps to relieve the monotony of a dead alive town like Durford; and if he don't like it plain, he can trim it green. I'll teach him to come paintin' my house without so much as a by-your-leave, or with-your-leave, lettin' the whole place think things."

As it happened, Jonathan returned late that night to Durford—quite too late to see the transformation of his own front porch, and since he entered by the side door as usual, he did not even smell the new paint. The next morning he sauntered over to Thunder Cliff, all agog for his reward, and Mrs. Burke greeted him at her side door, smiling sweetly.

"Good mornin', Jonathan. It was awful good of you to paint my front porch. It has needed paintin' for some time now, but I never seemed to get around to it."

"Don't mention it, Hepsey," Jonathan replied affably. "Don't mention it. You're always doin' somethin' for me, and it's a pity if I can't do a little thing like that for you once in a while."

Hepsey had strolled round to the front, as if to admire his work, Jonathan following. Suddenly he came to a halt; his jaw dropped, and he stared as if he had gone out of his senses.

"Such a lovely color; gray just suits the house, you know," Mrs. Burke observed. "You certainly ought to have been an artist, Jonathan. Any man with such an eye for color ought not to be wastin' his time on a farm."

Jonathan still gazed at the porch in amazement, blinked hard, wiped his eyes and his glasses with his handkerchief, and looked again.

"What's the matter with you? Have you a headache?" Hepsey inquired solicitously.

"No, I haven't got no headache; but when I left that porch yesterday noon it was blue, and now I'm blamed if it don't seem gray. Does it look gray-like to you, Hepsey?"

"Why certainly! What's that you say? Do you say you painted it blue? That certainly's mighty queer. But then you know some kinds of paint fade—some kinds do!" She nodded, looking suspiciously at the work.

"Fade!" Jonathan sneered. "Paints don't fade by moonlight in one night. That isn't no faded blue. It's just plain gray. I must be goin' color blind, or something."

"It looks gray to me, and I'm glad it is gray, so don't you worry about it, Jonathan. Blue would be somethin' awful on the front of a white house, you know."

"Well," continued the bewildered Junior Warden, "I'm blessed if this isn't the queerest thing I ever see in all my born days. If I catch the fellow that sold me that paint, I'll make it lively for him or my name isn't Jackson."

"Oh, I wouldn't do anything like that! What difference does it make, so long as I like the color myself; it's my house. I should have been very much put out if you'd painted it blue; yes, I should."

"But I don't like to be cheated down at the store; and I won't, by gum! They said it was best quality paint! I'll go down to Crosscut's and see about this business, right now. I've traded with him nigh on twenty years, and he don't bamboozle me that way.''

Hepsey turned away choking with laughter, and retreated to her kitchen.

Jonathan started back towards his house to get his hat and coat, and then for the first time he caught sight of his own porch, done in flaming scarlet, which fairly seemed to radiate heat in the brilliant sunlight. He stood motionless for nearly a minute, paralyzed. Then the color began to rise in his neck and face as he muttered under his breath:

''Hm! I'm on to the whole business now. I ought to have known that Hepsey would get the best of me. I guess I won't go down to Crosscut's after all.''

Then he walked up to the porch and touched the scarlet paint with his finger and remarked:

''Set harder than a rock, by gum! She must have used a whole lot of dryer. I'll get even with her for this. See if I don't.''

In the afternoon Jonathan brought over some fine apples and presented them to Hepsey, who was knitting on her side porch. She thanked him for the gift, and the conversation drifted from one thing to another while she waited for the expected outburst of reproach which she knew would come sooner or late. But curiously enough, Jonathan was more cheery and cordial than usual, and made no allusion whatever to the scarlet porch, which was conspicuously visible from where they sat. Again and again Hepsey led the conversation around to the point where it seemed as if he must break covert, but he remained oblivious and changed the subject readily. Not a word on the subject passed his lips.

Then, from day to day the neighbors called and inquired of her if Jackson had gone off his head, or what was the matter. His flaming porch outraged Durford's sense of decency. She was at her wits end to answer, without actually lying or compromising herself; so the only thing she said was that she had noticed that he had been acting a bit peculiar lately, now they mentioned it. As time went on, the scarlet porch became the talk of the town. It was duly discussed at the sewing society, and the reading club, and the general sentiment was practically unanimous that Jackson must be suffering from incipient cataract or senile dementia, and needed a guardian. Even Mary McGuire remarked to Mrs. Burke that she was afraid ''that there front porch would sure set the house afire, if it wasn't put put out before.'' Everybody agreed that if his wife had lived, the thing never could have happened.

Meantime, Jonathan went about his daily business, serene and happy, apparently oblivious of the fact that there was anything unusual in the decoration of his house. When his friends began to chaff him about the porch he seemed surprised, and guessed it was his privilege to paint his house any color he had a mind to, and there was no law ag'n' it; it was nobody's business but his own. Tastes in color differed, and there was no reason in the world why all houses should be painted alike. He liked variety himself, and nobody could say that scarlet wasn't a real cheerful color on a white house.

Occasionally people who were driving by stopped to contemplate the porch; and the Durford Daily Bugle devoted a long facetious paragraph to the matter. All of which Mrs. Burke knew very well, and it was having its effect on her nerves. The porch was the most conspicuous object in view from Hepsey's sitting-room windows, and every time she entered the room she found herself looking at the flaming terror with increased exasperation. Verily, if Jonathan wanted revenge he was getting far more than he knew: the biter was badly bit. The matter came to a crisis one day, when Jonathan concluded a discussion with Mrs. Burke about the pasture fence. She burst out abruptly:

''Say, Jonathan Jackson, why in the name of conscience don't you paint your porch a Christian color? It's simply awful, and I'm not goin' to sit in my house and have to look at it all winter.''

Jonathan did not seem greatly stirred, and replied in an absent-minded way:

''Why don't you move your sittin' room over to the other side of the house, Hepsey? Then you wouldn't have to see it. Don't you like scarlet?''

''No, I don't like it, and if you don't paint it out, I will.''

''Don't do nothin' rash, Hepsey. You know sometimes colors fade in the moonlight—some colors, that is. Maybe that scarlet porch'll turn to a light gray if you let it alone.''

Mrs. Burke could stand it no longer; so, laying down her work she exploded her pent-up wrath:

''Jonathan Jackson, if that paint isn't gone before tomorrow, I'll come over and paint it myself.''

''Oh, that isn't necessary, Hepsey. And it might set people talkin'. But if you won't move your sittin'-room to the other side of your own house, why don't you move it over to my house? You wouldn't see so much of the red paint then.''

Hepsey snorted and spluttered in baffled rage.

''Now, now, Hepsey,'' soothed Jonathan, ''if that don't suit you, I'll tell you what I'll do; I'll paint it over myself on one condition!''

''And what's that, I'd like to know?''

''That you'll marry me,'' snapped Jonathan hungrily.

Instead of resenting such bold tactics on the part of her suitor, Mrs. Burke gazed at him a long time with a rather whimsical smile. ''I didn't know I'd ever come to this; but I guess I'll have to marry you to keep you from makin' another kind of fool of yourself; widowers are such helpless mortals, and you certainly do need a guardian.'' She shook her head at him despondently.

Jonathan advanced towards her deliberately, and clinched the matter:

''Well, Hepsey, seein' that we're engaged——''

''Engaged? What do you mean? Get away, you——'' She rose from her chair in a hurry.

''Now Hepsey, a bargain's a bargain: you just said you'd have to marry me, and I guess the sooner you do it and have it over with, the better. So, seein' that we are engaged to be married, as I was about to remark when you interrupted me . . .'' Relentlessly he approached her once more. She retreated a step or two.

''Well! Sakes alive, Jonathan! What-ever's come over you to make you so masterful. Well, yes then—I suppose a bargain's a bargain, all right. But before your side of it's paid up you've got to go right over and paint that porch of yours a respectable color.''

So, for once, Hepsey's strategy had been manipulated to her own defeat: Jonathan went off to town with flying colors, and bought himself a can of pure white paint.

CHAPTER XX

Muscular Christianity

It was eleven o'clock at night. Mrs. Betty had retired, while her husband was still struggling to finish a sermon on the importance of foreign missions. Ordinarily, the work would have been congenial and easy for him, because he was an enthusiast in the matter of missionary work: but now for some reason his thoughts were confused; his enthusiasm was lacking, and his pen dragged. He tried hard to pull himself together, but over and over again the question kept repeating itself in his tired brain: Why should the Church support foreign missions, while she lets her hard working clergy at home suffer and half starve in their old age, and even fails to give them decent support while they are working in their prime? Why should a doctor reach his highest professional value at seventy, and a parson be past the ''dead-line'' at forty-five? Here he was, subject to caprice and ill-will of a sour and miserly Senior Warden, and a cowed and at least partially ''bossed'' vestry, and he, the rector, with no practical power to appeal for the enforcement of his legal contract. It was only thanks to Jonathan Jackson, the Junior Warden, that any revenue at all reached him; for Bascom had used every grain of influence he possessed to reduce or stop Maxwell's salary. Mrs. Betty, plucky and cheery tho she was, already showed the results of the weary struggle: it was not the work that took the color from her cheeks and the freshness from her face, but the worry incidental to causes which, in any other calling in life but his, would be removable.

Already he had parted with a considerable number of his books to eke out, and meet the many calls upon him—urgent and insistent calls. It became abundantly clear, as his mind strayed from the manuscript before him and turned to their immediate situation, that he was already forced to choose between two alternatives: either he must give up, and own himself and all the better influences in the place beaten by Bascom and his satellites; or he must find some means of augmenting his means of living, without allowing his time and energy to be monopolized to the neglect of essential parish and church duties.

As he thought on these things, somehow his enthusiasm for foreign missions ebbed away, and left him desperately tired and worried. He made several abortive attempts to put some fire into his missionary plea, but it was useless; and he was about to give up when he heard Mrs. Betty's gentle voice inquiring from the next room:

''May I come in? Haven't you finished that wretched old missionary sermon yet?''

''No, dear; but why aren't you asleep?''

''I have been anxious about you. You are worn out and you need your rest. Now just let the heathen rage, and go to bed.''

Maxwell made no reply, but picked at his manuscript aimlessly with his pen. Betty looked into his face, and then the whole stress of the situation pierced her; and sitting down by his side she dropped her head on his shoulder and with one arm around his neck stroked his cheek with her fingers. For a few moments neither of them spoke; and then Maxwell said quietly:

''Betty, love, I am going to work.''

''But Donny, you are one of the hardest working men in this town. What do you mean?''

''Oh, I mean that I am going to find secular work, the work of a day laborer, if necessary. Matters have come to a crisis, and I simply cannot stand this sort of thing any longer. If I were alone I might get along; but I have you, sweetheart, and ——''

Maxwell stopped suddenly, and the brave little woman at his side said:

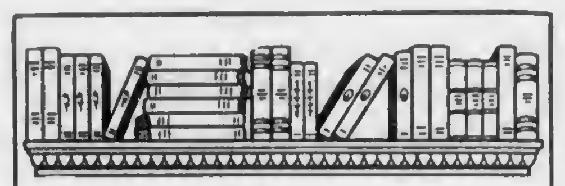
''Yes, I know all about it, Donald, and I think you are fully justified in doing anything you think best.''

''And you wouldn't feel ashamed of me if I handled a shovel or dug in the street?''

''I'd be the proudest woman in the town, Donny; you are just your fine dear self, whatever you do; and if you have the courage to put your pride in your pocket and work in overalls, that would make you all the finer to me. Manual work would relieve the tension of your nerves. You seem to be in fairly good physical condition. Don't you worry one bit about me. I am going to wash some lace curtains for Mrs. Roscoe-Jones, and that will keep me out of mischief. Now, if you will allow me, I am going to tear up that sermon on foreign missions, and start a little home mission of my own by sending you to bed.''

The second morning after this ruthless destruction of Maxwell's eloquent plea for the mission at Bankolulu, Danny Dolan drove up to the tent-rectory at half-past six, and Maxwell emerged and jumped up by Danny's side.

(Continued next week.)



PIECES *to* SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

DON'T FORGET TO WRITE

In the dear old home they miss you,
  Miss the sunshine of your face,
Miss your happy, careless chatter;
  No one else can fill your place.
They are thinking of you often,
  When in distant paths you roam;
Don't forget to write a letter
  To the dear ones left at home.

One can see they're sad without you,
  Tho they smile and do their best;
Half life's music floated from them
  When the birdlings left the nest.
How they love to get a letter
  In your own familiar hand—
All the comfort it can give them
  Only parents understand.

Do you know that since you've left her,
  In your Mother's glossy hair
Threads of silver intertwining
  Tell of years of toil and care?
Just a bit the line has deepened
  On your father's thoughtful brow,
Don't forget to write—write often,
  For they miss you sadly now.

When they sit around the fireside,
  And the shadows gather near,
Then they think of happy hours
  When your presence brought them cheer.
Come, sweet, tender memories thronging,
  When the stars shine in the blue,
And they breathe their hearts' deep longing
  In a silent prayer for you.

Write a letter to the dear ones
  Who on you their hopes have stayed;
They may seem a trifle childish,
  If your letter is delayed,
For they miss you from the fireside,
  Miss you more than words can say,
Then, write promptly, don't neglect it,
  Write a letter home today.
Submitted by—
Mrs. Isaac M. Kester, Clearfield Co., Pa.

Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain

Vertigo.—I have a 13-year-old mare that has short sick spells. When these attacks come on her whole body trembles, she leans against stall and appears to be stiff in her legs and jaws. But these attacks only last five or ten minutes, then she seems to be all right again. She is in good condition, but there must be something wrong. E. M., Pine Grove, Pa.—This mare suffers from vertigo (stomach staggers). If you will feed her less food, keep her bowels open and exercise her more she will perhaps be all right. Give her a dessert spoonful of cooking soda in her feed, 3 times a day.

Barren Cows.—I have a cow that had her first calf June 26th, 1915. Since then she fails to come in heat. I have given her several doses of Spanish Fly without doing her any good. I have another cow that has had seven calves, dropping the last one in July 1915. She also fails to come in heat. A. T. W., Hanover, Pa.—Give first cow 1 dram ground nux vomica, 2 drams powdered capsicum and a dessert spoonful ground ginger at a dose in feed, 2 or 3 times a day. She may have a cystic condition of the ovaries which, if crushed by the hand of a veterinarian, may cause her to come in heat. Or, a forced service might have the desired effect. Your older cow had better be fattened.

Chronic Cough.—I have a horse that was taken sick on the road with chills and fever. His kidneys did not act, he refused to eat and our local veterinarian treated him for mechanical pneumonia. This was five weeks ago. He has improved but has a very tight cough which the medicine does not help. H. W. G., Wellsburg, N. Y.—Give ½ dr. fluid extract lobelia and ½ dr. fluid extract indian cannabis at a dose in feed, 3 times a day; also give a teaspoonful of nitrate of potash, once a day.

Heifer Has Sore Legs.—A few weeks ago I noticed sores about the size of a dime come on my heifer's leg. At first they appear raw, but after a few days the hair drops off and the skin becomes dry and rough. The sores seem to join together and now the leg is sore from hoof to hock. Is this a contagious ailment? C. P., Titusville, Pa.—Apply 1 part tincture iodine and 4 parts camphorated oil to sores on leg daily for a few days, then apply 1 part oxide of zinc and 4 parts vaseline daily. Give her a teaspoonful of sulphur at a dose in feed, twice a day. It is not a contagious disease.

Rheumatism—Swine Plague.—I have a 3-year-old mule of good size and type that is inclined to lie down whenever he has a chance. After getting up his muscles appear to cramp, but most of the soreness leaves with exercise. I have noticed his urine is mixed with blood. He keeps in good condition and so far as I can tell is healthy. The hogs in this section are suffering from a disease called swine plague and I have been advised to have my hogs vaccinated. Would this be advisable and if so will the state stand the expense of a veterinarian to do the work? I. K., Duncannon, Pa.—Give your mule 2 dr. acetate of potash and 1 dr. potassium iodide at a dose, twice a day. Your hogs should be vaccinated, but the state will not pay for having it done. You should secure the services of a competent veterinarian and ask him to use reliable vaccine.

Acute Indigestion.—I have a nice calf about 8 months old that usually bloats and is very apt to remain bloated some for three or four days. I would like to know how to prevent these periodical sick spells. P. B., Fish's Eddy, N. Y.—Perhaps you had better change his feed, keep bowels open, exercise him more and give him a teaspoonful of hyposulphite of soda at a dose in feed, 2 or 3 times a day.

Eczema. — We have some yearling calves that the hair came out around the eyes, leaving the skin bare, white and rough. No warts or anything like that are on any parts of body. W. E. F., Windgate, Pa.—Apply 1 part oxide of zinc and 4 parts vaseline, once a day.

Lump-jaw.—I have a yearling heifer that has a lump jaw, about the size of two hen's eggs. It is as hard as bone. I first noticed this enlargement about a month ago. I would like to have it removed. W. E., Chambersburg, Pa.—Clip off hair and apply 1 part red iodide mercury and 4 parts lard, every 10 days. Give her 1 dr. potassium iodide at a dose in feed or water, 2 or 3 times a day.

Bad Effects Following Castration.—I had a boar, castrated 3 weeks ago. Since then he has been rather dull, dumpish and shows weakness in hind quarters. He does not care to move about. We have applied liniment to back and hind quarters without results. Since he was operated on I have kept him in the barn and fed him wheat middlings and Buffalo feed. S. M. A., Westfield, Pa.—Apply 1 part iodoform and 9 parts boracic acid to wounds in scrotum if they are not yet healed. Give him 4 grains quinine and 10 grains ground nux vomica at a dose, 3 times a day. Apply mustard and water to back and hind quarters daily, and cover hind quarters with blanket. I believe your hog will recover.

Cow Pox.—Please let me know what to do for a cow that has cow pox. She has a great many small blisters on udder and there are many small bunches on neck and body. She came fresh some three months ago. B. J. B., Mont Clare, Pa.—Apply 1 part oxide zinc and 4 parts vaseline to sores, twice daily. Also give her a dessert spoonful Fowler's solution at a dose in feed or water, 3 times a day.

Bunch on Cow's Leg.—We have a cow that has quite a bunch on hind leg and we are at loss to know what to do for her. Can you tell us what to apply? H. W. S., Sewell, N. J.—Apply 1 part tincture iodine and 2 parts spirits camphor to bunch, once daily.

COUNTY NOTES

Lancaster Co., Pa., (S.E.) Jan. 7.—Weather clear and cold at present; has been quite changeable; two blizzards since Christmas. Roads were blocked with snow. Telephone lines badly crippled. Snow is nearly all gone now. Wheat has had little protection, but is wintering well. Live stock is in good condition. Prices still advancing. Wheat $1.20; potatoes, $1; corn, 74c; oats; 43c. Very little hay and straw being moved at present. The tobacco is nearly all sold, general price being 10 and 3 cents. Those selling early receiving less. Some crops have already been delivered. Farmers not very busy just at present.—J. Henry Haverstick.

Venango Co., Pa., (N.W.) Jan. 10.—All kinds of weather in December; no snow and hard freezing now. Live stock wintering well. No demand for stock at any price. Rough feed getting scarce. No snow and hard freezing is injuring winter crops. Butter, 35c lb; eggs, 45c doz; pork, (dressed) 9c lb; potatoes, $1.25 bu; apples, $1 bu; hay, $20 ton; straw, $12 ton. Not much but chores being done; some hauling of manure. General conditions are below the average at this time.—W. J. Pringle.

Morgan Co., O., (S.E.) Jan. 13.—Weather is now very wet, interfering with farm work and making almost impassible roads. Live stock is looking very well; not consuming as much roughage as in freezing weather. Growing wheat looks well; some fields are spotted. Prices for grain are steady. Wheat at local mill, $1.10 bu; corn, 70c; hay $19 ton; straw, $5 ton; butter, 20c lb; eggs, 32c doz. Farm work at a standstill owing to bad weather. Grippe is prevalent.—J. W. Gillespie.

Juniata Co., Pa., (C.) January 14.—Cold weather at present. Lots of rain; ground is very wet. There has been no sleighing. No ice houses filled yet. Very little fall plowing done. Growing wheat looks promising. Some farmers are hauling wheat to market at $1.18 per bu., but there are quantities yet to sell. Cattle markets are good. Hogs, dressed, 9c; veal calves, 11½c; butter, 35c; eggs, 34c doz; milk, $1.58 per cwt; potatoes, $1 bu; corn, 85c; oats, 45c.—Walter Barton.

Agricultural Society Meeting. — A special feature of the annual meeting of New York agricultural society is the session on Tuesday evening to be addressed by Governor Whitman, President Butterfield of Massachusetts Agricultural college, Hon. Geo. W. Perkins, of New York, and Commissioner Wilson.

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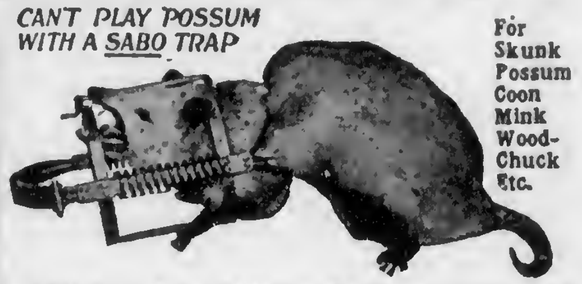

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IS FARMING A GAMBLE?

By JOHN McLENNAN
Onondago, Co., N. Y.

The Editor has asked what the year 1915 has taught me. With the Federal and State crop reports before us, showing the bumper crops thruout the country, there can be no question regarding the ability of the American farmer to provide the necessary food supply for this country for many years to come. In fact, he seems able to glut the market with almost any commodity if the demand bids fair to make it profitable and the price seems to warrant the effort. This tendency toward over-production in any given commodity is the cause of the failure of a large percentage of our farmers, and the loss of many millions of dollars annually, not only to the producer but to the consumer as well.

When, as during the present season, thousands of baskets of peaches were left rotting in the orchards because the market price would not return the cost of the basket and the freight to market; when hundreds of acres of cabbages were never harvested because $2 per ton at the loading stations does not pay the wages of the hired man and team employed in hauling them; when the farmer is selling his milk for three cents a quart, which costs four cents to produce; when cotton is produced in such quantities that the Federal Government is implored to aid the growers to prevent disaster from overtaking a whole section of our country; when many other commodities produced by the farmer have met the fate of over-production, it seems to me it is time to sit up and take notice and inquire where we're at.

I have observed that good prices for any commodity for one year are invariably followed by over-production and a glutted market the next year, and vice versa. If there is a glut in cabbages this year, with consequent low prices, the same commodity is very likely to bring good prices next year. The reason for this is of course quite plain. When, as in several instances, cabbage sells for $15 to $30 per ton in February and March, every farmer concludes that cabbage is the crop for him, and he plants as many acres as he can care for, and then some; while most of his neighbors are doing exactly the same thing. The result is over-production and a glutted market. After our experience with cabbage the present season, it is safe to say that cabbage raisers are thoroly disgusted, and very few will bother with them in 1916; result, we may expect high prices for cabbage in 1916.

There is just one way to beat that game, and that is, to do just the opposite of what all the other fellows are doing. That is to say, follow a year of over-production in any crop with the largest crop of the same kind that you are able to produce, and if you strike a high price, raise some other crop the following year, and nine times out of ten, you may win. I say you "may" win advisedly, because, "The best laid plans of mice and men gang aft a-gley," and it is largely a gamble anyway.

I doubt if there is any other class of men whose whole life is so completely a gamble as that of the farmer. We gamble on the weather, the rains, the drouths, insect pests, cyclones, disease, markets, middlemen, and malefactors in general. We take the long chance. We play a lone hand, and frequently we lay down a busted flush as we did in 1915 in cabbage. Whether we realize it or not, the fact remains that we are gamblers par excellence. Compared with us, the Wall Street plunger is a piker. He has but one of two bets which he can make, either that the price will go up or down, while we lay odds against the forces of Nature in a thousand forms and if luck is with us, and we happen to anticipate Nature and secure a crop, we must still meet a serious problem when we come to face the market and cash in.

Here we must face the human equasion and some of us are just beginning to learn that the selling end of the game is the most important of all, which brings me to the subject which is nearest my heart, about which I have learned the most during 1915, and which in my opinion, is destined to revolutionize the condition of the American farmer during the next decade: That is Co-operation.

I realize that in the limited space allowed to me, it would be folly to undertake a discussion of this vital subject and my regret is that I cannot tell every farmer what agricultural co-operation has done and is doing in various parts of the world, and in many localities in our own country as well. I would like particularly to tell my farmer friends what we are doing, and how we do it in our Onondaga Alfalfa Growers' Association in New York, and if I am invited to write for the Pennsylvania Farmer one year hence on what I have learned in 1916, I shall certainly have something to say on the subject of co-operation, and especially co-operation in finding the markets and selling the farmers' crops.

For many years the Federal and State Governments have expended large sums and made laudable efforts in teaching the farmer how to increase his production. Institutes were held in every community which would ask for such a meeting, and trained specialists and lecturers were always provided to demonstrate to the farmer how he could increase his crops. Bulletins were published by the million and freely distributed to all who would read them. Experiment stations were established and placed in charge of scientists for the purpose of solving the many problems in agriculture, to the end that production might be increased and a larger proportion of our crops conserved for the use of our growing population. Every state and territory established its colleges and schools of agriculture, its farm bureaus, and its rural agricultural training school, the purpose and end being to increase production.

I do not wish to be understood as criticising the work thus accomplished; in fact, I freely admit

(Concluded on page 3.)

POTATOES UNDER OVERHEAD IRRIGATION ON LEEDS' FARM, CLOUCESTER CO., N. J.

Spray Machinery - How and Which to Use.

By L. Wayne Arny, Philadelphia Co., Pa.

As with all other classes of implements, each spray pump has its particular use and crop on which it works best. It is, therefore important to use spraying machinery correctly if the greatest efficiency is to be gotten from it. The spring spraying season is approaching and with it come the pests which we have fought in years past and some new ones which are slowly working their way from other sections of the country to invade our fields and orchards and to perplex us with new spraying problems. In order to solve these problems with the greatest degree of success we must work carefully not only with the proper materials but also with correct machinery.

The improvement in spray machinery during the last twenty years has been most marked; starting with the crude ‘‘broom spray’’ and following a process of evolution until our modern and complete power equipment has been reached. As in all other lines of advancement, specialization has been the keynote, so that today the grower finds himself equipped with special apparatus for special purposes. This fact is often confusing, and the grower who is about to purchase a spraying machine is often at a loss to know which is the best for his use considering the points of efficiency, price and work to be performed.

There are two great classes of plants to be sprayed: Field crops, such as potatoes, tomatoes, cabbages, etc.; and trees, both fruit and ornamental. While this broad division helps us very greatly in determining the character of spray apparatus to be used, yet it is not enough, for we must also know the area to be sprayed, and in the case of trees, the height of them. It is evident then that the farmer who has both field crops and orchards can no more make one spray machine do the entire work than he can make his plow do his harrowing.

Hand Sprayers

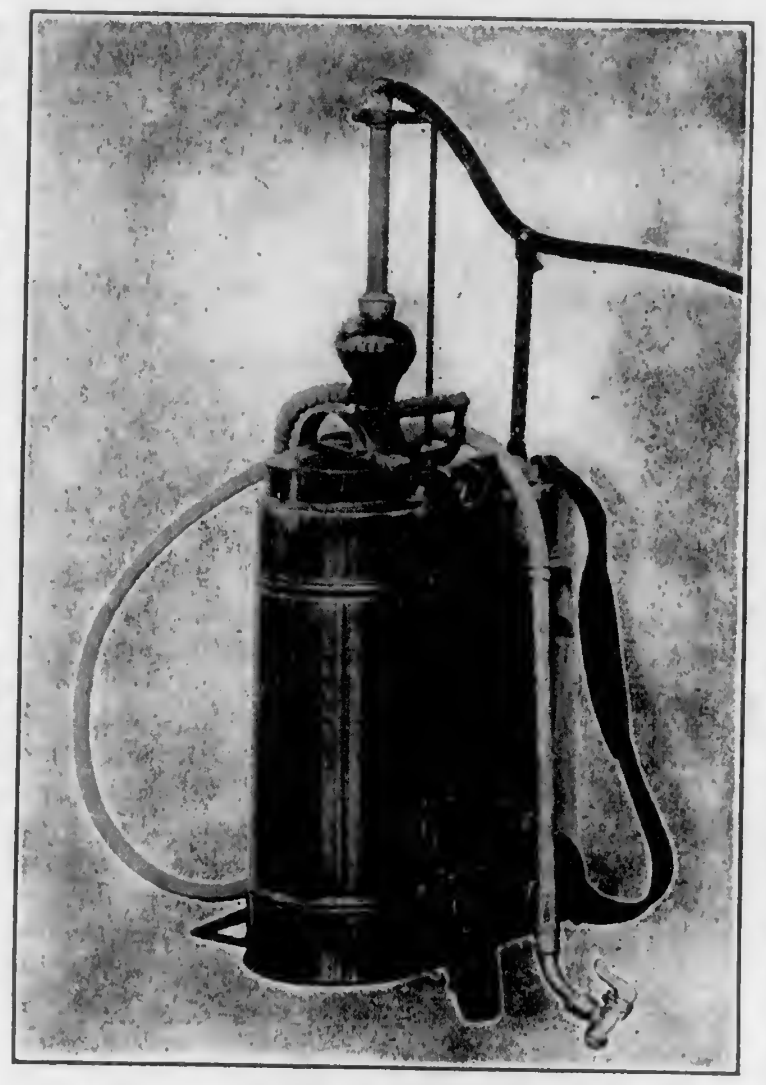
Starting with the smallest unit, we must consider the man who has only a truck patch or a few ornamental trees around the house to be sprayed. His choice will lie between the bucket pump and the knapsack sprayer. Both of these machines are designed for very small work. The former is a single-action pump attached to a bucket and can be used at a pressure of about ten pounds. While the character of work done by this style pump is perfectly satisfactory, yet the facts that the attachment to the bucket is apt to be a source of annoyance and also that the pump is too far away from the object to be sprayed, when that object is a tree, generally leads one to choose the knapsack sprayer.

There have been marked improvement in knapsack sprayers during the last two years. With the later styles, the pumping is all done at the beginning of the operation. By means of a hand pump, air is first pumped into the chamber to a pressure of about 15 pounds, after which the liquid is pumped into the same tank and by means of the same pump against this air pressure. When the tank is full the spraying material may be started; the air pressure being sufficient to keep up a fine mist until the tank is emptied without any further pumping. The advantages of this machine are obvious. It is comparatively light, it can be taken directly to the object to be sprayed and the entire attention of the operator can be given to spraying rather than to pumping. The bucket pump and the knapsack machine are only of value in the truck patch, or ‘‘kitchen garden’’ or on small trees around the house.

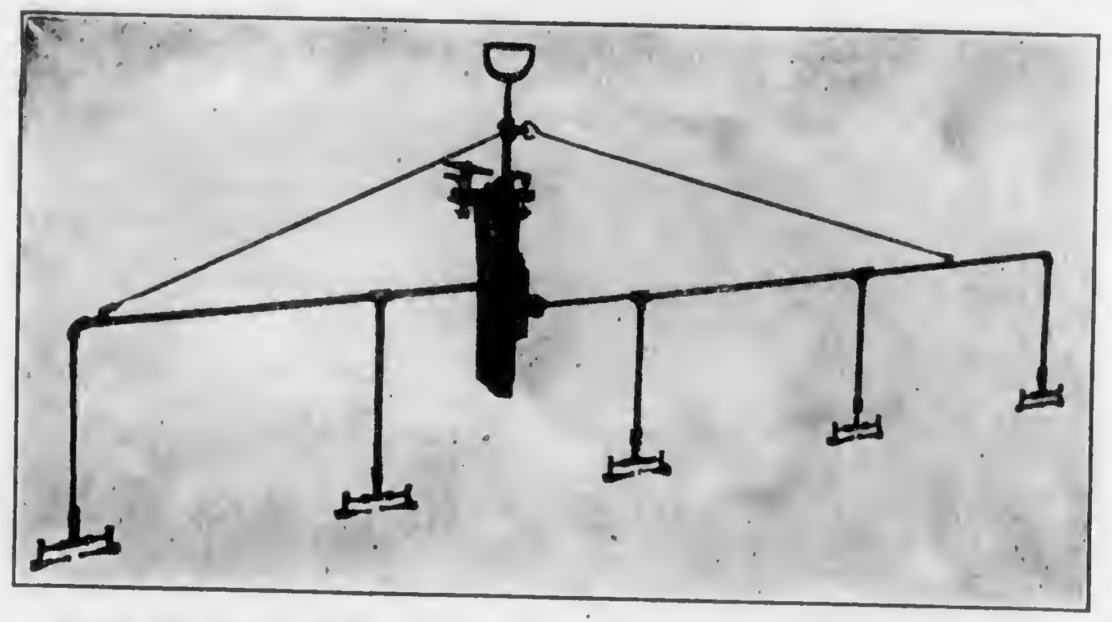
Barrel Sprayers

The farmer who has five acres of potatoes, tomatoes, cabbages, tobacco, etc., has no use for the small machines. He must have something larger. And there is only one type of pump that may be used by him with the greatest degree of economy. This is the barrel pump and is the most common of the spray pumps now is use. The valves in such a pump should be lined with brass and pump should be so built that it can maintain a pressure of at least 80 pounds. For spraying field crops, an attachment as illustrated must be used and so mounted on the wagon that it may be raised or lowered according to the crop being sprayed. At no time should the spray nozzles be closer than 12 inches to the object being sprayed.

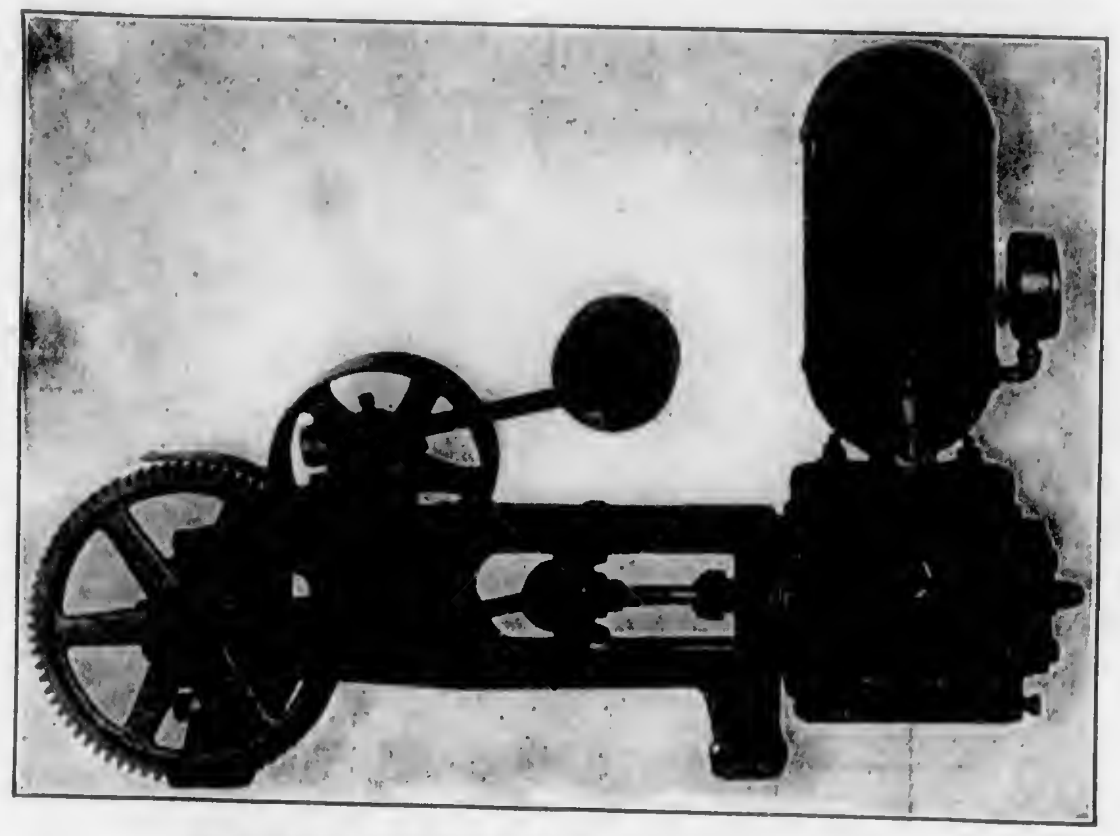
The barrel pump has the further advantage of being efficient for tree spraying on small areas and when the trees are not more than four or five years old in the case of apples and pears, or two years for peaches. For spraying field crops of large acreages, the barrel pump may be mounted on a 100-gallon tank, thus saving the time and labor of constant refilling of the barrel.



CONVENIENT FORM OF KNAPSACK SPRAYER.



GANG OF NOZZLES TO BE ATTACHED FOR SPRAYING FIELD CROPS.



BELT-DRIVEN POWER PUMP FOR SPRAY OUTFIT.

Power Machines

For orchards larger than those mentioned, power machines only can be used economically. These are of several types. All are provided with an engine which may be geared to the pump either direct or by means of a belt. The latter means has the advantage of safety, since in the event of sudden increased pressure the only result can be the slipping of the belt. On the other hand, unless the belt-driven pumps are carefully inclosed, the belts will become wet with the spray and slip at comparatively low pressures. All power machines shoud be equipped with safety or relief valves which release the spray back into the tank when the pressure becomes greater than the fixed point. These valves are very often the weak points in power machines and should be cleaned after each spraying. A clogged relief valve may mean serious damage.

Two outlets should be provided on power outfits, one on top of the tank to be used by the man on the tower and the other at the rear of the machine for the man on the ground. This is often much more satisfactory than where there is only one outlet with a ‘‘Y’’ connection.

Pressure

Much has been said and written concerning the amount of pressure is best adapted to orcahrd spraying, and there are many points in favor of both low and high pressures. The writer has made many careful experiments concerning this factor and has found the advantages of the higher pressures to be great enough to over-balance those of lower figures. Better results may be obtained at 300 pounds than at 150, provided the men at the nozzles are accustomed to this high pressure and are quick in their actions. The advantage of this high pressure are speed, uniformity in application, freedom from ‘‘drenching’’ and greater results with less material. A pump which delivers not less than 10 gallons per minute operated at 300 pounds comes near to perfection in spraying, providing that the men in charge of the outfit know their business.

For tall tree spraying, special machines are now made which develop 600 pounds pressure and will cover a tree 80 feet tall with the use of climbing apparatus. Such a machine however is costly and is only of use for spraying forest or ornamental trees.

Every grower should keep in mind the fact that thoro spraying is an investment and not a tax. He should equip himself with the best possible spraying machinery, regardless of cost, and use the highest grade materials since every new year will bring new and perplexing spray problems and clean crops must be gotten at all costs.

Queries and Comments

Sweet Corn Seed—Fertilizers—Strawberries

‘‘My late sweet corn was not wholly dry when I cut it off last fall. Still have some of it in the fodder. Would it be all right to plant in spring? Which is better, bags or glass jars, to keep seed in? Is there going to be any advance in fertilizers this spring? Will potash and other imported materials be obtainable? I have a strawberry bed set out last spring. It was nice and clean. The soil was light. Part of them have not made much growth. How deep should the mulch be, and what? Manure is not obtainable.’’—Mrs. J. T. T., Chesterton, Md.

If the sweet corn was fully ripe when cut off, and was not frozen in the husk, it will be all right for seed. Husk it out, leaving a few husks on the ear and hang it up by these in the attic where it will not freeze. Do not shell it until thoroly dry. Seeds keep best in bags for the reason that any moisture exaporating from the seed can find its way out.

All fertilizers wil be somewhat higher this year than last. Potash is unobtainable beyond what was on hand. Few brands contain more than one percent of potash. Nitrate of soda is higher. However, since the cost per acre is not greatly increased, even tho the price per ton is considerably more, we would not advise farmers to greatly reduce the amount of fertilizer used.

Cover the strawberry bed completely with straw, putting it deepest between the rows, say three or four inches. Since the plants did not make a good growth last season it is possible they would be benefitted by a good application of fertilizer sown broadcast on the mulch in spring. The rains will carry it down. Manure would be best for mulching if it were obtainable.

Is Farming a Gamble?

(Concluded from page 1.)

that a splendid work has been performed along educational lines in the domain of agriculture. And I go further and say that such educational work is necessary if we are to keep abreast of the progress being made in agriculture in other countries. But at the same time, as I consider the results from the farmers' standpoint, I am compelled to believe that the Government has fallen down.

Has the Farmers' Institutes, the Eperiment Stations, the schools, the colleges, the farm bulletins, or the farm bureau ever tried to tell us how to sell this increased production for an increased price? Have they ever evolved any plan whereby over-production and consequent loss and ruin might be avoided? Have they shown us how it is to our advantage to produce two bushels of potatoes where we formerly produced one, and then be compelled to receive a smaller net profit per acre than we formerly received? In short, it seems to me that the Government has given consideration to but one side of this big, many-sided question, and that the most important side, the economic side, stands just where it stood fifty years ago.

It may be that the economic problems must be worked out by the farmers themselves, thru their co-operative associations. It may be that thru such associations crop production can be controlled, markets secured and fair living prices fixed. I am convinced that the farmer must secure these results for himself thru organization; but at the same time, the Government can aid in many practical ways. For instance, the banking system of this country as at present established, is all against the farmer and in favor of the urban dweller. In fact, National banks and many savings banks prevented by Government statutes from extending credit to the farmer on equal terms with the city business man, with the result that the farmer who needs long-term credits because his crops mature but once a year, is seldom able to obtain credit at all at the banks.

Rural banks have been established by many European Governments for the benefit of the farmers, and they should be established here. Real estate is everywhere considered the safest and best security; the farmer has it. He should be able to use his credit promptly when occasion requires and secure his loan at the lowest rate of interest. All of these results could be secured if the farmers themselves were organized.

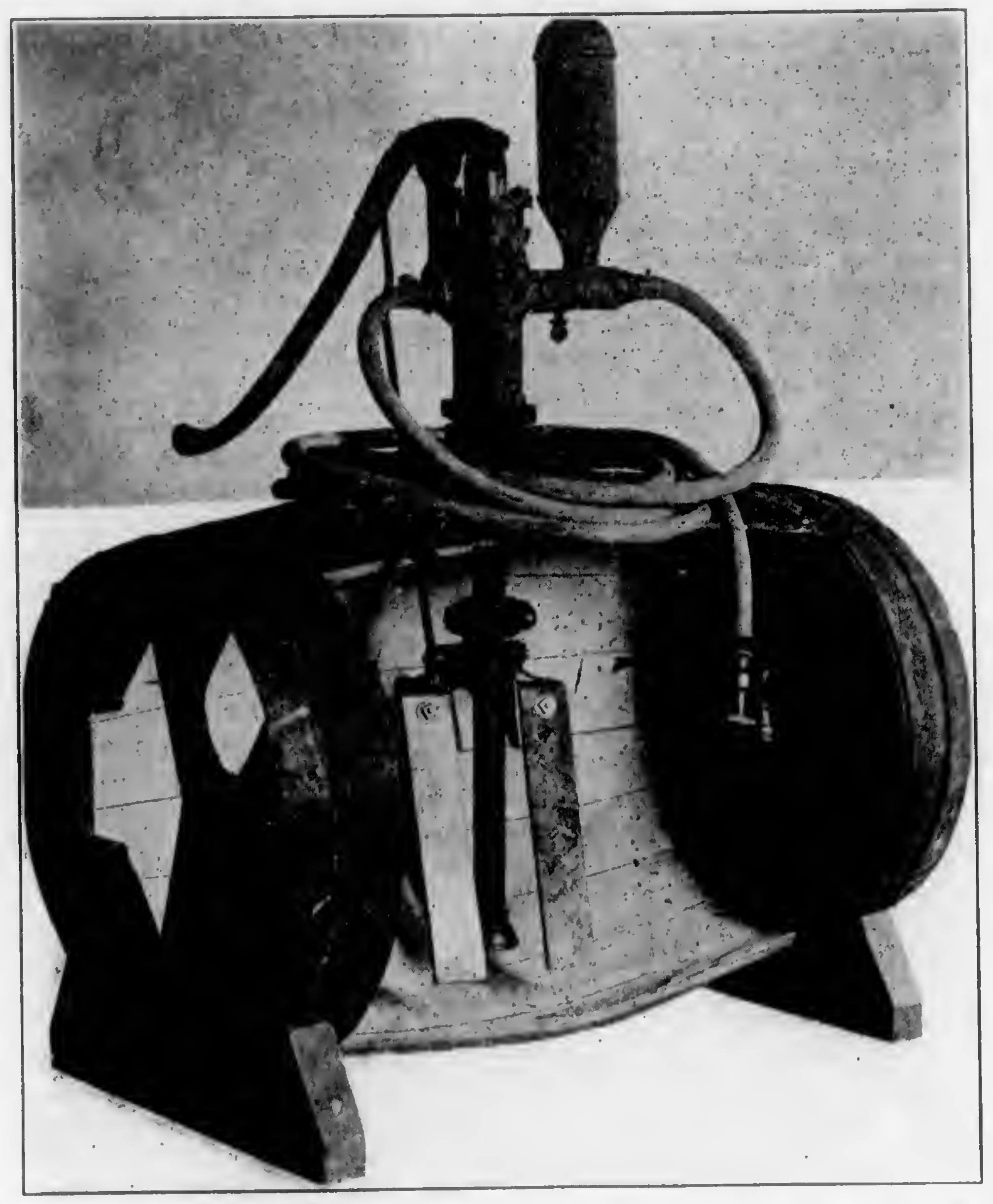
All political parties for years have proclaimed in their platforms that they were in favor of a system of rural credits which would enable the farmer to secure the necessary capital to properly conduct his business and move his crops. If we were organized as we should be, the politicians would be tumbling over themselves to extend these things to us for the asking. Let us organize! Organization has brought order out of chaos in other lines. Why not in agriculture?

(Note.—We publish this as one of the series on the Lessons of the Season and it touches so pointedly the problems which confront the practical farmer every year, that we know they will appreciate it.)

The Cross Roads Farmers' Club

In these days when so much is being said and printed about farming methods, and how to raise bigger crops, improve the soil and get larger returns for our work, the idea was conceived that it would be a good plan to add to what others are giving, the plain, unvarnished opinions and practices of the working farmers. For this purpose there is probably nothing better than the free and easy discussions which occur weekly at the Cross Roads Farmers' Club. It is not expected that they will have the polish of professional writers and speakers, but we know that they have been thought out behind plow handles, in the harvest fields, the dairy stables, and by the fireside, by men who are ‘‘making good,’’ and who will leave the world better than they found it.

BARREL PUMP FITTED WITH PRESSURE GAUGE.



EFFICIENT BARREL PUMP FOR SMALL ORCHARD AND FOR FIELD CROPS.

We begin these chronicles with a report of the first meeting.

Cross Roads, Oct. 8, 1915.

Promptly at 8 o'clock chairman Thorp called the meeting to order and read the Declaration of Purposes. This had been prepared by a self-appointed committee of farmers who had met one evening, laid plans for the Club and called the present meeting. The article read as follows:

‘‘It shall be the duty of those who may become members of this Club to meet every Friday evening at eight o'clock, in the Cross Roads School House for the discussion of questions pertaining to better farming. These questions to include soil improvement by proper tillage, the right use of lime, manure, fertilizers and green crops, seed selection and seed treatment, methods of harvesting, storing, grading and marketing, how to improve the appearance of the farm and the comfort and convenience of the farm home, and any other such questions as may be deemed wise by the program committee. This Club shall be known as the Cross Roads Farmers' Club.’’

The Chairman: ‘‘Gentlemen, you have heard the reading of the Declaration of Purposes. What is your pleasure?’’

Farmer Pentz: ‘‘I move it be adopted.’’

The motion was seconded and the article approved.

Farmer Davis then arose and made the following motion: ‘‘Inasmuch as this is a public school house, also, that some of us do not use tobacco, I move you that we pass a resolution prohibiting smoking in the school house.’’

This motion was put to a vote and carried, altho the ‘‘ayes’’ were noticeably weak in some quarters of the room.

Farmer Cleaver came in at this point and the gist of the proceedings had to be explained to him by the president, who took occasion to say that hereafter he wanted to see all in their places promptly at 8 o'clock.

The membership roll was passed around and was signed by 12 men, thus agreeing to regular attendance and to take whatever part might be assigned to them by the program committee.

The Chairman: ‘‘I see by the program that only one subject appears for this meeting and that is on the subject, ‘What Three Things Contribute Most to Successful Crop Production?’ This subject will be opened by J. Wall.’’

Farmer Wall then read his paper, from which the following is quoted:

‘‘I deem it an honor to read the first paper at the first Cross Roads Club Meeting and feel my incapacity to discuss the subject as it should be treated, but the things I shall say will be based on many years observation and I feel confident that you will find, upon reflection, that the three things I mention are the most important. I know there are many other requisites, but I got at it this way: I said to myself, ‘Suppose you had to forego all the qualities and conditions that help to make good crops except three, which three would you reserve?’ So I set down a list of 8 or 10 and checked them off until I had these three left, viz: the right moisture conditions in the soil, the proper soil temperature, and, sufficient plant food. I find that when any one of these three things is lacking, or not right, good yields are not possible. If any of you can name another that is more important than these three I shall be glad to hear it.’’

‘‘Peeley’’ Helper: ‘‘That was a good paper and I believe that Farmer Wall is right, but how are we going to always have those three things? Suppose the weather is too dry or too wet, or the sun doesn't shine enough, what are you going to do for the right moisture and temperature? That is just why there are so many poor crops, they are drowned out or dried up or starved to death. How is the farmer going to overcome these troubles?’’

The Chairman: ‘‘I see by the program which the committee has handed me that the question for next meeting is, ‘Soil Moisture and How to Control It.’ This should prove most interesting and help to answer Farmer Helper. The meeting is adjourned.’’

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Cultivates Alfalfa Right.

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The Superior is the most successful Alfalfa Cultivator on the market, because it does its work right without injury to the plants.

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Growing Early Tomatoes--II

From Seed to Market

By C. C. Hulsart, Monmouth Co., N. J.

One of the first essentials to successful growing of the early tomato is a good hot-bed and a man who knows how to make and care for one. I have been making and handling hot-beds for forty years. During that time I have learned a few things that I feel may be of some use to my fellow farmers who may not have had an equal opportunity. This is doubly important to the novice or young beginner, because I frequently see discussions on this subject that make a practical man laugh. The advice given today, and by scientific men, too, is practically the same as was handed out 30 and 40 years ago. The old story, and the one frequently repeated is something like this: "Select a sheltered place from the north and west winds. Excavate to the width of your bed and any length desired to a depth of two feet. Place a frame over this pit and fill with fresh horse manure, tramping down to two feet in thickness. This manure should be piled and allowed to warm up, and then turned, putting the outsides of the heap in the center and vice versa. Place sashes on bed and let stand for a few days for the sharp heat to pass off, and then sow seeds, etc."

No practical man would follow such advice, and any novice who did would fail. I have seen many hot-beds ruined by excavating 18 inches deep and placing the manure in that pit. If a pit is dug on land with a more or less water-tight bottom and water gets into it (and it will if there is any excess water) what happens? The manure sucks up the water like a sponge and away goes the heat. If this happens early in the life of the bed and while the seedlings are young and tender, failure is assured. I began making hot-beds that way 40 years ago, because I did not know any better. After drowning a few beds I began to philosophize a little. I resurrected that bed from the "grave". When snows are melting in the spring and heavy rains fall, as is usually the case, water is bound to get into a pit. And if any quantity gets into it the bed is badly damaged if not ruined, except where the soil is loose sand or gravel.

Excavate only 8 to 10 inches, according to your soil. If quite clayey, better stop at 7 or 8 inches. Then take soil enough from the outside to bank around the frame so as to leave the outside just a trifle lower than the bottom of the bed on the inside. Then if there is any seepage water it will seep out and not in. Next build a frame, using one 10-inch board for the front or lower side and two 10-inch boards for the back. Cut one end piece diagonally from corner to corner. Then you have a frame with 10 inches pitch. It can be made any length desired. Place this frame over the place dug out 7 or 8 inches deep, putting a brick under each corner. Set the frame as nearly level as possible so it will be 20 inches from the top of low side of frame to the ground on the inside of bed.

Now we are ready for the manure, which should be new horse manure, with plenty of litter or straw among it and showing evidence of fermenting. Put enough into the frame to be from 12 to 14 inches deep when packed down—not with the feet but with the back of a good heavy manure fork, using quite a blow. Be sure to make it level and pack it as firmly in one place as in another, because, as fermentation goes on, the bed settles. We want it to settle as evenly as possible so it can be watered evenly. Have a heap of soil ready, composed of one-fourth old rotten manure and three-fourths sandy loam well worked together. Place this soil on the manure to a depth of 5 inches when raked level. Then roll or firm it by any light pressure and put on top of this a half inch of clear fine sand and smooth down level. Then mark off in rows, 4 inches apart. Then we are ready to sow the seeds without waiting for any excess heat to pass off, because we are not going to have any excess heat. The manure is only one foot deep against two in the old way; hence it can not get as hot.

I usually sow my seed the next day after the bed is finished. While that bed is warming up the seeds are swelling naturally and not in an over-heated soil. In two or three days the bed will be warm enough for best results and if the sun shines brightly the bed may have to be aired. In this kind of a hot-bed only half the amount of manure is required, and less attention needed to care for it properly. It will furnish sufficient heat and last long enough for good results. In fact, better plants are produced in such a bed than can be where the bottom heat lasts much longer. In any case, fresh air is essential to a healthy, sturdy growth; hence any bed should be aired as soon as plants are over ground and almost continually when the sun shines up until the plants are large enough to change to the transplant beds or cold frames. That part will be treated in our next article.

Queries on Horticulture

Queries on matters connected with the different phases of horticulture will be referred to Dr. J. P. Stewart of State College, for answer. We feel that we are fortunate in securing for our readers the services of one who is a recognized authority on horticultural subjects. All inquiries should be directed to this office.

Parsnip Seed

"Please let me know thru Pennsylvania Farmer whether parsnips which are left in the ground all winter and allowed to produce seed will produce "wild parsnip" seed, or will the seed be all right?"—J. E. A., Erie Co., Pa.

The seed will be of the same variety as planted.—(Ans. by K.)

Soil Treatment for Untillable Orchard

"I have an orchard just coming into bearing which is situated on the south side of a steep hill-top. It is rather inaccessible and soil is filled with small stone, making cultivation impracticable. It is new land and contains many stumps. What treatment would you suggest?" E. S. B., Clearfield Co., Pa.

If sufficient stable manure is available, I would place a good coat of it around every tree, making the applications heaviest over the outer two-thirds of the area covered by the branches. It is not needed close up to the trees and it is best to keep this space clear, or even mounded up a little, to avoid danger from mice. A total application of 6 to 8 tons per acre will be sufficient if applied annually. This treatment, along with sufficient attention to weeds and brush to keep them down properly and avoid undue competition with the trees, will undoubtedly prove a full and complete substitute for any amount of tillage.

If the manure is not available, a good mulch of any kind of plant material, such as swamp grass, damaged straw, buckwheat straw, etc., applied over the same general area, and supplemented by a proper fertilizer, will generally take its place. A hundred pounds of straw per tree should be sufficient, and for the present a fertilizer carrying about 2 pounds each of nitrate of soda and dried blood and 8 or 10 pounds of acid phosphate will probably do the work.

The application of fertilizer is best made somewhat after blossoming time and its effects should not be expected before the following year. The first mulch should be applied as early as possible, to conserve the spring rains, but the later applications may be made whenever the materials are most readily obtained.

Winesaps or Stayman

"About five years ago I set 100 trees which were supposed to be Stayman Winesap. They have borne a few and I am suspicious that they are Winesaps instead of Stayman. Please explain the difference and value of each, and whether I had better have them graftted." O. W. T., Blair Co., Pa.

It would be best to determine definitely just which variety you have before considering later treatment. This can be done with the greatest certainty by sending one or two typical specimens of the fruit to the Pomology Department at State College, Penna., with a request for identification.

If the correspondent wishes to try to distinguish them himself, this may be accomplished by remembering that the Stayman averages much larger than the plain Winesap; it is not so deep a red, being more of a greenish-red as a rule; and it is rounder and less conical than the Winesap. The latter keeps better, as a rule. It also makes an excellent box apple and is very high in quality.

In many parts of the country the old Winesap is still regarded as a better commercial proposition than the Stayman, and even if the trees should prove to be the former, it would still be at least doubtful whether they should be top-grafted. The more rapid growth of the Stayman and the frequent failures to get good trees after top-grafting are especially worthy of consideration in this connection.

Red Raspberries

"How long is it practicable to maintain a plantation of red raspberries, and what treatment is best conducive to a profitable long life?" E. G. S., Centre Co., Pa.

A good variety of red raspberry, such as the Cuthbert can be maintained almost indefinitely, if even fair attention is given. I know of one plantation that is now not less than 25 or 30 years old in which the only care given has been to cut out the old canes every year, cut the new ones back to a height of 40 inches or thereabouts, and then scatter a fairly good coat of chicken manure over the patch, usually during the winter. No pruning of the new canes should be done until after all danger of freezing is past.

If the matted row system is preferred, the same general practice in pruning should be followed. The rows themselves can be readily renewed as often as desired by edging in on one side of the rows in the tillage operations and keeping away farther on the other side. By edging over about half the width of the rows in this way, they can readily be renewed entirely in two seasons, and the patch as a whole remain practically the same.

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This endorses the Tower way for a wet season, as well as dry weather.

Avoid imitations; see that your cultivator has the name "TOWER" on the tongue. Write a postal for our free booklet on "Corn Culture."

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Our leaders are: **Peach Trees,** (*original stock furnished by N. J. Exp. Station*) **Apples,** including *"Delicious"* and 75 others. Hardy Indiana **Budded Pecans** and Small Fruits.

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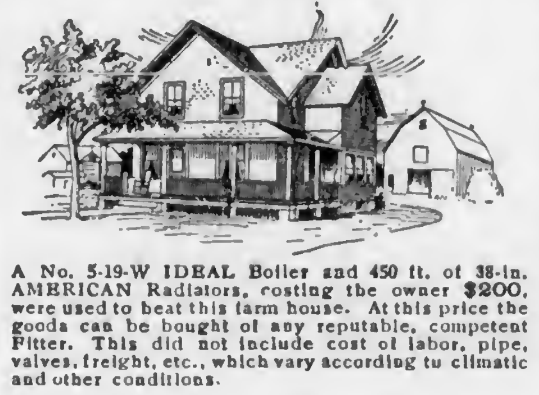
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GROWING PEPPERS

In traveling over various sections of the country at institute work, I find so few who know anything about the pepper as a money crop. In talking with farmers about this crop they seem astonished when told the pepper is grown in many sections by the hundreds of acres and the net returns equal almost any crop we produce.

In certain sections of Pennsylvania where many settlements of foreigners are located my judgment tells me it would be an ideal place to sell this vegetable. In the coal regions around Scranton I know this vegetable sells well because I have shipped peppers to Scranton by the car load and had them sold on commission at paying prices. Now if a grower in New Jersey can produce this crop and pay freight and selling charges on it, and still have a living profit, how much more could a resident farmer make who could grow and deliver his crop to a local dealer or to the consumer direct? This looks to the writer like letting oportunity go by. But some reader will say how do you know we can grow this crop here? Because I have grown it myself for years. I know its habits and requirements. Furthermore I have been over the territory, have seen the soil and noted conditions. Now all that is left is to have the farmers know how to produce the crop abundantly and economically. The purpose of this article is to tell farmers how that can be done.

One of the first requisites to success is a hotbed or small green house preferably the manure hot-bed. Now as a practical farmer I am aware that many farmers who have had no experience with making and handling manure hot-beds shake their heads in despair and turn away from any proposition where a hot-bed is the first consideration. To all such let me say in the outset, you do not need to give up on that account because some one will raise plants who does know how, for any that do not. That condition exists everywhere. In any locality where quantities of plants that must be grown under glass are used there always is some one or more who make a business of growing such plants, and where only moderate quantities are used perhaps it is just as well to buy them.

For those who are willing to grow their own plants and know how to make and handle a hot-bed I would say; pepper seeds require more time to germinate than many other kinds, like tomato or eggplant, hence the grower must have care lest the soil dry out and the seeds fail to grow. Seeds should be sown from nine to ten weeks before time to plant in the field and planting in the field should not be done until all danger from frost is past and the soil has warmed up some. We must remember that this plant is a native of a warm climate (Spain) hence it does not take kindly to cold hands or feet. Sow seeds in rows 4 inches apart distributing the seeds evenly about 3 seeds to the inch, cover not over half an inch, press down firmly and water. Put on sashes and keep at a temperature during the day of 80 to 90 degrees, not above 90 degrees, and be sure not to allow surface to dry out. When watering becomes necessary apply it in the morning using tepid water for the purpose so as not to cause any chill. Here we use a 3x6 foot sash on our hot beds and aim to grow about 1500 plants under each sash. Some growers transplant the young seedling plants when about 2 inches high to cold frames spacing them two or three inches apart. This gives a stronger plant with more root system, one that will start to grow more quickly when set in the field, and usually, produce fruit some earlier than will be the case where plants are set in the field direct from the seed bed, and fewer die, hence less setting over. Growers seem to agree, however, that plants set direct from the seed bed without transplanting produce a greater volume of crop. I believe this is true. If plants are grown in the seed bed not to be transplanted to cold frames they should be kept perfectly clean and free from all foul weeds and grass and as soon as the young plants are large enough about one inch of sand should be put between each row and spread out until all is level. Now do not wet this fresh sand for a day or two, because if you do it may cause the damping off fungus to begin its work, a disease to which the pepper is quite susceptible. After 2 or 3 days there is not much danger. Sifted coal ashes are just as good, or better than sand for this purpose. The plants should be 6 to 7 inches tall and well hardened off before taken to the field.

MODERN TYPE OF BUCKET SPRAYER.

Varieties

This is a question of demand hence I shall not attempt to recommend any type or variety but in a general way discuss the merits and demerits of those with which I am familiar. One of the old varieties is Ruby King, very mild flavor but too late for large crops and good profit. There are various strains of Bull Nose, many of which are good and where a large thin skinned mango pepper is in demand they will prove profitable. The Chinese Giant is a variety of the Bull Nose type but very large, often measuring 15 inches or more in circumference. This variety is very mild in flavor. The Cuban Queen is also a mild fruit; grows elongated in shape, very light green in color, but rather particular as to the kind of soil for best results. Foreigners, however, seem to prefer a pepper with a pungent flavor. I have seen them eat them when I knew they were hot enough to make one think of the hereafter and seem to enjoy it. We have a variety here known locally as "cheese", or "squash". It is a small fruit very solid and crops well and most always sells good. This variety is very hot. It is also a smaller bush and can be planted much closer than the larger sorts. Soils, planting, etc., will be treated in another article to follow.—C. C. Hulsart.

(See directions for making hot-bed in article on Tomatoes, this issue.

Pennsylvania Fruit and Vegetable Growers in Joint Convention

The State Horticultural Association and the Vegetable Growers Association met in The Berkshire Hotel, Reading, Pa., January 18, 19 and 20. Each of the associations held eight sessions, two of them jointly. Some dissatisfaction was expressed with this way of holding these meetings for the reason that many are interested in both fruit growing and market gardening and would like to take part in the meetings of both associations. A joint committee was appointed to consider the future relationship and report next year.

THE HORTICULTURAL MEETING

Dr. I. H. Mayer, Vice President, of Lancaster County presided at the different sessions because of the illness of Chester J. Tyson, President. At the session on Tuesday evening, Miss Pearl MacDonald, Household Economist of the Extension Department of State College, gave an address on "Food Values of Fruit and Vegetables." She stated that more fruits and vegetables could well be included in the family bill of fare, both from the standpoint of economy and also for healthfulness. Much good food is spoiled in the cooking, thereby losing flavor as well as nutritive value. When meat forms a large part of the diet a great deal of fruit should also be eaten to counterbalance the effect of the meat.

Thomas M. Knight, of Philadelphia, was the next speaker on "Economic Fertilization."

An illustrated lecture on Spraying Peaches by A. J. Farley, of the New Jersey Experiment Station, was delivered on Wednesday morning. He said: "The man in New Jersey who does not thoroly spray his peaches both winter and summer will not raise good peaches one time in a hundred. San Jose scale is not disappearing in New Jersey."

"Spray for leaf curl before the buds start with concentrated lime-sulphur. Plum curculio destroys many peaches. Spray with arsenate of lead 2½ to 3 pounds to 50 gallons water, to which a little lime-milk has been added, as the leaf appears and the petals have fallen."

"Proper and timely spraying will control peach scab and brown rot. A rather new disease is bacterial spot, a disease affecting both fruit and leaves. Many fruit growers would be better equipped with a power sprayer. They do better work and at less cost. The nozzel is the business end of the spraying outfit."

In a talk on "Commercial Raspberries," M. K. Krull, of Brant, N. Y., recommended the Columbian as a profitable variety and deserving of a wider production. It is a cross between the Gregg and the Cuthburt. It is purple in color, a very strong grower and heavy yielder. It is highly appreciated when the prejudice against the color is overcome.

"The Newer Insect Pests of the Apple" was the subject of an illustrated talk by Prof. Surface. Among others, the apple seed chalcis was named, the larvae of which eats the seeds of the growing apple. The railroad maggot which bores circuitous channels thru the flesh of the apple seems to be spreading. The only remedy for the former is to destroy the affected fruit or feed it to the stock. For the latter, spray with sweetened arsenicals.

Dr. Mayers, in an address on thinning advised careful and severe thinning of fruit. A. J. Farley in discussing "Harvesting and Packing" showed many interesting slides illustrating packages and methods.

The question box proved to be one of the most interesting and valuable features of the sessions. Among other questions, that of protecting trees from damage by mice and rabbits was discussed at length. Tree protectors, wrapping heavy paper around them, spraying with a strong solution of lime-sulphur, keeping dogs and cats were all recommended.

In response to a telegram, A. L. Heston from the Workmen's Compensation Board, Harrisburg, appeared to explain the application of the Compensation law to fruit growers and other industries allied to agriculture. Under the law as it is, farmers engaged in general farming are exempt from the application of the law. When fruit growing, poultry raising, nursery growing are conducted as a business and not as a side line to general farming they are not exempt. The opinion was expressed that the courts would decide the farmers' exemption clause unconstitutional.

Policies are issued by the board upon receipt of a formal application properly made out and attested to by the applicant. This must contain the amount of the pay roll for the preceding year. Upon this is based the charge for insurance. If the pay roll amounts to more than that amount the coming year, a corresponding increase is paid at the end of the year. If less, the difference is refunded. The rate for fruit growers is 90 cents on the hundred dollars. If the pay roll was $100, the cost would be 90 cents; if $1000, it would be $9.00. Fruit growers were advised to take out insurance and be on the safe side. Members of the firm can not be thus insured. Members of the family, over 14 years of age, may be included if their names appear on the regular pay roll. The rate for nurserymen is 34 cents, and for dairymen 57 cents per $100.

The election of officers resulted in the choice of Dr. I. H. Myers, Lancaster Co., for President; vice presidents, W. J. Lewis, Luzerne Co., Geo. J. Kessler, Blair Co., and P. S. Fentermacher, Lehigh Co. Prof. F. N. Fagan, of State College, was elected Secretary.

VEGETABLE GROWERS MEETING

The second annual convention of the Pennsylvania Vegetable Growers Association was held at Reading, January 18, 19, and 20, in connection with the State Horticultural Association. The address of welcome was delivered by Edward J. Morris, president of the Chamber of Commerce and the response was made by James F. Walker, of Westtown. The president of the association, Mr. Howard W. Selby, of Philadelphia, in his annual address called attention to the important part that vegetable gardening plays in Pennsylvania agriculture. He called attention to the fact that according to census statistics, the vegetable interests of Pennsylvania amount to approximately $10,000,000 annually as contrasted to approximately $7,000,000 which represents the value of the fruit and nursery interests of the state. He made a strong appeal for more co-operation among vegetable gardeners of the state. The Seed Service Committee reported a plan by means of which the members of the association are enabled to secure seeds thru the association which are of tested strains, and a discussion which followed brought out the fact that a few of the members are at the present time producing superior strains of seeds for their own use and also for sale.

"Potato Growing in Pennsylvania" was the subject of an interesting address by Professor Alva Agee, of New

(Continued on page 10.)

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Philadelphia, Pa., February 5, 1916.

AGRICULTURAL APPOINTMENTS By appointment of Charles E. Carothers, of Washington County, as Deputy Secretary of Agriculture, last week, Governor Brumbaugh completed the reorganization of his Department of Agriculture. Appointment of Secretary and Deputy was delayed many months, and the public was assured that great care was being exercised in their selection. The office of Secretary, calling for the enforcement of administration policies, is recognized as a position that can never be entirely separated from politics, at least so long as it is filled by appointment rather than election. The Deputy, however, comes in closer touch with the farmers and their work. Being superintendent of the farmers' institutes, and having the selection of institute speakers and general supervision over the meetings in every section of the state, the Deputy has the opportunity to bring the work of his department into closer contact with the every-day work and life of the farmers than any other officer in the state government. Enjoying this privilege and charged with this duty, it would seem that the Deputy, above any officer of the department, ought to be a recognized leader in the agricultural affairs of the state, or at least in close touch with the farm conditions and needs of the state. Mr. Carothers may be a close student of agricultural affairs and fully qualified to perform the duties of his new office, but he has never been identified with agriculture in a general or state-wide sense. He may prove to be a capable and highly efficient Deputy, but his appointment to this office was very evidently made on political grounds rather than because of demonstrated fitness for the position. Mr. Carothers will have abundant opportunity to prove himself and put his office on a basis of genuine service to the farmers of the state. But the evident purpose of his appointment can not be altered by any record that he may make. The Governor has made very definite promises of what he hoped to do for agriculture thru this Department. He outlined a program of reorganization and reform that held much of promise. The farmers had reason to expect that the offices in this one department of state government that ministers directly to their industry would be filled upon higher requirements than merely the payment of a political obligation or the furtherance of a political ambition.

TESTING ASSOCIATIONS We have published considerable matter on cow-testing association work in the last few months. We believe that such associations will prove the most important and most valuable factor in improvement of the dairy industry since the introduction of the Babcock test. They are putting dairying on a business basis. They enable the dairymen to know just what their herds are doing and which individuals in the herd are helping on the profit end and which are hindering by producing at a loss. They are leading dairy feeders to a closer study of care, feeding and management, and are making better dairymen. They are providing a basis for accurate records for grades as well as purebreds and are supplying the most valuable guide to selection for breeding up the herds. They are removing so far as it seems possible the unknown quantities in dairying and putting it upon a scientific basis. And more important still, they are pointing the value of accurate records in one line of farming which must make the progressive farmer seek the application of similar records in other lines. Every farmer can profit by the study of cow-testing work and the value of testing records to the members of these associations.

OUR HORTICULTURAL SPECIAL In this issue we are presenting our first Horticultural Special. So many phases of horticultural work, both orchard and market gardening, are timely at this season of the year that it has seemed advisable to devote more than the usual amount of space to these subjects. We have tried to select material to meet the most timely needs and cover the marketing as well as the producing end of the work. The article on first page discusses features of farming, in horticulture as well as general farm work, which must have impressed themselves upon all farmers. It does not advance specific remedies, but it suggests lines of improvement which must be followed and upon which farmers must combine if improvement is to result. The pages following should be preserved for reference when needed as the new season opens up. We want to call particular attention to our query departments thru which queries from readers will be discussed by the best available authorities.

The Grey Dawn

Have you ever watched the beautiful grey dawn of a winter morning? How slowly the soft light creeps over the land; how suggestive of peace and repose. The birds are in their Southern home. The insects are gone to their long winter rest in the ground or under the bark of the bare trees. The green grass and the flowers are a dreaming under the snow, and in the holy earth the seeds of a million plants await the breath of the great Alchemist, when they shall turn the elements from the coarse soil into Mother Nature's great harvest fields.

The sun peeps thru the gray curtain a moment to see how his children are sleeping; then withdraws his face and turns to his work in other lands. Gently, peacefully, sleeps our northland under its wonderful blanket of snow.

There is peace and repose in the homes of farm folks now. By happy firesides they are enjoying the fruits of their labors. Those of the city who imagine that such lives are lonely and cheerless, have themselves never experienced the true joys of living. Those whose lives are in harmony with the things about them; whose souls are in tune with the Infinite, know life's sweetest pleasures. "Hast THOU entered into the treasure of the snow when the morning stars sang together and all the sons (things) of God shouted for joy."

—J. T. Campbell.

PUBLIC OPINION The only kind of public opinion that is worth anything and that may safely be expressed in action and enacted into law is opinion born of intelligent conviction. Such opinion rests upon man's knowledge and reason, modified by an active conscience. It is especially important under a democratic form of government where the will of the people formulates the customs and laws that a thoughtful care be exercised and sufficient time be given for the sober second thought before finally committing themselves to revolutionary policies. Such opinions are only formed thru a process of fair and impartial education and thought. Other means may create hysteria and even incite to mob violence, but that is not the quality of public opinion that must lie at the foundation of free government. It is doubtful if there was ever a time when greater caution in action was needed than now. Impassioned feeling, exaggerated statements and strenuous activity are found on every hand. Appeals to men's passions are made instead of presentations of facts for calm consideration. Imaginings and phantoms are paraded with the seriousness of realities, and it would seem that the world had ceased to laugh at Don Quixote and had elected him its leader.

THE HOME GARDEN The amount of food that a well kept garden can be made to contribute can scarcely be realized by those who do not make a point of having a first class garden every year. There is scarcely a week from March, when parsnips may be dug, to November, when cabbage is stored, that the house-wife may not have a plentiful supply of good, fresh, wholesome food, if intelligent care is given the garden. How we pity the family that must go thru spring and summer, year in and year out, with little to break the monotony of pork, potatoes and bread! The contributions from a well kept garden make for healthfulness, keenness of mind and clearness of complexion. The excuse so often given by farmers for not having one, or for not keeping it in good condition—lack of time,—is not a valid one. We have heard them say that it is cheaper to buy fruit and vegetables than to monkey with a garden. But we have yet to find such an one who does buy any where near the amount of either that the family should have. Since a living for the family is the first and chief purpose of a farm home, why not conduct it so as to produce the living in the cheapest way and of the best kind? Not only during the eight months, when things may be brought fresh from the garden, may it contribute, but by canning some things, and properly storing others, the table can be supplied the entire year with the fat of the land. Since it is an integral part of the home, we believe the interest and care should be shared by both man and wife. We believe it relieves the monotony and adds to the zest of life for the wife to do some work in the garden, stirring the soil and caring for the growing plants. But the husband who leaves to her the heavy, man's work of spading, etc., has exaggerated ideas on zest and monotony. It is true that on many farms the wife is the better gardener, and many home gardens are the better for the husband's lack of intereference. But the home garden is a real business proposition and as such deserves the care and interest of both.

FREE SEED BIDS Congress, in continuing the annual free-seed joke, has received bids from 61 seedsmen and seed companies for seeds to be furnished for free distribution. Some idea of what this fiasco amounts to each year is gained from the report that items on which bids were asked included 3,000 bushels of sweet corn, 1,000 bushels of bush beans, 1,200 bushels of pole beans, 1,200 bushels of lima beans, 3,000 bushels of peas, 25,000 pounds of beets, 20,000 pounds of cucumber, 80,00 pounds of lettuce, 40,000 pounds of muskmelon, 30,000 pounds of onion, 130,000 pounds of radish, 15,000 pounds of tomato, 30,000 pounds of turnip and 10,000 pounds of watermelon. There were also bids on flower seeds of all old-fashioned varieties ranging from 100 pounds of pansies up to 6,000 pounds of sweet peas. It is said that no seedsmen or seed companies with wide reputation submitted bids, and that only four bids from foreign firms were received this year, whereas in normal years European bidders practically equalled in numbers the bidders in this country. Thus the war is curtailing the supply of bidders, but Congress, in its philanthropic zeal for continuing a practice long since discredited, will see that there is no curtailment of free chicken feed. It is significant that no seedsmen of national reputation bid on this lot. Quality of seeds is evidently not a great factor. Show is the main consideration, and bulk of just seeds makes just as good a showing as a better quality of seeds that grow.

HARRISBURG NOTES

State Board and State Commission.—As expected, some expressions regarding the new administrative and advisory methods of the State's agricultural activities were heard during the meeting of the State Board last week. The Board meeting adhered to its routine and there was nothing like the free discussion of departmental affairs which could have taken place. Instead there was a demand that the status of the Board be defined and an attack on the legality of the Agricultural Commission. The Board which is well nigh forty years old, appeared to fear that the new commission would supplant it, altho to date the Commission has done little more than ratify the appointments dictated by the governor, talk over rural credit and decide to have the troubles in the marketing business looked up. The State Board was created to advise, but it has allowed itself to be advised from the Capitol instead of advising the Capitol. The new commission was expected to be a ruling body, but some one else appears to be doing the ruling. If the subject gets into the next legislature there may be some plain speaking, and possibly some changes.

Too Many Commissions.—The truth is that the state government like that of Uncle Sam, is suffering from too many commissions. The commissions were formed to do away with one-man power, but experience here has shown that the work is usually done by one man anyhow and some commissioners do not get here but a couple of times a year, while others visit once a month, the commonwealth paying expenses. As long as the original plan for an Agricultural Commission that could undertake big projects was not adopted, the Department might as well be studied by the Economy and Efficiency Commission on the same plane as the Departments of the Adjutant General, Commissioner of Health or Banking Commissioner which have proved eminently successful under one head with ample power and adequate appropriations for public service.

Highway Situation.—There will be very little construction this year and mighty little state-aid work compared to what had been hoped for and only the same portion of dirt road aid. Practically everything will be devoted to keeping up what the state has. Under the operation of laws the money in hand is only sufficient to carry on maintenance and the money taken in from automobile licenses must await reappropriation by the general assembly next year.

Weed Suppression. — Considerable sentiment was manifested for closer supervision of weeds which give farmers annoyance. One suggestion was that aid be given to supervisors to enable them to require removal of such weeds; another that the standard of purity in clover and similar seeds be raised to 99 percent. The act of 1913 made it 97 percent.

Clearing Barnyards.—The State Department of Health in the last year has gotten after owners of 2,400 barnyards and compelled abatement of drainage conditions. By retention of the liquids for fertilizers it is estimated by the department engineers that thousands of dollars were saved while the improvements did not cost $20,000. The new Commission of Agriculture has asked for a conference on regulations for pasturing of live stock, especially hogs, near streams. It will be the plan to secure certain modifications where streams do not constitute water supplies.

The New Deputy.—Charles E. Carothers, of Washington county, the new deputy secretary of agriculture, assumes his duties this week. In addition to direction of the farmers' institutes and the farm advisory work he will have supervision of the study of the marketing question which Governor Brumbaugh desires shall be studied and efforts made to instruct farmers in the importance of grading and the location of markets. — Hamilton, Harrisburg, Jan. 31.

NEW YORK LETTER

Grape Belt Fruit Growers.—The enterprising grape growers of the Chautauqua and Lake Erie Fruit Growers' Association held their annual meeting in Brockton last week. In the 8 towns making up the territory there are over 34,000 acres devoted to vineyards. There are also 1,373 acres in apple orchards, 745 in cherries, 792 in peaches, 728 in berries, 499 in plums and prunes, 215 in currants and 130 in strawberries. Last year railroad car shipments of grapes totaled 5,811, and less than car load shipments 130. There were 1,124 carloads or 11,800 tons of grapes used in making grape juice and wine. The estimated value of the grape crop in the towns mentioned was $2,279,475. A resolution was adopted approving the action of the National Package Men's Association in adopting a package to be measured in cubic capacity conforming to the two-quart, the four-quart and the 12-quart sizes specified in the Federal law. Another resolution opposed the Overmyer bill now before Congress which places a flat internal revenue tax of $300 on every manufacturer of native wines, as a danger and menace to the grape growing business. The law now fixes a certain amount per gallon which is a fair and equitable measure. D. K. Falvay, of Westfield, was re-elected president and A. M. Loomis secretary-treasurer.

A Perennial Census. — This is what the school census in cities, except New York, may be called if the bill backed by the department of education becomes a law. It creates a Compulsory Education, School Census and Child Welfare Board whose duties, among many others, will be to cause a census of persons to be taken on or before October 1 of this year and then after this census shall be amended from day to day by attendance officers and census enumerators so that there shall be at all times on file a complete census of all children of the city. The Board will also secure information as to illiteracy and child labor.—D.

FARM MEETING CALENDAR

N. Y. Farmers' Week, Ithaca, N. Y.	Feb. 7-12
N. Y. Vegetable Growers, Ithaca, N. Y.	Feb. 8-12
American Berkshire Congress, New Brunswick, N. J.	Feb.22-24
Alfred University Farmer's Week, Alfred, N. Y.	Feb.22-25
Penna. Breeders' Ass'n, Monongaheia House, Pittsburgh	Feb.23-24
Penna. Dairy Union, Monogahela House, Pittsburgh	Feb.23-24
Long Island Cauliflower Association(Riverhead, N. Y.	Feb.26
Mercer Co., Board of Agriculture, Trenton, N. J.	Feb.28
Pennsylvania Berkshire Breeders' Association, Reading, Pa.	Mar. 1
N. Y. Holstein-Friesian Club, Syracuse, N. Y.	Mar. 1
American Jersey Cattle Club, New York City	May 3
Holstein-Friesian Association of America, Detroit, Mich.	June 6
American Forestry Association Reading, Pa.,	June26-27
International Apple Shippers' Association, New York	Aug. 2
National Dairy Show, Springfield, Mass	Oct.12-21

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Page 4 "Special features" that don't help to hatch chickens, soon become more nuisance than advantage—beware of too many freak features. Read Page 4 carefully.

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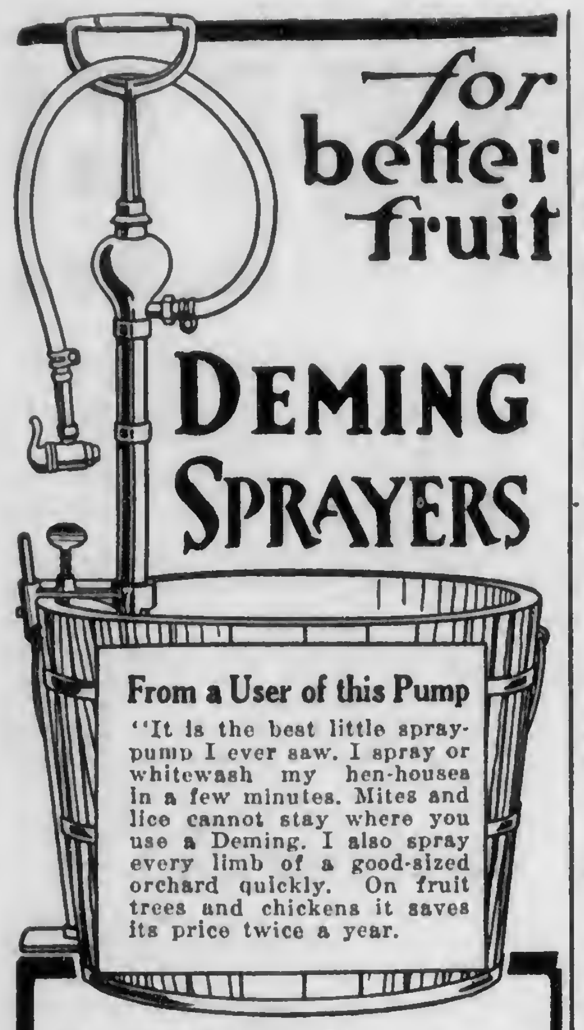

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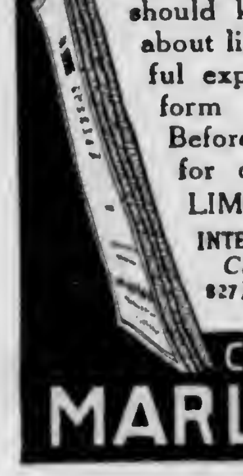

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(Continued from page 7.)

Brunswick, N. J. A condensed report of this address will appear later.

The subject of "Organizations" was ably discussed by Prof. T. C. Johnson, director of the Virginia Truck Experiment Station. He called attention to the fact that among farmers and gardeners the idea of organization is comparatively new in comparison with that of other industries in which they have been the means of attracting interest as well as having become a means of strength. He pointed out several factors that are essential in the successful maintenance of an organization, among which may be mentioned the following:

1. Concentration of business effort is necessary to make an efficient organization. Numbers are necessary and they must be united by a community of interest.

2. A knowledge of the needs and conditions which prevail in a community is essential to the successful operation of an organization. For example, the Citrus Fruit Exchange of California has been the means of stabalizing the industry by bringing about a concerted action of its members. Before the formation of the organization each member was working independently and in competition with the other, but when the organization was formed the interests became common.

Professor Johnson cited the experience of the Norfolk growers who previous to the formation of their organization had considerable trouble with the transportation problem. Working as individuals they were unable to get satisfactory shipping accommodations, but as an organization they were able to greatly improve their conditions.

Another object brought about by organizations is that it helps to stableize markets by producing a continuous supply of the products with which the organizations is concerned. Likewise as an organization it can stimulate markets by an effective system of advertising, which should result in the holding of old customers and the making of new ones. Organizations can do effective work by means of advertising to stimulate the consumption of goods.

In general the American peple eat too small an amount of vegetables. A study of North Carolina shows that the per capita consumption of vegetables in that state is four-fifths of one cent each day.

Campaigns for the control of diseases affecting crops can best be conducted where the growers are organized, since the interests are more closely associated.

The subject of "Advertising" was discussed by W. F. Therkildson, of the firm of W. Atlee Burpee and Company. He called attention to the fact that agricultural products which are the foundation of all material wealth are scarcely ever advertised. He called attention to what advertising has contributed to the success of many lines of business, and in many instances similar plans could be conducted with agricultural products. Several of the members present cited experiences in which they have found advertising of their products to be very profitable.

Herbert Starkey, an extensive celery grower of Philadelphia, discussed the "Storing and Marketing of Celery". He called attention to the importance of not storing too early in the season, and brought out the point that frequently the crop is injured by storing too early. His plan is to wait until the weather is quite cool and then place it in a trench, but do not cover until the weather becomes cold. This preliminary period permits the celery to become adjusted to its new conditions. Care is taken not to handle it when it is wet. As the weather becomes cold some forest leaves are thrown on top of the celery and heavy paper commonly known as celery paper is used to keep them in place. As conditions become necessary soil or manure is placed along the edges of the paper to hold it in place. By this method he is able to keep the crop until late in the winter.

It was generally conceded that the Reading meeting was the best ever held by the association. A spirit of optimism prevailed thruout. Herbert W. Starkey, of Bustleton, was elected president for the ensuing year and J. R. Bechtel, of State College, was elected secretary.

Lessons of the Season
From Orchard and Garden

By Sheldon W. Funk

Another year has passed and in the orchard it has brought out many mistakes which carry invaluable lessons for the future. I have often thought that one of the things which makes farming so fascinating is the bigness of it. We know so very little about the soil and plant growth in general that we are always laboring in the dark to a certain extent. Nature indeed guards well her secrets until we have once learned to search for them, then she exposes them to our view on every hand. No man can style himself a farmer until he has learned to converse with his crops in the field as he converses with his family in his home; the language is different but the thought is the same.

Orchard Location

The past season in Pennsylvania was a peculiar one in many ways, due of course, primarily, to the great abundance of rainfall during the summer months. In the orchard it brought out more clearly than ever the great importance of planting fruit trees only on good locations. The man who wants to make money out of fruit today simply must stay away from the low lands. If you have no land with good air drainage, either buy a farm that is well located or stay out of the fruit business. In all of my previous experience I have never seen so much trouble with fungus diseases on all kind of fruit as during this past season. We all realize that more spraying, pruning and thinning will control these to a certain extent. Such operations, however, cost money and where an orchard is located properly there is less occasion for this extra expense. The only way in which we can get any profit out of the orchard game is to pull the cost of production down below the selling price, and sometimes it takes an awful lot of pulling.

Fertilization

The old question of fertilization took a peculiar turn again this season. Ordinarily during a wet season such as the past one, fruit of all kinds grow to a good size, unless of course, the trees are too badly starved or too heavily loaded. This was true this year with us excepting on one variety of peaches where the fruit was much smaller than during the previous dry summer. Still the trees received their annual application of fertilizer and the fruit was thinned harder than ever before. I know of other men who had the same experience this season and I am at a loss to know how to account for it. In my case, the variety that suffered was the weakest variety that I have and there is a possibility that the preceding dry summer drained so hard upon the vitality of the trees as to affect this season's crop; otherwise I cannot explain it.

I am satisfied, however, that we are not paying sufficient attention to the development of the fruit buds for next year's crop. We try to produce the very finest fruit as economically as possible and forget all about the condition of our trees for next year. Unless we have plenty of good strong fruit buds in the fall of the year we cannot expect much of a crop the following season. Here fertilization, summer pruning and thinning go hand in hand and should be watched very carefully. A loaded tree which is starved will not produce fruit buds because it has nothing left over with which to develop them. The tree first takes care of the ripening fruit and puts every bit of energy that it can possibly spare into the seeds so that they may have a good start in life; if there is anything left, it then develops fruit buds for next year.

The cost of fertilizer per tree is trifling in comparison with the results secured, and no man can afford to starve his trees. Be sure to feed them heavily enough to get a goodly amount of terminal growth each season. Watch your trees carefully and they will tell you what kind and how much fertilizer to apply. Sometimes trees are properly fertilized and still set only very weak fruit buds or even none at all, because they were overloaded. That is, the trees had such an enormous amount of seeds to develop that they had no energy remaining with which to produce good strong buds. I remember a case of two peach orchards planted side by side on the same elevation. The fruit was thinned in the one orchard while in the other it was not thinned. The next year the thinned orchard had a full crop of peaches, because of the stronger bud development, while the unthinned orchard had no fruit whatever.

Young trees often fail to develop fruit buds because they are producing too much wood. Here pruning in June or July tends to stop this rapid wood growth and develops fruit buds instead. Frequently you can tell the difference between the branches of a spring-pruned tree and a summer-pruned tree by simply noting the great difference in the size of the buds. Where heading back of leaders in the summer time is practised I would always make it a rule to cut only to outside branches. If you cut back to a bud at this time of the year it develops a wirey growth that does not harden properly and is very undesirable.

(To be continued next week.)

GOOD VEGETABLE VARIETIES

Growers often experience difficulty in selecting vegetable varieties from a seed catalogue. J. R. Bechtel, of the Pennsylvania State College School of Agriculture and Experiment Station, makes the following recommendations: Currie's Rust Proof Bean (Wax); Stringless Green Podded Bean; Crosby's Egyptian Beet; Copenhagen Market Cabbage (Early;) Early Jersey Wakefield Cabbage; Danish Ball Head Cabbage (Late); Danver's Half Long Carrots; Snow Ball Cauliflower; Golden Bantam Sweet Corn; Golden Self-Blanching Celery; King of the Garden Pole Lima Bean; Leviathan Pole Lima; Little Marvel Peas (Dwarf); Gradus Peas; Ruby King Pepper; Scarlet Globe and White Icicle Radishes; Bonny Best Tomato (Early); Matchless (Late).

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Positive force grain, grass seed and fertilizer feeds are accurate to the last degree. Lifting lever, levers regulating quantities of grain and fertilizer and acre measure are within easy reach in the rear. Drills built in sizes 6 to 12 openers, both fertilizer and plain. Pin Hoe, Spring Hoe or Single Disc Openers with spring pressure attachment to hold at uniform depth.

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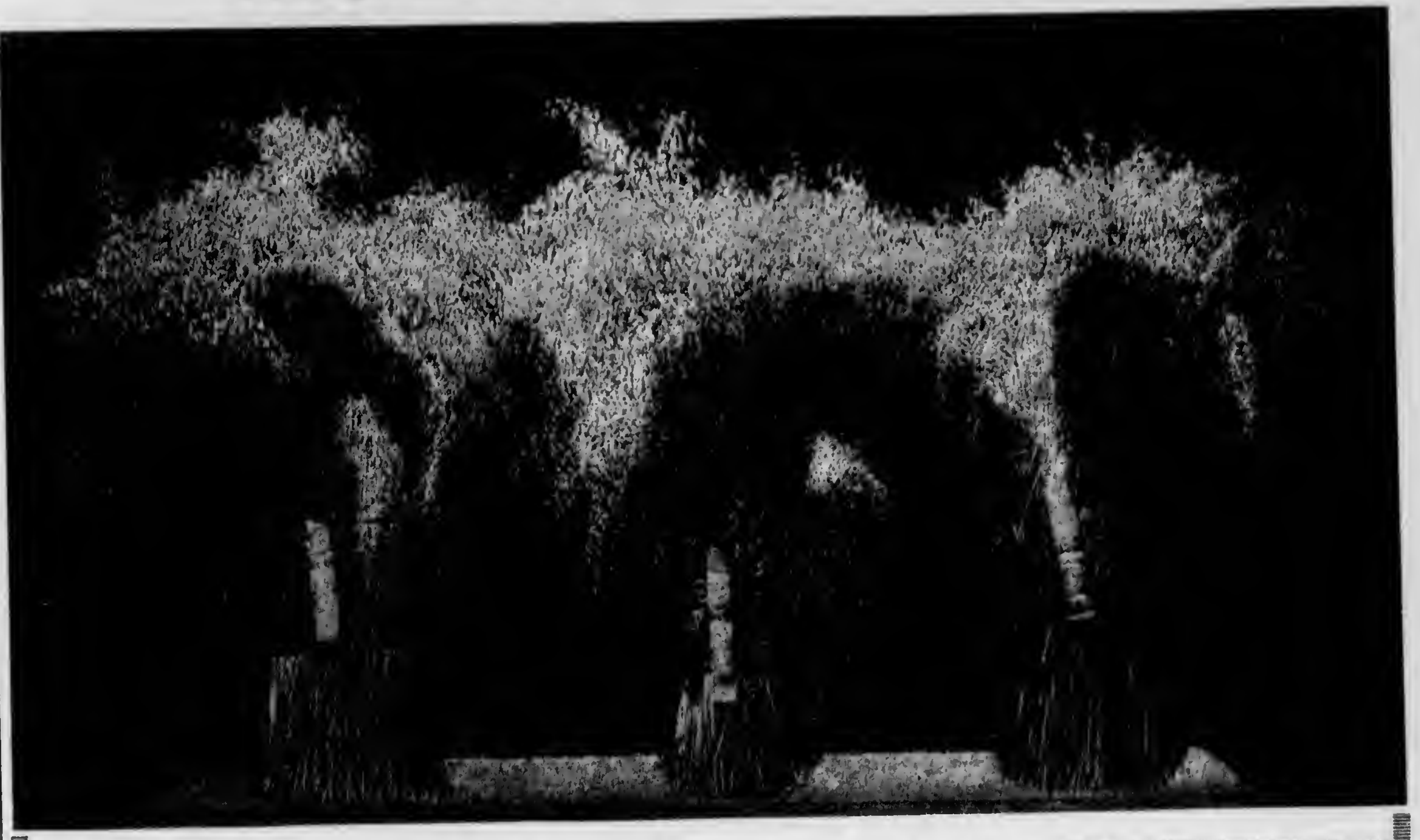
Farms Four miles water front farm land, bordering on Chester River, in Queen-Anne Co., Md., within sight of Chestertown and near State (macadam) road. Fine fishing and water-fowl gunning. Acreages up to 20 may be purchased, affording ample land for either a summer home, dairy or truck farming. Price $100 to $250 per acre. Also have several farms of 100 to 300 acres with farm buildings. Price $40 to $85 per acre.
W. IRVING WALKER, R. D. 1, Chestertown, Md.



SEED OATS---SHEAVES OF "SHADELAND CLIMAX"

These attracted extraordinary attention at recent San Francisco Exposition. A "tree" or "sprangled" oats—celebrated for their beauty and heavy yield. "Shadeland Climax" is extremely early—resists rust—has a stiff straw—great spreading heads—large, white, heavy grains—thin hull—weighs, unclipped, 47 pounds per measured bushel—yields under ideal conditions 100 bushels per acre. "Shadeland Climax" was grown in the Shadeland Valley of North Oregon—rolling to hilly—not irrigated—famous for its seed oats production. Shadeland Valley Seed Oats, when taken to any other section of the United States, carries with it vitality and strength that insures heavy production.

A. H. HOFFMAN, Inc., always on the alert for big values in farm seeds, have secured every bit of "Shadeland Climax" available and brought them to their Landisville warehouse for distribution. With all the oats grown East of the Mississippi River badly stained—musty—sprouted—mow and bin burnt—unfit to sow—it seems to be a suitable time for farmers to get a start with "Shadeland Climax."

PRICE. It cost us over $500.00, freight, per car to bring "Shadeland Climax" from coast to coast, yet our price is only $1.50 per bushel of 32 pounds—bags free—cash with order. No reduction for large orders. We pay the freight on shipments of 10 bushels or more to any station in Pa., Ohio, N. Y., W. Va., Va., Md., Del., N. J., Conn., Mass., R. I.

If you don't think "Shadeland Climax" Oats the prettiest you ever saw, send it back—we'll do same with your money and pay round trip freight. If these oats were not something unusual we couldn't afford to make such an offer. If we were not responsible this paper would not accept this advertisement.

Address A. H. HOFFMAN, Inc., Box "S", Landisville, Lanc. Co., Penna.

HOFFMAN'S CATALOGUE
Is Different

It omits garden and flower seeds—offers farm seeds only — oats, potatoes, clovers, timothy, corn, spring wheat, rye, barley, speltz, cow peas and soy beans. It offers the best strains of Alfalfa Seeds—tells fully how to grow it. It's free. Ask for it but don't put off ordering "Shadeland Climax" Oats. Stocks are limited. That's why we tell all about it in this ad.

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PEACH & APPLE TREES 2c & up
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SAMPLE OUR SEED
Three earliest vegetables in cultivation for 10c. One packet each, Robinson's Earliest Tomato, Earliest Round Red Radish, Earliest Lettuce, 10c to new customers. Regular price 30c. CATALOG FREE.
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We make a specialty of it. Send for pamphlet
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Standard Innoculating Bacteria $1.00 for ONE acre.
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More hay per acre if you sow our recleaned tested seed. **Purity and germination absolutely guaranteed.** All kinds grass seed. Freight prepaid. Catalog and samples free.
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All my little trees are grown in the famous Genesee Valley fruit section, and are budded from big trees in bearing. Standard varieties of Apples, Plums, and Pears. My Cherries are budded on Mazzard roots—most desirable.
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A Select List for Garden and Farm CIRCULAR FREE
Read what others say about "Superb" the Leading Ever bearing Variety
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Farmers Spend your spare time this winter taking orders in your neighborhood for our high grade nursery stock. Highest commissions paid. Outfit free. Write today.
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SEED OATS, BARLEY, WHEAT, POTATOES All New varieties. Largest yielders known. Best quality, prices low, new Catalog free. G. A. Read, Read's Exp. Farms, Charlotte, Vt.

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White Blossoms; the greatest money-making crop of today. Wonderful opportunities for the farmer who starts growing it. Builds up worn land rapidly and produces heavy, money-making crops while doing it. Excellent pasture and hay; inoculates your land for alfalfa. Easy to start; grows on all soils. Our seed all best scarified hulled, high-germinating and tested. Quality guaranteed. Write today for our big, Profit-Sharing Seed Guide, circular and free samples. AMERICAN MUTUAL SEED Co., Dept 930, 43d and Roby St., Chicago, Illinois.

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Timothy, Alfalfa, Clovers, Grasses, Cow Peas, Corn, Seed Irish and Sweet Potatoes, Onion Sets, etc.
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Apples, Onions, Hay, etc.; small commission, no expenses, prompt returns. Also small lots of Produce and Poultry, get our prices and terms before selling.
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STRAWBERRY Plants, $1.65 per 100. True composed and valuable illustrated catalogue free. Mayer's Plant Nursery Merrill, Mich Bohemian Nurseryman.

Grape Vines 500 - 2 yr. for $9., 100 Currants 2 yr. for $2. Strawberry plants. Catalogue free. WOODBINE NURSERIES, Geneva, O.

For Sale Cow peas, $1.50 to $2.00 bushel. Cracked beans and peas, 2 cents a lb. Soy beans $1.50 to $2.50 bushel. Crimson clover, red clover, etc. JOSEPH E. HOLLAND, Milford, Del.

"Velvet" For Dairymen

West Chester, Pa.

Mr. Dairyman: *February 3rd, 1916.*

We have a wonderful new invention and I want to tell you about it myself. It is a source of new profit for dairymen without added expense which I call "velvet," for it is *all profit.*

Thirty-five years, longest in America, the Sharples plant has been devoted exclusively to the Cream Separator.

Its inventors produced the first cream over-flow bowl with its superior quality of smooth even cream, the first directly driven steam Separator, saving power, fuel and wear, the first and only tubular bowl with its doubled skimming force and efficiency and extreme simplicity, the bottom feed, the hanging tubular bowl, all making for convenience, durability, economy of maintenance and operation.

Now we have made another great invention, greatest of all as a profit producer, though so simple that it seems we should have had it long ago.

Thousands of carefully made observations by competent investigators, government officials and scientific men have proven beyond question that 95% of all the hand driven cream separators in America are turned below regulation speed, below the speed marked on the handle, a great part of the time and *every* hand separator is under-speeded *some* of the time.

No matter which separator, whose make, or what it is capable of doing when turned at full speed, it will lose cream and a lot of it, when the speed is allowed to drop even for a moment, and with the cream goes the profit.

THE NEW
SHARPLES
SUCTION FEED

Separator will stop this loss, aggregating millions of dollars annually to America's dairymen—stop it at once and forever.

No matter if you turn this Separator at widely varying speeds, fast or slow, it skims equally clean—no cream will be lost. The bowl *drinks its milk supply as it needs it*, always in exact proportion to the separating force within the bowl. At slower speeds it drinks less, at faster speeds more, but always just the right amount for *clean* skimming.

A thousand of these machines are in regular daily use; we demonstrated them to a finish before announcing them; it is the Sharples way—*absolute perfection before sale.*

The Sharples Suction Feed Separator has several very important advantages in addition to its certainty of clean skimming at any speed. The varying of speed does not change the thickness of cream; fast turning increases the capacity much above normal, just as you whip up a horse, when in a hurry. The supply can is but knee high and the machine throughout is simpler and better than ever.

We sell our Separators now, as always, subject to free trial by the buyer; but a stronger guarantee than any trial is the unbroken record of the growth of this business from the small beginning of 35 years ago to its immense proportions of to-day. It could not grow so except by the unbroken rule of complete satisfaction to customers.

Lack of space prevents explaining more fully; but send today for new book, "Velvet for Dairymen," that tells all about this money-saving invention.

Sincerely yours,

P. M. Sharples
President.

The Sharples Separator Co.
Also Makers of Mechanical Milkers and Gasoline Engines
West Chester - - - Pennsylvania
Chicago San Francisco Toronto Portland

What Production Cost Records Show

By W. H. Rothenberger, Montgomery Co., Pa.

Very few farmers keep a complete set of accounts, and therefore do not know just what it costs to grow and harvest their crops or to keep a cow. So the profits of one farm enterprise may be eaten up by another, without the owner's knowing it. The three factors that determine the profits of a certain crop are the costs of production and marketing, the yield per acre and the price per bushel or ton. Every one is pretty well posted on the market price of most farm products and the yield per acre is easily figured, but idea of the cost to produce it is generally rather vague.

Table 1 shows the cost per acre on our farm of growing and marketing 30 acres of corn, 13½ acres of oats, 60 acres of hay, 31 acres of wheat, 17 acres of rye and 1½ acres of alfalfa. The cost of man labor per hour was 15.2 cents, horse labor, 16.1 cents and equipment labor, 10.5 cents. On most farms the actual cost per hour during which the men work is probably a little higher and the equipment cost a little lower, so the labor costs in this case are about the average, I believe.

Table 1.—Cost per acre of Producing Different Farm Crops.

	Corn	Oats	Hay	Wheat	Rye	Alfalfa
Seed	$ .33	$1.03	$1.03	$2.20	$ .90	$1.88
Manure & Fert'zer	8.50			5.00		8.82
Use of land	2.00	2.00	2.00	2.00	2.00	2.00
Use of buildings	1.50	1.00	.66	.80	1.00	1.00
Man labor	8.14	1.87	1.12	2.20	3.46	7.95
Horse labor	10.35	3.65	1.55	5.80	7.17	13.76
Equipment labor .	6.75	2.37	1.01	3.78	4.69	4.56
Miscellaneous ...	1.14	.59	.53	.36	.30	.90
Total cost	38.71	12.51	7.90	22.14	19.52	40.87
man hrs. per acre	53	12	7	15	23	53
horse hrs. acre ..	64	23	10	36	45	86

EVA MAY ELLIS 5TH NO. 224005, WORLD'S CHAMPION TWO-YEAR OLD. OWNED BY ALLAMUCHY FARMS, NEW JERSEY.

The striking features about the corn crop are the low cost of seed and the high cost of labor. It takes less than a peck to plant an acre, and good seed is so essential for a good yield that one can not afford to plant any but the best. A two-bottom gang plow and a four-horse cutaway disk harrow were used in preparing the land, so only one man was required to handle two two-horse teams, which meant quite a saving in man labor. The corn was also husked directly from the standing stalk and thrown on the wagon and the fodder then cut with the harvester. This saved nearly half the labor of harvesting as compared with cutting into shocks and then husking.

One is generally pretty sure of making a profit on oats and hay, because the cost of production is low. So if the yield is only medium there is not much chance to lose on these crops. It has been my own experience and I have observed in a number of other farm accounts to which I have had access, that hay returns larger profits per hour of labor than any of the other ordinary farm crops. The labor cost in hay production in this case was reduced by the use of an eight-foot mower, a side-delivery rake and a hay-loader.

I believe that wheat offers the greatest chance for loss of any of our crops here in the East because the seed, fertilizer and labor charges are high. Thus the yield must be way above the average in order to meet expenses. Rye is more hardy and will produce a crop under more adverse conditions than wheat, which gives it a better chance to leave a profit.

Tabel 2.—Total Returns per Acre of Different Farm Crops in Pennsylvania.

	Corn	Oats	Hay	Wheat	Rye
10 yr. av. yield in bu.	39	30	1.3T	17	17
10 yr. av. farm price Dec. 1..	$ .65	$ .46	$14.77	$ .94	$ .75
Value per acre	25.35	13.80	19.20	15.98	12.75
Value of straw or fodder ...	4.80	4.00		3.50	4.50
Total value	30.15	17.80	19.20	19.48	17.25

Alfalfa will be the great crop of the future in dairy sections where it can be grown. I am growing it in the regular rotation, so it stays down three years. Hence only one-third of the cost of seeding and lime and manure is charged against it. The miscellaneous item charged, as is also the case with the other crops, is mainly for interest on the money invested until the crop brings its returns.

Table 2 is given so that one may see the returns that may reasonably be

PAPEC Pneumatic Ensilage Cutters
are light running and durable. It is the old reliable cutter, built to last. Cuts, elevates and distributes with an actual saving of power, time and money over other machines. The Papec construction is simple; a few strong parts that are easily adjusted, and keep in perfect alignment. All this, and more, is shown in our new 1916 Catalog; describes the new patented self-feeding device which handles hay or other small growths, also corn. Send postal today.
PAPEC MACHINE CO., Box 78, Shortsville, N. Y.
Convenient Distributing Points throughout the U. S.

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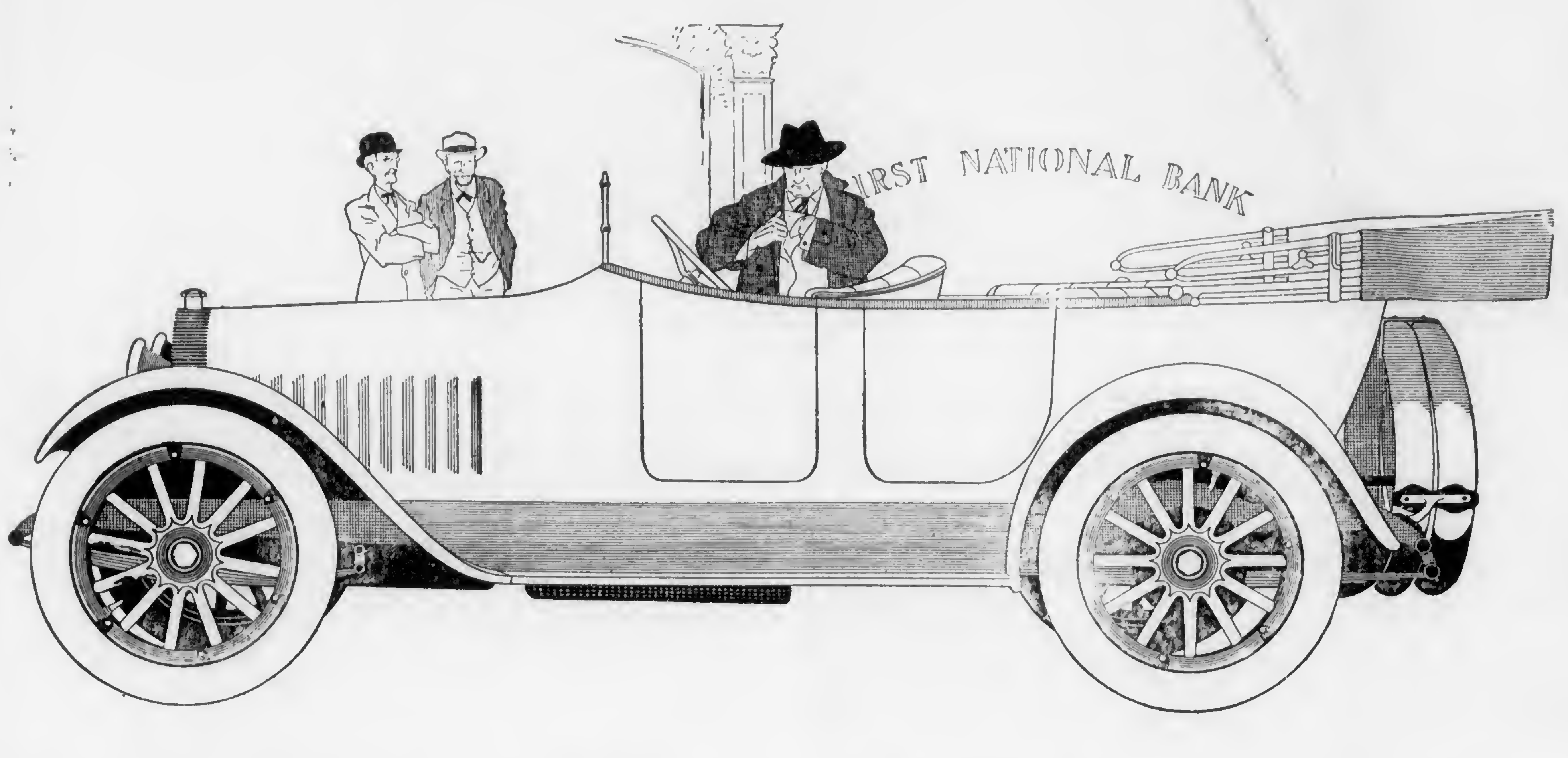
IT THROWS AND BLOWS



This is the New 3400 r.p.m. Chalmers; 45 H.P.; 2660 Pounds—the Price $1050

600 merchants, who sell a great many thousand cars every year, took one look at this new 3400 r. p. m. Chalmers and bought $22,000,000 worth in forty minutes.

Perhaps half of them came from county-seat towns, some from smaller communities. They took almost half the Chalmers output.

That means about 10,000 of the new 3400 r. p. m. Chalmers are going on the farm.

The other half will go to the cities, which for eight years have absorbed the greater share of Chalmers production.

You can stand on Fifth Avenue any day and watch a million dollars' worth of Chalmers go by. Stand on Jackson and Michigan Boulevards, Chicago, and you will think half the city is riding to work in Chalmers.

Minneapolis, Boston, St. Louis, Kansas City, San Francisco, Cleveland, Detroit, daily show the Chalmers conquest.

Now comes this new 3400 r. p. m. Chalmers; up goes the demand, new buildings, production. And down comes the price to $1050.

That is $300 less than any Chalmers model ever built before, and some $900 less than the Chalmers of three years ago.

The hundreds of Chalmers dealers who sell a great many cars to farmers every year have bought more than $10,000,000 worth of these new cars because $300 saved is $300 earned, and $300 is six per cent. on $5000.

They bought so heavily because they knew, as good merchants, that this was a good-sense kind of a car for a farmer to drive. It develops 45 horse-power at the usual cost of 25 H. P. (And gasoline isn't getting any lower).

The engine is rather small beside the big hulk of an engine it used to take to turn up 45 horse-power. The cylinders are 3¼ x 4½—six of them. But they deliver the stiffest wallop that ever came out of an engine of its size. It "turns over" 3400 revolutions per minute, or better than 56 a second.

You understand the "kick" that is back of speed. Some cars do 1400. Some 1800. Some 2200. Others 2400. One or two get around 2600; one reaches 3000 r. p. m.

But this is the highest engine speed ever developed in an American stock car.

It means great power from a small engine; a light-weight chassis; quick acceleration; long mileage on gas; abnormal tire life; and ability to pass your neighbor almost at will.

One minute with your foot on the accelerator makes you want to own the car.

When you go to town again look up the Chalmers dealer; and send for a catalog now.

$1050 f. o. b. Detroit

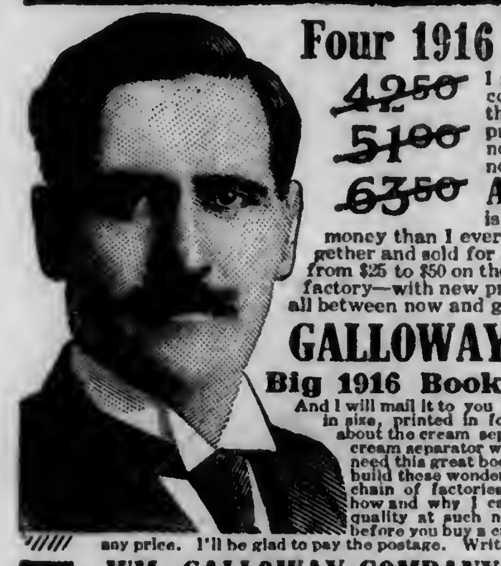
Chalmers Motor Company, Detroit, Mich.

CHALMERS · MOTOR · CO.
Detroit, Mich. U.S.A.

Quality First

AGAIN! DOWN GO SEPARATOR PRICES!

Four 1916 Sizes! Four New Low 1916 Prices!



~~42^{50}~~ ~~51^{00}~~ ~~63^{50}~~

I mean every word! Prices have gone down AGAIN! In spite of the increased cost of materials, on account of the large volume of separators going through my factories, I am able again to cut and slash cream separator prices as never before. My old 1915 prices are not in force today! My new lower than ever 1916 prices and easy selling plans (cash or time) are now in force!

A New Separator has been added to the great Galloway line of Bath-in-Oil Sanitary Cream Separators. It is identical with other sizes in quality and design and sells for less money than I ever sold a cream separator! Don't be mislead on cream separators thrown together and sold for a price. Buy direct from a real factory, get a better machine and save from $25 to $50 on the highest quality separator. 10,000 separators now coming through my factory—with new prices—special terms of no money down, 1 year to pay. I expect to sell them all between now and grass.

Four Sizes From 375 to 950 Pounds Per Hour

R-25

GALLOWAY SANITARY CREAM SEPARATOR

Big 1916 Book Is Now Ready

And I will mail it to you if you'll ask for it. 250 pages in size, printed in four colors and tells the truth about the cream separator business. If you buy a cream separator within the next twelve months you need this great book. I want you to know how I build these wonderful separators in my own great chain of factories, how they are designed, and how and why I can price a separator of highest quality at such new low prices. Read this book before you buy a cream separator of any make at any price. I'll be glad to pay the postage. Write for it today.

Look at These Features

Heavy, high carbon steel gear shafts and bowl spindle; extra long bearings; strong, sanitary bowl, discs not fastened together; oil bath lubrication; big, roomy, seamless, pressed steel supply tank; both gear shafts and both spindle bearings supported by one solid casting; heavy, sanitary tinware; low bowl speed reduces wear on bearings and gears.

No raw edges in the bowl to break up the globules of butter fat.

Separators shipped from Waterloo, Kansas City, St. Paul, Council Bluffs and Chicago—whichever is nearest you.

WM. GALLOWAY COMPANY 193 GALLOWAY STATION WATERLOO, IOWA

NEW 1916 EASY SELLING PLANS!

Pay Nothing In Advance

375 500 750 and 1,000 Pounds Capacity

No Money Down

Your Credit Is Good

First Small Payment In Three Months

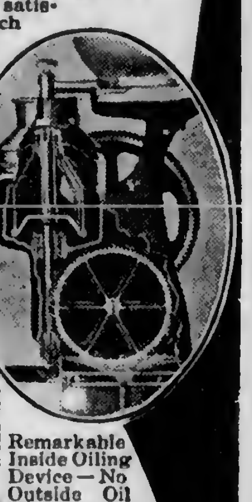
This is the most sensational bargain offer ever made on a Cream Separator of absolutely guaranteed high quality. The **House of Hartman** with its 60 years business record and $10,000,000 resources is behind this remarkable Separator, which is offered direct-to-you on the famous **Hartman Special Farm Credit Plan**—the most liberal credit terms ever devised.

PAY NOTHING IN ADVANCE. Not a penny down, no deposit, no "red tape" of any kind, no security, no interest. Just let **Hartman** ship you a **Majestic Cream Separator** for free trial, so that you can prove for yourself what it will do. Test it with warm and cold milk. See how easily it runs—how simple and satisfactory—how it skims right down to the last drop—how much quicker it does the work.

Just use the **"Majestic"** as your own for 30 days and, if you are not perfectly satisfied that it is the best Separator bargain ever heard of, return it at our expense. If you decide to keep it, make your first small payment in 3 months, and balance in 3, 6 and 9 months thereafter, giving you

A YEAR TO PAY Without Interest

This is the famous **Hartman Farm Credit Plan** on which you can buy not only Cream Separators, but also Engines, Incubators, Paint, Roofing, Furniture, Carpets, Rugs, etc., etc. Hartman trusts Farm Folks because he believes in them. Your credit is good. If you prefer, you may pay all cash, but the Separator will be no cheaper in price. It costs you nothing extra if you take a whole year to pay. If you are thinking of buying a Cream Separator, don't do it until you let Hartman ship you for free trial the wonderful



Remarkable Inside Oiling Device — No Outside Oil Cups — All Gears Encased.

Majestic Cream Separator

375, 500, 750 and 1,000 Pounds Capacity

A masterpiece of mechanical skill—a Separator so ingenious in design, so perfect in construction, so simple and easy to operate—that it will measure up in all 'round efficiency with Cream Separators that sell for practically twice the **Hartman** low direct-to-you bargain price. The **"Majestic"** has all the very latest improvements, including a remarkable inside oiling device that keeps the gearing perfectly lubricated and prevents any trace of oil coming in contact with the cream. The **Majestic** Separable Disc Bowl is the simplest, most accessible and easiest to clean of any Separator Bowl made.

Wonderful Offer

Send for This Free Book

We want you to learn all about the wonderful Majestic and compare our low price with prices of cheaply constructed, inferior makes. The Majestic on our year-to-pay easy credit terms costs less than others ask all cash for. Get the proof. It's in this book. Write your name and address in coupon and mail today. Ask for Cream Separator Catalog No. S-272

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4075-77 LaSalle St., CHICAGO, ILL.

Mail This FREE Coupon NOW!

HARTMAN COMPANY,
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Send me free copy of your Cream Separator Catalog No. S-272 explaining liberal no-money-in-advance, year-to-pay without-interest credit terms. This does not obligate me in any way.

Name..........

Address..........

Spend pennies get back Dollars!

ONCE get a reputation for making the best butter, and you'll never have trouble getting fancy prices for all you can produce.

This year, just go a step beyond good stock, careful feeding and careful churning. Use Worcester Salt—the salt that dissolves freely without grit or mottles. Top-notch butter makers bring out their prize-winning flavor with clean, *sweet tasting* Worcester Salt.

Try Worcester Salt in your next churning. Taste the result. See if it won't pay you to use it regularly.

WORCESTER SALT

The Salt with the Savor

Packed in strong Irish linen bags, 28 and 56 lbs. Smaller sizes in muslin. At your grocer's.

Send for our interesting booklet, "Butter Making on the Farm." It's free.

WORCESTER SALT COMPANY

Largest Producers of High-grade Salt in the World

NEW YORK

HOW MUCH DOES YOUR MILK COST?

33 cents worth of UNICORN plus 26 cents worth of roughage made 100 lbs. Milk in Official Holstein Tests made by Bayliss Griffin, Sylvania, Ohio. 1 pound of UNICORN made 4½ lbs. of milk. Hundreds of UNICORN feeders are doing as well. YOU CAN TOO. - - - - - -

UNICORN DAIRY RATION

is equally as profitable for tests or every day dairying. *Try it.*

FOR FACTS AND FIGURES WRITE,

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$15^{95} UPWARD ON TRIAL Fully Guaranteed

American CREAM SEPARATOR

A SOLID PROPOSITION to send new, well made, easy running, perfect skimming separator for $15.95. Skims warm or cold milk making heavy or light cream. Bowl is a sanitary marvel, easily cleaned.

ABSOLUTELY ON APPROVAL

Gears thoroughly protected. Different from this picture, which illustrates our large capacity machines. Western orders filled from western points. Whether dairy is large or small write for handsome free catalog. Address:

AMERICAN SEPARATOR CO.,
Box 3062, Bainbridge, N. Y.

expected from the different crops. It shows the ten-year average yield for Pennsylvania of the different crops as given in the 1914 year book of the United States Department of Agriculture. It also shows the ten-year average farm price on December 1, taken from the same source. The value of straw and fodder per acre is estimated.

Table 3 gives the average cost per year of keeping a grade Holstein cow, producing over 7,000 pounds of milk, in a herd of thirteen, where one pound of grain is fed for every three pounds of milk produced. The following ration was used: Roughage consisted of 40 pounds of ensilage and 6 pounds of mixed hay. The grain mixture was composed of 400 pounds of corn and cob meal, 200 pounds of cottonseed meal, 150 pounds of wheat bran, 150 pounds of gluten and 100 pounds of ground oats. The returns per cow were: Manure, $24; Milk and calf, $141.27. Total, $165.27.

This leaves a net profit of $13.46 per cow. This may not seem very large, but they used up hay and fodder which had a low market value and which should be returned to the land any way in the form of manure. They made use of room in the barn which could not have been used to better advantage. They furnished a full day's work, which means economy in labor cost, for they were taken care of before and after the work in the field started and stopped, and they also furnished a full season's work for they were milking during the winter when farm work was not pressing and there was time to care for them.

Table 3.—Average Cost per Year of Keeping a Dairy Cow in a Herd of Thirteen.

Grain	$36.49
Hay	9.75
Silage and soiling crops	36.50
Fodder	5.40
Bedding	8.13
Use of buildings	5.00
Man labor (165 hours)	25.08
Horse labor (6 hours)	.97
Equipment labor (6 hours)	.63
Interest (5 percent)	5.43
Depreciation	6.00
Miscellaneous	.75
Haul milk	11.68
Total	$151.81

ANOTHER NEW RECORD BREAKER

The illustration on page 12 shows Eva May Ellis 5th, No. 224005, who recently broke the world's record in the senior two-year-old division for seven days, making 31.39 pounds of butter from 507.5 pounds of milk. She is owned by Allamuchy Farms, Warren Co., N. J. She is by Sir Pietertje Soldene 90614, out of Eva May Ellis 72747, a cow of great merit whose sister has a 37-pound daughter. Eva made her record on a moderate amount of feed and is now giving over 60 pounds of milk per day at two milkings.

NATIONAL DAIRY SHOW COMES EAST

The Executive Committee of the National Dairy Show has decided to hold the 1916 Show at Springfield, Mass., Oct. 12 to 21. This is the first time that this great event has been brought to the East, and eastern dairymen should unite to make it the greatest event in the history of the show. A tract of about 140 acres of land has been acquired at Springfield, and construction of permanent equipment for the holding of an annual Agricultural and Industrial Exposition has started. These grounds and buildings will be dedicated to their use, by the holding of the 1916 National Dairy Show. Hotel accommodations in the city of Springfield are splendid. There are 600,000 people within a ten-mile radius of Springfield.

This announcement is made at this time to advise all of the dairy interests that they have a duty to perform in getting under this year's National Show stronger than ever before. Let every man interested in dairying, be it thru cows, milk, butter, cheese, ice cream or machinery, be prepared to respond to the call.

CHURNING TROUBLE

Mr. C. E. Brown of Adams Co., Pa., writes that they are unable to get butter to "come." As soon as the churn is started the cream immediately foams and stays in that condition. He is inclined to blame the trouble on feeding silage. This is made from good, nearly-ripe corn and is good silage. He is feeding "one-half peck to one peck per cow, together with a handful of bran thoroly mixed with one quart of corn chop."

The feed has nothing to do with the failure of butter to "come". The only thing in reference to the feed we will say is, feed four times as much ensilage and bran as you are feeding. Increase the silage feed to about 30 pounds per cow per day.

The churning trouble mentioned is a common one in winter time, especially where only one or two cows are kept and have been long in milk, or are giving a small quantity. If they are near calving time, probably nothing can be done. But if not, try the following: Increase the feed. Keep the cream in a cool place but not at freezing point until enough is gathered for a churning. Churn at least once a week. Bring the cream into a warm room and let it warm up gradually to about 60 degrees. Borrow a pint of thick, sour cream which is ready to churn from a neighbor and stir it into yours. Let it stand until it all "sours" and thickens; it may take 24 hours. This "starter" is necessary for you with your trouble in winter time. Remember these don'ts: Don't let cream freeze; don't scald or over-heat cream; don't let cream stand too long before churning; don't fail to keep salt where cows can get it regularly.

UNIQUE HOLSTEIN BREEDING WORK

Most breeders find difficulty enough in breeding for a single quality. Geo. E. Stevenson and Sons, Lackawanna Co., Pa., are achieving rare success in breeding up Holsteins for two widely differing qualities—removal of the horns and increase of butter fat. The herd has been brought up to practically a 4 percent butter fat basis. One young cow made a world's record for her age last year with 1,108.8 pounds of butter in 365 days. She has since made 32.87 pounds in 7 days and 133.3 pounds in 30 days, and is now under semi-official test hoping to break the present senior 4-year-old record.

The cows of this herd are all hornless and their progeny to date have all been hornless, even tho their ancestry had horns either on the sire's or dam's side. One herd bull, Sir Papal Pietje, has given all hornless calves when crossed on horned dams. Dehorning by selection and breeding appears to be giving results in this herd.—A.

Lice on Cattle and Hogs.—I would like to know of a simple and not too expensive a remedy to kill the lice that are on my cattle and pigs. W. S., Fairtow, N. J.—The least expensive and fairly satisfactory treatment is coal-tar disinfectant, 1 part and 30 parts water, applied as often as necessary until the lice on cattle or hogs are killed. The same solution should be used freely about your cow stable or pig pen.

$2 Brings You This Big LIFE-TIME GUARANTEED NEW BUTTERFLY Cream Separator

Top of Milk Tank Is Only 38 In. From the Floor

Skimming Device Made of Aluminum One-piece Easily Cleaned

On 30 Days' Trial

At Our Risk. Then if pleased you can keep it and pay only a little each month out of your extra cream profits until the machine is paid for. In this way the separator itself will earn its own cost—and more before you pay. You won't feel the cost at all. If you do not need a large capacity machine you can obtain a smaller one on payments as low as

Only $2 a Month

No Interest To Pay—No Extras

The prices we quote include everything. You have no extras to pay—no interest. You buy direct from the manufacturer and save nearly half. We give **30 days' trial** on your own farm. During this time if you don't find the New Butterfly the lightest running, easiest cleaning, and best all around separator on the market (regardless of price) you don't need to keep it. Just send it back at our expense and we will refund what you paid, including all freight charges both ways.

Used on More than 50,000 Farms

Over 50,000 New Butterfly Cream Separators are now in use. No doubt some of them right in your own neighborhood. We have been advertising in this paper for years — the publishers know us and know we do just as we agree. Read these letters from just a few of thousands of satisfied owners:

Seven Years Old—Runs Like New

"The Butterfly Separator we purchased of you about seven years ago is still doing fine work. I recently took it apart and cleaned the gears with coal oil. Now it runs like a new machine and works as well as ever."
H. S. Stonebraker,
Kokomo, Indiana.

Twelve-Year Old Girl Runs It

"We would not do without our Butterfly Separator or exchange it for all the other machines we have seen. Our little girl, 12 years old, runs it like a clock."
Mrs. P. E. Rude,
Ashland, Wis.

Made $61.39 More From Same Cows

"We made $78.61 worth of butter before we had the machine and in the same length of time, we made with the Butterfly Separator $140.00 worth of butter from the same number of cows."
Thos. S. Kermosky,
Point Aux Pins, Mich.

Lighter Running and Easier to Clean

"We don't see how we got along without the New Butterfly as long as we did. It runs lighter, is easier washed and kept clean than the higher priced machines in this neighborhood."
R. E. Morrison,
Ollie, Mont.

Fill Out The Coupon MAIL TODAY

Why not get one of these big labor-saving, money-making machines while you have the opportunity to do so on this liberal self-earning plan? Let us send you our big new illustrated Catalog Folder showing all the machines we make and quoting lowest factory prices and easy payment terms. We will also mail you a book of letters from owners telling how the New Butterfly is helping them make as high as $100 a year extra profit from their cows. Sending coupon does not obligate you in any way. Write today.

ALBAUGH-DOVER CO. 2167 Marshall Blvd. CHICAGO, ILL.

New Butterfly Cream Separators are the only ones having the patented one-piece aluminum skimming device, very easy to clean. Light-running vertical shafts; frictionless pivot, ball-bearings bathed in oil, low down, self-draining milk tank; closed drip-proof and dust-proof bottom. Simplest and most sanitary machine on the market.

Send Coupon for Catalog Folder.

(29)

Albaugh Dover Co., 2167 Marshall Blvd., Chicago, Ill.

Gentlemen:—Without obligation on my part, please mail me your free Catalog Folder and full particulars regarding your special easy payment offer on the New Butterfly Cream Separator. I keep..........cows.

Name..........

P. O. ....

State ....

R.F.D. ....

STOP! Look ahead—don't look backward after you build and wish that you had selected an All-Metal Silo—then it's too late.

Outlive their guarantee

ZYRO TRADE MARK METAL SILOS

All we ask is that you investigate before you spend your money. The ZYRO is 25 years ahead—made of Pure-Galvanized-Iron—airtight—insures big saving in silage waste—no shrinking, cracking or collapsing—no tightening anchor-wires or hoops—safeguarded against storms, lightning and vermin—made of NO-CO-RO METAL, —rust-proof—costs less to erect, guaranteed to last longer—ornament to any farm.

Free Book Get our Free ZYRO Book—full of facts. Write today—no obligation. Ask us about ZYRO Corn Cribs and Grain Bins. **The Canton Culvert & Silo Co., Box 409, Canton, Ohio.**

Buy your Silo Direct from Factory

Save Agents Profits

DIRIGO and **STANDARD** Silos have always been famous for their uniform high quality and exclusive features. The strongest and tightest construction. Safe steel ladder. Sure anchorage. Money back guarantee. Send for free catalog, prices and the most liberal offer we ever made for early orders.

STEVENS TANK & TOWER CO.
AUBURN, MAINE

BEFORE YOU BUY WRITE FOR NEW CATALOG DESCRIBING THE GUARANTEED MONEY-SAVING

INTERNATIONAL SILOS

strongest built, simplest to put up and easiest operated on the market. Adjustable automatic take-up hoop—continuous open-door front—air-tight door and permanent ladder are some of the unusual features. The International Silo Co., 118 Main St., Linesville, Pa.

PLEASE mention Pennsylvania Farmer when writing to our advertisers. They want to know and we want them to know that you read it all.

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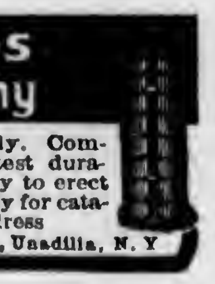
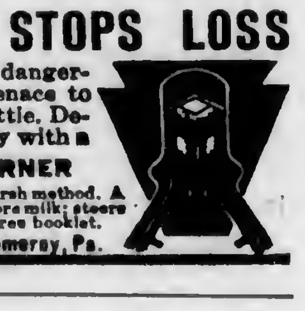


They preserve silage perfectly. Combine best construction, greatest durability and convenience. Easy to erect and keep air-tight. Write today for catalogue. Agents wanted. Address
UNADILLA SILO CO., Box P, Unadilla, N. Y.

DEHORNING STOPS LOSS

Cattle with horns are dangerous and a constant menace to persons and to other cattle. Dehorn quickly and easily with a



KEYSTONE DEHORNER

All over in 2 minutes. Not a harsh method. A clear, clean cut. Cows give more milk; steers make better beef. Send for free booklet.
M. T. Phillips, Box 127, Pomeroy, Pa.

MOLASSES Richest Feed Lowest Cost
PHILADELPHIA MOLASSES CO., Dept. P. F. 1055 Beach St., Phila.

Cheap Feed Dried Salvage Grain from mill fire—feeding value uninjured. Price low—Ask for sample.
BARTLETT CO., Mill L, Jackson, Mich.

Household

A FEW INSECT PESTS OF HOUSE PLANTS

Circular Scale.—This is quite a common scale on rubber plants, palms, oleanders, etc., grown in houses or under glass. It seems to prefer plants having somewhat fleshy leaves, and infests both the under and upper sides. It is circular, somewhat conical and almost black except for a nipple-like elevation in the center, which is grayish surrounded by a reddish ring. Eggs are deposited under the scales, each female laying about two hundred. After hatching, the young make their way to the various leaves, and in due time acquire a protective scale covering.

Hemispherical Scale.—This is also another common pest especially on palms and ferns. It is almost hemispherical, somewhat longer than broad, and its color varies from light to dark brown, and sometimes red. Eggs are laid under the female, whose body gradually shrivels so that when all of the eggs have been deposited, nothing remains but a shell, which conceals 500 to 1000 eggs. After hatching, the young migrate to the leaves for a time, then move back to the stem, where they complete their growth.

Soft Scale. — Another exceedingly common scale, especially on bay trees, palms, rubber plants, etc., is soft scale, the adults of which are dark brown elliptical, longer than wide, with a ridge running lengthwise down the middle, and two transverse ridges. The young scales are flat and almost colorless. There is no egg stage; the young crawl from under the body of their mother and distribute themselves along the mid-veins of leaves or on the young growth. This scale is always accompanied by a black, sooty, fungous growth, which thrives on the honey dew produced by the scales, giving the leaves a dirty and most unwholesome appearance.

Mealy Bug.—These are common on house plants, congregating in crotches or along the midribs of leaves. The females are oval and creamy or dirty white in color, their bodies being covered with white waxy or mealy masses; 300 to 500 eggs, which hatch in two weeks, are laid by each female. Another species, fairly common, has long appendages at the end of its body, and is called long-spined mealy bug.

Chrysanthemum Louse.—This sucking insect is sometimes called "black fly", and is nearly always associated with chrysanthemums. The lice gather about the terminal buds or young growth, and if plentiful will completely check growth. They multiply rapidly, as do all similar species.

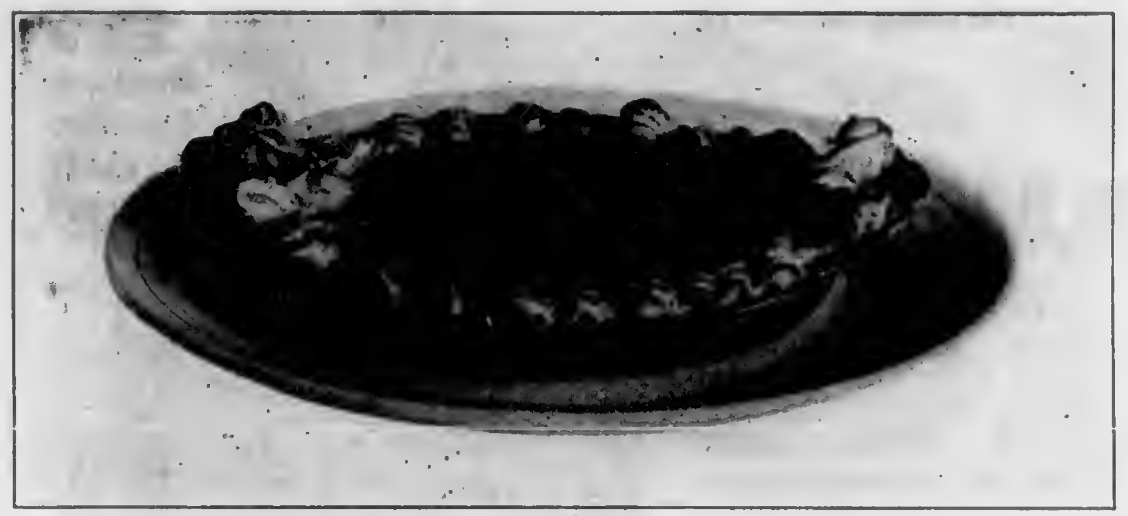
Rose Aphis.—New growths and flower buds of roses as a rule support numerous rose lice or "green flies", whose life history and injurious habits are similar to those of the chrysanthemum louse.

Remedies.—For combating scale insects on house plants, one needs ordinarily a soft toothbrush and moderately strong soap suds. On a few plants scrubbing pests off with soap water is by far the best way of getting rid of them. While the young stages of the scales are susceptible to many contact sprays, the fact that some are being born almost continually makes it impossible to kill many of them with one application. Mealy bugs can be destroyed by applying kerosene emulsion, 1 part to 15 parts of water, or by tobacco extracts or almost any soapy solution. Apply with force to penetrate the bugs' waxy covering.

Plant lice are easily killed with whale-oil soap, 1 pound to 5 gallons of water, or with tobacco extracts containing 40 percent nicotine at the rate of 1 ounce to 7 gallons of water for rose lice, and 1 ounce to 5 gallons of water for chrysanthemum lice. Care should be taken when purchasing plants for the house to select those which are free from insects.—Harry B. Weiss, Middlesex Co., N. J.

APPETIZING MEAT AND POTATO DISH

The illustration shown herewith indicates how simple minced meat and mashed potato can be served in a very attractive way with very little extra effort. Cold roast or boiled meat may be run thru the grinder, seasoned with butter, pepper and salt, a little water added for juice, then heaped in the middle of a brown ware or a granite baking dish. Then some mashed potato, to which some cream and seasoning have been added and well mixed in, is made into roses by forcing thru a small paper tube made by rolling a sheet of writing paper so that it is funnel-shaped. These potato roses are formed around the edge of the heap of meat. The whole is then set into the oven to heat thru and brown the potato.—The Editor.


APPETIZING MEAT AND POTATO DISH.

MATERIAL FOR BABY'S DRESSES

Nainsook is a soft fine material suitable for baby dresses. It is offered at 10 yards for $1.75; finer quality extra wide at 25 cents a yard. Linen lawn 40 inches wide at 18 cents makes pretty dresses, washed to get out all the starch. No starch should ever be put in baby clothing for it irritates the skin. Riplette is so soft, so fine and so easily washed and does not have to be ironed, therefore to me it seems ideal for baby slips and everyday dresses. A splendid quality of white riplette is in the shops at 15 cents a yard. If one wishes a very fine best dress Paris muslin is ideal. It is sheer, stands washing and ironing well and costs 60 cents a yard, 45 inches wide. Flannelette is the best thing for the night slips for summer babies. In cold weather it is better to use half wool and half cotton material.—Mrs. Nevada D. Hitchcock, Phila. Co., Pa.

Oyster Forcemeat.—One pint breadcrumbs, 1 dozen large oysters, 3 tablespoons butter, 1 teaspoon salt, ½ teaspoon cayene, 1 teaspoon minced parsley, a pinch of grated nutmeg, 1 tablespoon lemon juice, 3 tablespoons oyster juice, and the yolks of 2 raw eggs. Chop the oysters very fine, add the other ingredients, pound to a smooth paste and rub thru a sieve.

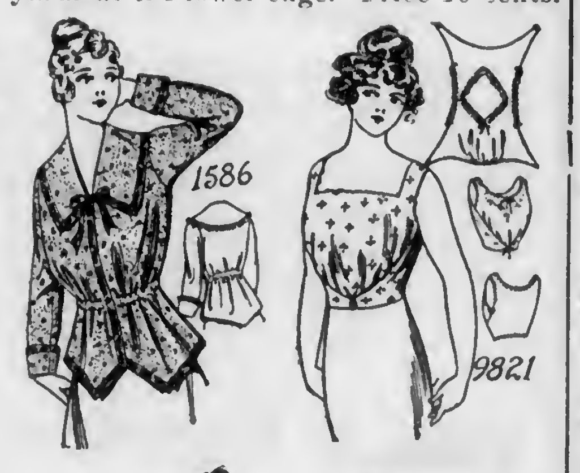
PENNSYLVANIA FARMER PATTERNS

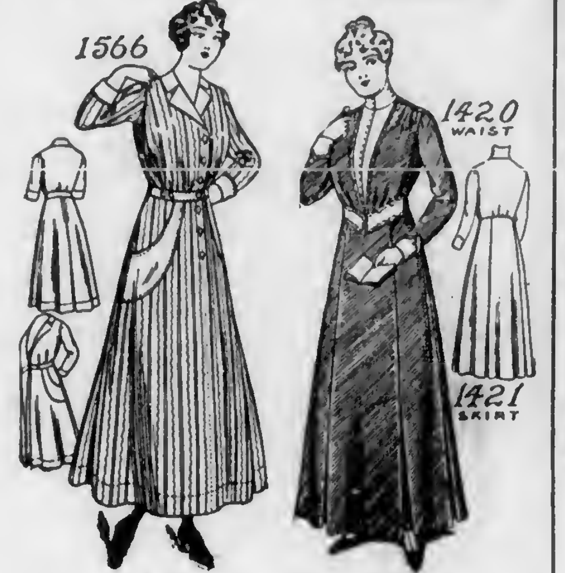
Be sure to give the figures and letters of each pattern exactly as printed at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-63 So. Third Street, Philadelphia, Pa.

1586. — Ladies' Dressing or House Sack.—Cut in 6 sizes: 32, 34, 36, 38, 40 and 42 inches, bust measure. Size 36 will require 3¼ yards of 44-inch material. Price of pattern, 10 cents.

9821.—Ladies' Corset Cover.—Cut in 6 sizes: 32, 34, 36, 38, 40 and 42 inches, bust measure. It requires 1⅜ yards of 36-inch material for a medium size. Price 10 cents.

1566.—Ladies' House Dress.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 6¾ yards of 36-inch material for a 36-inch size. The skirt measures about 3⅝ yards at the lower edge. Price 10 cents.





1420 — 1421. — Ladies' Costume. — Waist, 1420, cut in 6 sizes: 36, 38, 40, 42, 44 and 46 inches, bust measure. Skirt, cut in 6 sizes: 24, 26, 28, 30, 32 and 34 inches, waist measure. It requires 3⅛ yards of 44-inch material for the skirt, and 2¼ yards for the waist for a medium size. The skirt measures 3½ yards at the lower edge in a 24-inch size. This calls for two separate patterns, 10 cents for each pattern.

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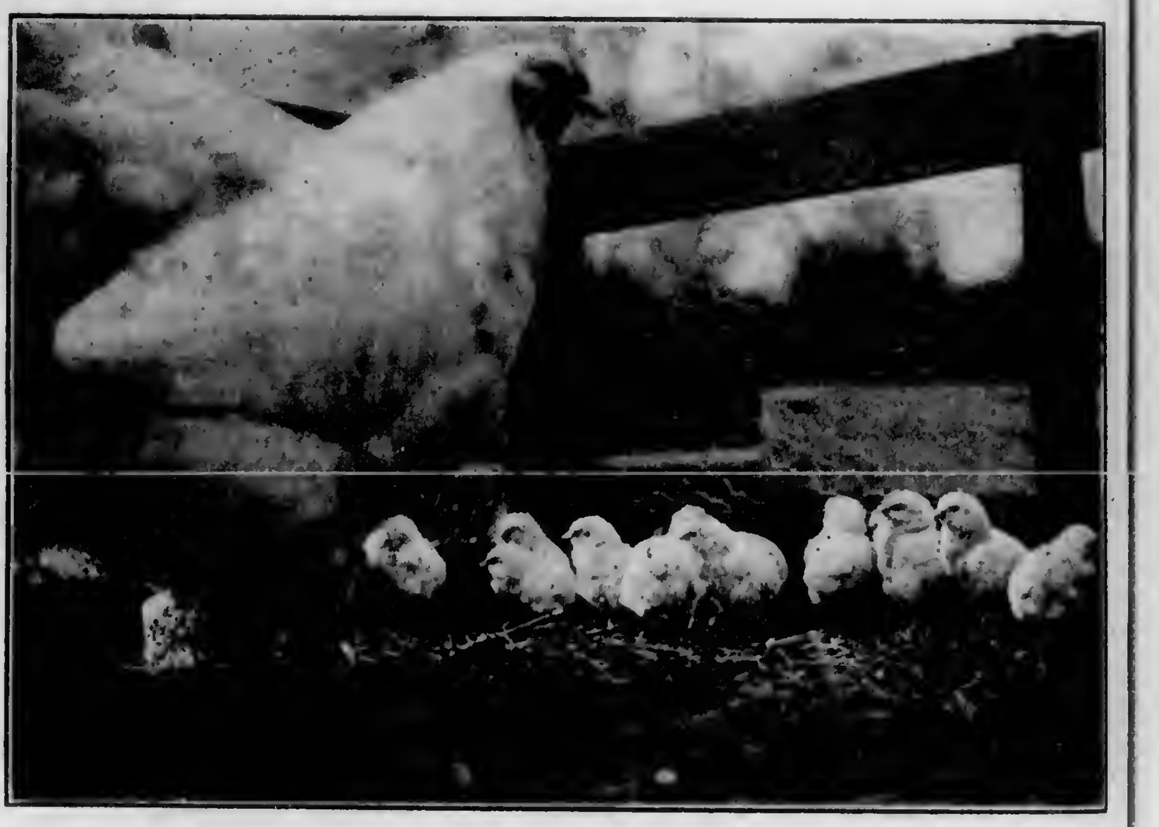
Poultry

Poultry Queries

Excess of Corn—Apoplexy

I have 54 Plymouth hens, half 2 years old and the rest pullets. They are apparently in excellent health having bright eyes and pretty red combs. I am getting but a few eggs equally divided between the hens and pullets. Some of the hens have become broody and I have had to break them up. Their surroundings are kept in good condition, have good range, and feed whole corn morning and night and dry mash at noon, with free access to crushed oyster shells and fresh water.

Recently when feeding I noticed one hen not eating but walking around as tho frightened. Upon examining her found that she was blind, so fed and watered her by hand. She became thin rapidly, tho her comb looked healthy and her eye clear, and as she did not improve I killed her. What was the matter and could I have done anything for her? Do you recommend wet mash or dry? Mrs. T. J. T., Md.



BY THE NATURAL METHOD.

Your ration lacks protein and is rather too fattening. Feed about two quarts morning and night of equal parts corn, wheat and oats, with four or five quarts moist mash at noon or dry mash before them at least half a day. Give a regular supply of green food. Confining the flock to the house during the winter months will greatly help in securing more eggs. The richness of the mash mixture has a great deal to do with the egg yield. The following is a good mixture which can be fed either wet or dry with equally good results: 200 pounds wheat bran, 100 pounds corn meal, 100 pounds middlings, 100 pounds ground oats, 100 pounds linseed meal, 100 pounds alfalfa meal, 150 pounds beef scraps.

The hen may have been injured, altho the symptoms are those of apoplexy which is caused by an over fat condition. Treatment is of little use as few cases of apoplexy ever recover health. Careful feeding so as avoid excess fat is the only preventive measure necessary. Make the hens scratch for their grain in deep litter, reduce the fattening foods and give an abundance of green food.

Treatment for Roup

My flock of 125 hens have the roup and are dying at the rate of four and five a day. They are housed in a well ventilated two-story house with concrete floor—roosts upstairs. The house is free from drafts. The fowls are confined to the house most of the time and are fed a mash of bran, beef scraps and a stock feed, with free access to grit. How shall I feed and care for them? C. A. S., Pa.

It is an exceedingly hard matter to completely eradicate roup once it has a firm foot hold in a flock, owing to the fact that birds once affected are subject to it ever afterwards. Chicks from stock that have had roup are particularly liable to contract the disease. The disease itself is not inherited, but the tendency to become a victim of roup may be transmitted for generations. It is, therefore, very poor policy to breed from such birds.

Remove all sick birds from the pen, kill and bury all bad cases and confine the others in an open front house while being treated. Swab out the throat and nostrils frequently with a solution of any coal tar preparation according to directions; for the eyes use a weaker solution. Apply it with a bit of cotton twisted about the end of a tooth pick; a medicine dropper is good for the nostrils. The following is a good remedy: tablespoonful lard, half a teaspoonful each of vinegar, cayene pepper and mustard; mix well together; add enough flour to make a dough, then roll into balls about the size of a marble. Give one to each bird every twelve hours. Two or three are usually sufficient.

The house of the well birds should be thoroly cleaned, and sprayed with a strong solution of a disinfectant. Open up the house and allow an abundance of sunshine and air to enter. Gradually allow the birds more freedom so as to harden them. The spraying should be repeated frequently to overcome the roup smell in the house.

Feed them equal parts corn, wheat and oats morning and night, with a moist mash at noon consisting of 200 pounds bran, 100 pounds middlings, 100 pounds corn meal, 100 pounds linseed meal, 100 pounds alfalfa meal and 100 pounds beef scraps. See that they have a daily supply of green food.—J. R. K.

WINTER GREENS FOR THE POULTRY

The farmer and his wife are busy at this season storing away in barn, bin, cellar and pantry various foods for the flocks and herds, as well as for the humans. Few, however, think of the hens. True the grain from the bins may help to feed the biddies during the coming winter, but grain alone, while it may sustain the lives of the birds, will not make them lay. Green food is required to keep the appetite keyed up to the proper keenness, to supply certain elements in the egg and make the yolk and white of proper color and texture. During the summer the birds are always pecking at the grass and weeds and they need something for winter to fill the same need.

As a principal supply there is nothing that can compare with second crop grass and clover or lawn-clippings. Young tender blades of grass, cut before the frost has injured it, or any of the clovers, cut before they have bloomed, are the main dependence of many poultrymen. It is best to dry these in the shade, using some place like a large barn floor. Dried in this way, bagged and hung away in a dry place, this second crop makes a feed that the hens never seem to tire of. There is only one thing that can be considered better and that is winter rye or wheat. If one can sow a small patch of either of these grains, cutting a little whenever weather will permit, he will do the hens a valuable service. Sometimes we sow one of the yards to rye, and after it gets a good start, allow the birds to help themselves for a short time each day until snow hides it from view. In this way we also get a valuable feed for two months in the early spring.

For feeding clover, grass and lawn-clippings a roll of common two inch poultry netting makes a convenient feeder. Spread the netting flat on the floor, cover with two or three inches of the feed and roll tightly together. Tie securely and hang on the wall where the birds can conveniently reach it. They will peck at it all day and none of it will go to waste. This material should never be fed among the litter on the floor. Such a method is both wasteful and dirty.

Cabbage, mangles, beets and turnips may be fed to some extent during the winter. The hens seem to relish cabbage and beets particularly. The former, however, is not considered a food that ought to be fed exclusively on account of the fact that the quality of the eggs may be lowered. Beets and mangles are better. Apples of second quality should also be saved for the hens. We never feed potatoes until after they are properly cooked and then we usually mix them with bran or middlings.

As a late fall feed for the hens we usually have watermelons of inferior quality. The birds seem to like melons almost as well as the proverbial colored boy. Endive and lettuce are sown in August for October feeding. These plants are fed before heading and by this late planting we get a lot of feed that is appreciated. Rape is another fall feed largely grown, and as it can be produced cheaply in large quantities from a small area, it is perhaps the best green feed for the purpose.—C. H. Chesley.

ONE BREED OF POULTRY

The farmer should keep but one breed of poultry, just as he keeps one breed of cows and hogs. Keeping several breeds calls for much extra work, especially during the breeding season. Separate quarters and yards must be provided, which calls for a heavy outlay of time and money. And, besides, yarded hens require much more food than hens on free range.

When but one breed of poultry is kept, the farmer can give them the range of the place during nine or ten months in the year, which greatly lessens the cost of feeding and caring for them.

Another point in favor of keeping but one breed is that one can market a uniform product. In most markets a uniform product brings a premium over a product that is not uniform. Thus, a case of eggs, all of a size and color, will bring a better price than a case containing both brown and white eggs. And a coop of broilers or old hens, all of the same size and color will bring a better price than a mixed coop of broilers or hens.—T. Z. Richey.

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Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., Jan. 31, 1916.

The potato situation becomes a greater puzzle in all of the Eastern markets, due in some measure to the favorable shipping weather of the past ten days. Receipts have been heavier during the mild weather and offerings averaged from 90 to 100 cars daily in the past week. New York shippers holding their stock in storage took advantage of the open weather and their shipments were heavier. Maine shippers are holding firm with the belief that the market will strengthen with the return of colder weather and have made their shipments light. Pennsylvania white potatoes sold at $1 to 1.15 per bushel, with a few sales of extra fancy stock at $1.20. New York State potatoes sold $1@1.10; Michigan, $1@1.10; Maine Green Mountain stock $1.10@1.20. Jersey Rose sold 60@70c per basket. Some car lots offered showed the results of cold weather and the frozen lots were moved with difficulty. Jersey sweet potatoes continue in plentiful supply and sell at 40 to 50 cents per basket. Virginia sweets sold at $1.50 to 1.75 per barrel and Delaware stock at 65 to 70 cents per hamper.

Vegetables

Onions were in heavier supply during the past week and because of the large proportion of the stock which was poor quality the market ruled weaker. Much of the stock has frozen in transit and arrived soft and undesirable. Most of the sales were made at $1.50 to 2 per 100-pound bag; a few cars of fancy stock selling at $2.25 to 2.50.

Danish cabbage is in fair supply, about 40 cars being offered daily. With the warm weather of the past week this quantity has proven a liberal supply and prices have continued at $8 to 10 per ton. Norfolk shipments arrive daily in large quantity. The stock is generally good and meets with fair demand. Spinach is selling at 75 cents to $1 per barrel; kale, 60 to 75 cents per barrel and potatoes $2.75 to 3 per barrel.

Celery from near-by is arriving in poorer condition and offered at lower quotations. Some stock of first quality stored in November shows shrinkage of from 25 to 30 percent in size, due to warm weather. Sales have been made principally at 8 to 10 cents and truckers are moving their stock as quickly as possible, fearing that the celery will become overripe and result in greater loss.

Root crops have been offered lightly and prices consequently are maintained as quoted last week. Carrots, $1.75 to 2.25 per barrel; white turnips, $1.50 to 1.75; beets, $1.75 to 2; parsnips, $1.25 to $1.50. Yellow turnips are selling at 65 to 70 cents per bushel.

Southern Fruits and Vegetables

Shipments of southern produce were fairly liberal with the demand only moderate. Florida celery is arriving now, four cars being offered this morning. Eleven cars of lettuce were offered and two cars of cauliflower. The following quotations are from this morning's sales: Lettuce, $1.25@1.40 per hamper; new cabbage, $1 to 1.10 per hamper; beans, $1.25 to 2 per hamper; peas, $1.50 to 2.50 per hamper; eggplant, $1.50 to 2 per carrier; peppers, $1.75 to 2.25 per crate; cauliflower $1.15 to $1.25 per hamper. A few loose beets are arriving, packed in crates of about 125 to 135 beets in a crate and selling at $1.75 per crate. Florida celery sold at $3 to 3.50 per crate. Strawberries are in fine condition and selling at 25 to 35 cents per quart. Mushrooms continue to sell at 25 to 40 cents per pound, fancy stock being in good demand.

Fruits

Apples held in cold storage thru Western New York State are being released by their owners with the fear that prices will not advance and that they will be heavy losers if all their stock is held until late in the season. There have arrived on this market in the last week a daily average of 35 to 40 cars, in addition to the apples taken from the local storage houses. The manager of one of the largest storage houses in this city reports that only 20 percent of the total number of barrels of apples placed with them earlier in the season have been ordered out to this date. Large proportion of the stock offered shows scald and is undesirable. York State Kings, $2.75 to 3.50; Hubbardstons, $2.25 to 3; Greenings, $2.50 to 3; Spys, $2.50 to 3.25; Baldwins, $2.50 to 3.25; Jonathans, $2.50 to 3.25; Grimes Golden, $2.25 to 3; Winesaps, $2.50 to 3.25; Rome Beauty, $2.50 @3.25; York Imperial, Twenty Ounce and Pippin, $2 to 3; Ben Davis, $1.50 to 2.50. Number two grade sold $1.50 to 2 per barrel, according to quality. These quotations compare very closely with the market of one week ago, but larger quantities have sold in the past week at the minimum quotations.

Poultry

The poultry market is rather quiet under light supply of really fancy stock. Fancy spring chickens and fowl have found good demand and a firm market at a slight advance over last week. Fresh killed, dry packed fowls sold at 17 to 20½ cents according to size; old roosters, 15 cents. Dressed chickens of desirable size and quality were cleaned up at top prices. Jersey broilers sold at 24 to 26 cents; other fancy, near-by broilers, 22 to 24 cents. Fancy turkeys continue under light supply and meet with firm prices: Near-by fancy, 27 to 28 cents; near-by good to choice, 23 to 26 cents; old toms, 21 to 23 cents. Near-by spring ducks sold at 18 to 20 cents; geese, 16 to 18 cents.

The live poultry market has been heavily stocked with unattractive chickens which sold under difficulty at revised quotations. Fancy live fowl sold at 16 to 17 cents; roosters, 12 to 12½ cents; spring chickens, 17 to 18 cents when fancy; other less attractive spring chickens, 15 to 16 cents; ducks and geese, 15 to 17 cents.

Eggs

Desirable fresh stock met with an improved condition and sold at increased prices. Today fancy near-by extras are selling at 34 cents per dozen, an advance of 3 cents over last week's quotations. Near-by firsts are selling at 30 cents and current receipts at 29½ cents. Western extra firsts are selling at 30 cents; firsts, 29½ cents; seconds, 23 to 25 cents. Fancy selected candled, fresh eggs were jobbed at 35 to 37 cents per dozen. —Selmarad.

NEW YORK PRODUCE

New York City, Jan. 31, 1916.

The unseasonable weather is having a noticeable effect upon the butter market, making the demand weak and buyers shy. While there is very little trading in cheese the market rules firm. Egg market opens the week tame. Dressed poultry continues firm altho the demand is light and the receipts few. Apples are fairly plenty, but the mild, foggy weather is unfavorable to trade. The potato market continues about as last week with prices tending upward.

Butter. — Creamery extra, (92 score) per pound, 31@31½c; higher score, 32@32½c; thirds to firsts, 23@30c; state dairy, 20@30c; packing stock, 17@20c.

Cheese. — Whole milk specials, 18c; Daisies, 18½c; skims, fresh choice, 15¼c.

Eggs. — Fresh gathered, extra, 31@32c, firsts, 29@30c; thirds, 24@25c; dirties, 20c; near-by whites, fine to fancy, 38@39c doz; ordinary to good, 33@37c; browns 33@35c.

Dressed Poultry.—Fresh soft meated—Barrels, Philadelphia and Long Island, fancy, 3 to 4 pounds to pair, 40@42c; Philadelphia and Long Island, average, 3 to 4 pounds to pair per pound, 28@30c; fancy roasters, 24@25c. Capons, 24@28c. Fowls, 16@18c. old roosters, 14½c; squabs, $2.25@2.65 doz. Spring ducks, per pound, 14@20c. Turkeys, dry picked, 22@28c.

Apples.—These prices show the range from "B" to "A". Jonathan, bbl., $2@4; York Imperial, barrel, $2.25@3.50; Winesap, barrel, $2.50@4.50. Twenty Ounce, barrel, $2 @2.75; Greening, barrel, $2@3.50; King bbl., $2.00@3.50; Northern Spy, $2.25@4; Baldwin, bbl., $2@3; Hubbardson, bbl., $2 @3; Ben Davis and Gano, bbl., $2@3; Common, bbl., $1.50@3.

Vegetables.—Beets, per bbl., $1.25@1.50. Carrots, bbl., $1@2. Cabbage, near-by, ton $3@6. Danish, $7@10. Celery, choice, crate, $3@4. Turnips, barrel, $1.00@1.50. Onions yellow, $2@3 bag. Squash, Hubbard and Marrow, $1.75@2.25 bbl. Potatoes, Jersey, $3@3.25 bag. Long Island, $3.60@3.75 bag. Sweets, $1.75@2.50 barrel.

Country Dressed Veals:

Choice	@16½
Prime	15½@16
Fair to good	13½@14½
Coarse, heavy	13½@14½
Common	12½@13
Buttermilks	11 @12
Grassers	10 @11

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., Jan. 31, 1916.

Receipts for the week ending Saturday evening, January 29:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,096	6,876	7,962
Previous week	3,241	5,990	8,262

Calves. — Total receipts of calves for this week were 1,224 against 1,069 last week.

Beef Cattle.—There was scarcely any life in the local beef cattle market, the usual backbone being shattered by the unusual spell of mild and open weather. Holdings comprised cattle of the Western, Southern and near-by brands in very sufficient numbers. The closing was rather weak. Bulls, cows and calves sold slowly and ruled easy.

Best Steers	$8.60@8.75
Choice	8.50@8.60
Good	8.25@8.50
Medium	7.75@8.00
Common	7.25@7.50
Bulls	6.50@7.00
Fat cows	5.25@6.75
Thin cows	2.75@3.75

Veal Calves.—

Exceptional lots	$11.25@11.50
Good to choice	11.00@11.25
Medium	8.50@ 9.00
Common	6.00@ 7.00
Southerns and barnyards	4.00@ 5.00

Sheep and Lambs.—Sheep were barely steady, while the best lambs were lower, the market closing in a very unsatisfactory condition, trade being dull, the situation superinduced by the unseasonable warm weather of late.

Wethers, extra	$ 8.25@ 8.50
Choice	7.75@ 8.00
Good	7.25@ 7.50
Medium	6.75@ 7.00
Common	4.50@ 5.00
Ewes, heavy, fat	6.25@ 7.25
Lambs, extras,	11.00@11.25
Good to choice	10.50@11.00
Medium	9.75@10.00
Common	8.00@ 8.50

Hogs.—The price range appeared to be a trifle stronger, with trade moderately fair. Quotations for Westerns, as to size and quality, were $11@11.25 net.

City Dressed Stock.—All varieties of strictly high-grade meats were held at full rates, but inquiry was by no means active.

Steers	10 @14
Heifers	9 @13
Cows	8 @11
Veal calves	14 @16
Extra calves	18 @
Southerns and barnyards	10 @13
Country dressed	12 @14
Extras	15 @
Sheep	11 @12
Extra wethers	14 @
Lambs	16 @17
Extra lambs	18 @
Hogs	11¼@11½

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., Jan. 31, 1916.

Cattle.—The supply on sale was 105 loads compared with the same number the week before. The general market ruled 10 to 15c per cwt. lower on the good cattle, while the light tidy fat cattle sold nearer steady than any of the grades. Cattle on the plain and rough order was very hard to sell at low prices. Heifers in fair supply and prices ruled steady on all grades. Cows steady, to strong on choice and bologna grades, while the medium grades were lower. Bulls steady on all grades. Best fresh cows steady; others and springers slow. Today's supply was 110 loads, and the market ruled 800 head, which sold lower.

Good to choice	$8.40@8.65
Good, 1300 to 1400 lb.	8.00@8.40
Medium to good, 1200 to 1300 lb.	7.65@8.00
Tidy, 1050 to 1150 lb.	7.75@8.15
Fair to medium, 1000 to 1100 lb.	7.25@7.65
Fair, 900 to 1000 lb.	6.50@7.00
Common, 700 to 900 lb.	5.50@6.25
Rough, half-fat, 1000 to 1300 lb.	6.25@7.25
Common to good fat oxen	4.00@6.75
Common to good fat bulls	4.25@7.00
Common to good fat cows	4.25@6.50
Heifers, 700 to 1100 lb.	4.75@7.50
Bologna cows	3.50@4.10
Fresh cows and springers	$25@85

Calves.—Veals in fair supply and market ruled strong all week. Today's supply was 800 head, which sold lower.

Veal calves	$9.00@11.50
Heavy and thin calves	5.00@ 8.00

Hogs.—The supply of hogs has been fair all week and with a good demand prices have ruled higher and the close for this week was 45c higher per cwt. on weighty grades, while pigs were slow sale at about 15c lower than Monday. Today's receipts were 60 double-deck loads, which sold steady on good weights of pigs, but slow on light weight kinds.

Prime heavy	$8.30@
Heavy mixed	8.30@
Prime medium weights	8.30@
Best heavy Yorkers	8.30@
Light Yorkers	7.85@
Good pigs	6.75@7.00
Common to good roughs	6.50@7.00
Stags	5.25@5.90

Sheep and Lambs.—The supply of sheep during the week has been liberal and with easier prices at other markets the market has ruled lower here, best sheep closing 50c per cwt. lower than Monday's prices and choice handy lambs 25c lower. Today's supply was only 10 double-deck loads, and they sold slow at prices steady with Saturday's close on all grades of sheep and lambs.

Prime wethers	$7.75@ 8.00
Good mixed	7.00@ 7.50
Fair mixed ewes and wethers	6.00@ 6.50
Culls and common	3.50@ 4.50
Spring lambs	7.00@11.00
Heavy lambs	8.50@10.00
Culls to choice yearlings	6.00@ 9.50

NEW YORK HAY AND GRAIN

New York City, Jan. 31, 1916.

Hay and Straw.—Hay is steady to firm on high grades. There was an advance of about 50c per ton on best quality. Lower grades at the 33rd Street Terminal are still slow and draggy. Straw is slow but steady.

Grains.—Wheat is about steady with last week altho at the close of the week there appeared to be a falling off in export interest that caused a temporary drop in prices. The general feeling in the market is bearish, and many predict $1.50 for May delivery. Foreign buying has been persistent up until the last few days and there seems to be little doubt of Great Britain's need of wheat and her need of purchasing here. Argentine wheat is not moving because of lack of shipping facilities, and lack of storage there may result in loss of wheat that must be held over. Domestic milling demands here have been fairly active. Corn has risen to new levels, the speculative interest being the primary factor in the advance. Receipts of corn are far below expectations, indicating greater October damage than was reported. The export demand is good but cannot be cared for because of lack of shipping facilities. Oats are firm under fair activity.

Hay.—Large bales—No. 1 timothy, $25@26.00; No. 2 $22@24; No. 3 $19@21; fancy clover, light mixed, $22.50@23.50; No. 1 $20@21; No grade, $13@16.

Straw.—Per ton, No. 1 rye, $13.50@14; do., No. 2, $13; oat straw, $9.

Wheat.—No. 1 Northern, $1.54½; No. 2, $1.52½; No. 3 $1.50.

Corn.—No. 2 yellow, 88½c; No. 3 yellow, 87¼c.

Oats.—No. 3 white, 57@57½c; No. 4 56@56½c; ordinary to fancy, 59@61c.

Rye.—$1.08@1.09¼.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $24.50. Standard middlings, $26; flour, do., $28 to arrive. Red dog, to arrive, 140-lb. sacks $32.50, Oil meal, $40.25@41. City feed, bulk bran, $23.40. Heavy feed in bulk, $24.40. Red dog, $32.50. Flour middlings, $31.50.

PHILADELPHIA BUTTER MARKET

Philadelphia, Pa., Jan. 31, 1916.

There was a decline of 1½ cents per pound on butter last week, due to increased supplies and only moderate demand. The warm weather is responsible for a heavy decline in activity. Only top grades are steady at the new prices. Lower grades are slow and irregular. Offerings of cheese are light and trade is quiet. Prices are firm at last week's quotations.

Butter. — Fresh, solid-packed creamery, fancy specials, 34½c; extras, 32½c; firsts, 31@32c; seconds, 26@28c; near-by prints, fancy, 36c; firsts, 30@32c; seconds, 26@28c; special, fancy prints 39@42c.

Cheese.—N. Y. full cream fancy, 18½@18¾c; fair to good, 17¾@18¼c; part skims, 11@16c.

ELGIN BUTTER MARKET

Elgin, Ill., Jan. 29, 1916.

All butter sales were made today at 30 cents.

NEW YORK MILK MARKET

New York City, Jan. 31, 1916.

The supply is just short of meeting the requirements of the market. The demand is good for this season of the year. The warm weather of last week created a big demand for cream, for use in making ice cream, which the dealers were unable to meet fully. The average of the payments for January milk will average above 4⅛ cents a quart for Grade B in the so-called 26-cent zone. The market value, February 1, is 4 cents. Receipts of milk and cream last week, exceeded those of the previous week by 4,838 and 656 cans respectively.

The receipts of milk and cream in 40-quart cans for the week ending January 29 were as follows:

Railroad	Milk	Cream
Erie	44,682	2,313
Susquehanna	8,810	1,384
West Shore	16,803	980
Lackawanna	55,990	1,215
N. Y. Central (long haul)	80,883	1,241
N. Y. Central (short haul)	21,350	33
Ontario	41,430	2,160
Lehigh Valley	40,637	771
Homer Ramsdell Line	3,575	30
New Haven	7,195	110
Pennsylvania	6,325	275
Other sources	1,155	20
Totals	328,835	10,532
Same week last year	317,736	9,132

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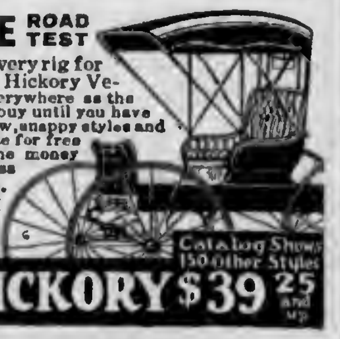
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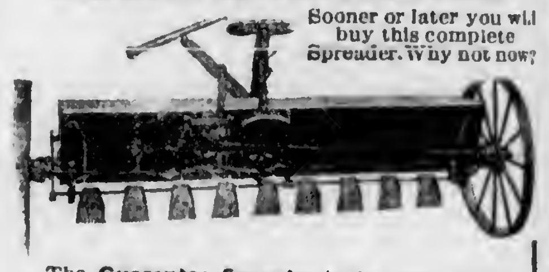
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Grange

The Marketing Problem

In response to the editorial invitation for contributions on the subject of marketing, I believe that much could be done by putting in motion the machinery already provided in the by-laws of the Pomona Granges for buying and selling. The Executive Committee is empowered to appoint a business agent, etc. If this were done and the connection made with the different subordinate granges in the county on the one hand and the different county granges on the other, with some sort of clearing house arrangement between them and providing for the exchange of information on supplies of different products, with news of markets in each district where a shortage existed, it seems to me something could be done in getting an excess of products from one district marketed in another district where these things were for the time being scarce.

The objection will of course be made that each unit in this system would have a tendency to be in competition with every other unit. I admit the force of this contention to some extent, but I believe that the competition would not be nearly so ruinous as it now is, for a glut in the markets of a particular section, causing prices to fall far below cost of production could be relieved by diverting a part of the produce to other sections that could very readily absorb much at a fair price for all.

Then in turn some other excess product of the last section might very readily find a good market in the first section.

Very often one county or even township may have a glut, and another lying near or even alongside of it may have a great shortage of the same product and very few people know or take advantage of the fact on account of lack of exchange of business information between the two sections.

I am satisfied from the success of many of the co-operative associations that have been formed on the small unit principle that it is the better way.

Then by gradually linking these smaller units together as the need of it appears to those interested, a more valuable whole is formed. Marketing products of any kind is a business proposition. Marketing farm products is no exception to this rule, that is, a profit must be received above all cost or the business of farming is a financial failure.

Therefore it is easy to see that we must pay as much attention to our buying and selling business as to our producing business. The education of the farmer of the future will have to be made to fit these conditions if we expect him to advance or even hold his own.—T. L. Wall, Clearfield Co., Pa.

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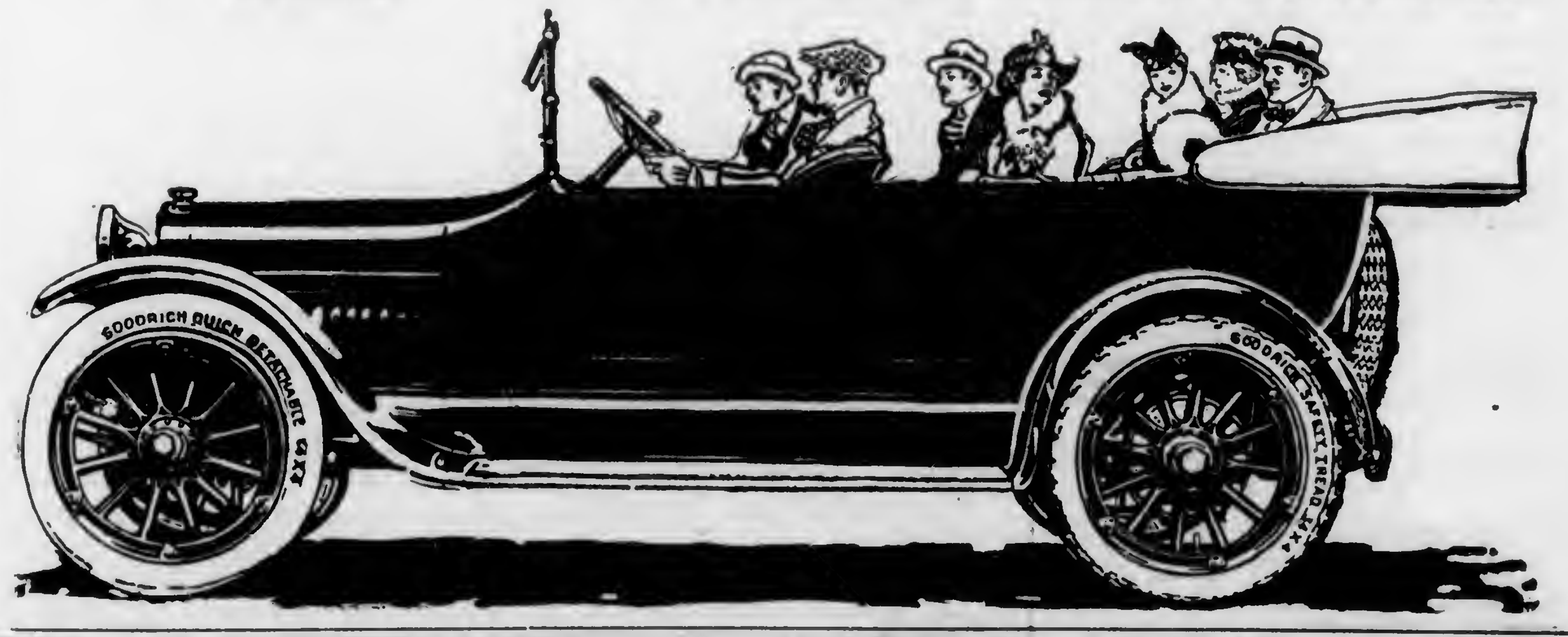

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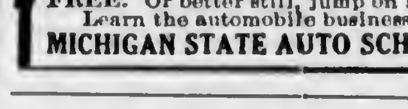
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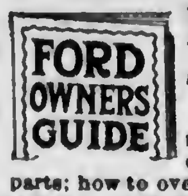
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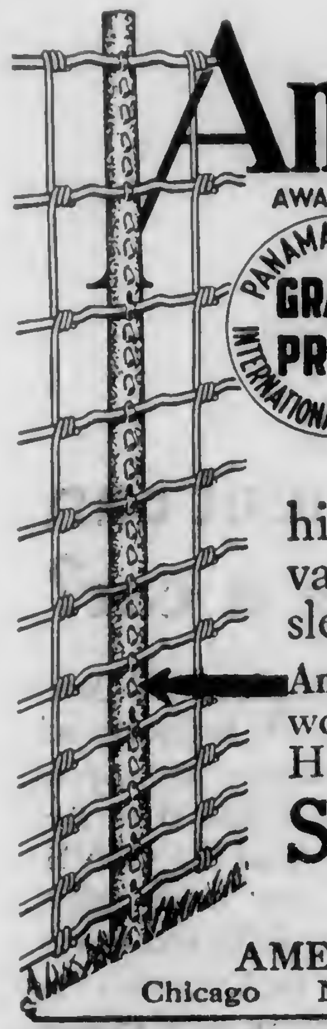

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TAXATION

By Hon. William T. Creasy

The subject of taxation is a very broad one, and at the same time very complex. The two general methods of taxation are direct and indirect. Indirect taxation in relation to the farmer has to do with tariffs, cost of transportation, insurance, etc., which are to be considered as overhead charges. Direct taxation is the question which I shall discuss in the articles in the Pennsylvania Farmer, and relates to taxes paid directly to the tax collector for local and State purposes. These tax laws are fixed by our State Legislature, and the valuation placed upon our property is made by the triennial assessor. The farmers, as well as the small real estate owners in towns and cities are paying an unjust share of the taxes, and in many cases it is a hardship.

It is said that in Europe many families must miss a meal occasionally in order to pay their taxes, and if we keep on at the rate we have been going for the last 20 years, in a few more decades we will be in the same condition.

Bonded indebtedness is one of the ways to tax people to death after they are lulled to sleep by thinking they are getting something for nothing and which will be paid for by future generations. The interest and sinking fund become fixed charges, and nine times out of ten the bonded indebtedness was unnecessary and better results could have been obtained on the pay-as-you-go-plan.

The one important point for the farmer to consider—and this applies to other real estate owners as well—is that while taxes will increase there is no guarantee that his products are going to increase in value in a like proportion. The statements that we so often read that unless production is increased people will starve is wrong in every particular. With our high state of transportation, and electrical communications, there is not much trouble to reach the productions of the countries that have an excess, hence one cannot help but infer that there will be a general level of prices of agricultural products the world over. And if the farmer of the United States has heavy overhead charges to pay in the form of taxes, etc., he cannot compete with the farmer on the plains of Russia, or the Argentine who have very small overhead charges. For example, the French farmer, with his splendid roads, cannot compete with the American farmer, tho the latter has poorer roads, in the production of many of the staples of agriculture. The former has higher overhead charges than the latter, and should we compare the farmers of our state with the farmers of the Argentine we will find that our overhead charges are heavier than theirs, and therefore we are at a disadvantage, and as we pile up the tax burdens we make it more difficult for the farmer here.

Economical expenditure of the people's money lies at the foundation of tax reform. In these articles I shall show up how our moneys are wasted and how unequal the burden is placed. And in concluding I want to quote, and I hope the editor will print it in good sized type, a part of the report of the Legislative Committee at the last meeting of the State Grange.

"The new laws placed on the statute books the last decade have increased taxation at an alarming rate. The last State report on Taxation at hand is for 1913. This report shows that the amount of direct taxes collected thru township, borough, ward, city, county and for the State thru counties was in round numbers $109,000,000. Twenty years previous, in 1893, the amount collected under same authorities was $50,000,000, an increase of nearly 218 percent.

"Turning to the State revenues, we find that in 1913 the revenues of the State were $35,350,000. In 1893, $11,380,000, an increase of 310 percent.

"The expenditures of the State kept a little ahead of the income as will be noted. The state paid out in the year 1893, $13,000,000, and in 1913, $37,000,000. The fiscal year ends on the 30th of June, while the tax year ends on the 30th of November. Because of these different dates for paying the expenses of the State government and the time of collecting the State's revenues, it is easy to figure a surplus or a deficit when there is not much margin either way.

"These increases in revenue have increased taxation not only on the farmer, but all real estate owners. And about all that the farmer has gotten out of it are the half-starved township high schools.

"The wealth of the nation, according to a report of the Census Bureau, has increased 75 percent from 1904 to 1912. But listen to the other side of the story in which the same report says: 'The increase in national wealth of 75 percent in eight years, indicating a gain of 115 percent in eleven years, has been accompanied by an increase during the eleven years prior to 1912 of 6 percent in net Federal indebtedness, 44½ percent in State indebtedness, 89 percent in net county indebtedness and 114 percent in net municipal indebtedness.'

"Advantage of the nation's prosperity has been taken by the states, counties and municipalities for adding enormously to the burdens of the people by increasing taxation. In ten years up to 1912 tax levies advanced 86 percent notwithstanding the increased wealth added to the tax list. One would think under normal conditions taxes should have been lowered or at least remained stationary because of this increased property valuation. But for this increase in valuation some of the American municipalities would have gone bankrupt. To pile up indebtedness and increasing tax rates in such ways is out of all reason, and does not show sound business sense. Mortgaging the future has become a mania. Every bond issued by the Nation, State or county is a mortgage against your farm and mine. Drouths may occur, crops may fail, but the time to make payment on the mortgage comes regularly, money or no money.

"Some one has said: 'We have borrowed to pay the King's tithes and taxes upon our lands and vineyards and, lo, we bring into bondage our sons and daughters to be servants, neither is it in our power to redeem them for other men have our lands and vineyards.' "

(Note.—This is the first of a series of articles by Mr. Creasy on this interesting and important subject. The next article will take up the different systems of state and local taxation. —Editors.)

Duck Raising, Farmers' Bulletin, No 697, published by the Department of Agriculture, Washington, D. C. This bulletin discusses the different breeds duck farming, incubation, brooding, feeding and marketing. Well illustrated; 24 pages. Free upon application.

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Live Stock

EXPERIMENTS WITH HOG CHOLERA

An outbreak of hog cholera at the New Jersey Agricultural Experiment Station in September presented an excellent opportunity for the animal husbandman to test the efficiency of hog cholera serum. The disease was stamped out in October, and the results have been reported by the animal husbandman.

In all, 201 pigs, varying in age from a few weeks to five years, were treated with serum. The outbreak occurred in a lot of 32 spring gilts, averaging in weight from 80 to 100 pounds. All were injected with serum, but evidenced cholera at the time of the first injection. A second injection three days later was applied to some of the animals, and a third injection later to some of these. However, 27 of the total died, and those which survived were so badly stunted that they were practically worthless. In the case of the survivors, the disease had not reached an advanced stage at the time of injection.

Most of the other animals were well at the time of injection but were afterward clearly exposed to the disease. In every case where serum was injected into pigs whose temperature was normal, the serum prevented the disease Twelve pigs, constituting a check herd, were not treated with serum. These were well at the time the others were treated, and were turned in with the sick pigs. All but two of them died, the two appearing to be naturally immune.

The results demonstrate clearly, first. that hog cholera serum prevents the disease if applied before symptoms appear; second, that it seldom cures if applied after symptoms have appeared; and third, when cures occur, they are of little economic value.

FEEDING OF YOUNG PIGS

Pigs make the best use of concentrates. These can be fed in a self-feeder and can be supplemented by various slaughterhouse, bakery, or table by-products, etc. A by-product, to be economical, should be fairly concentrated, should be moderate in price per 100 pounds of nutrients, and should be fresh and free from taint. During the winter leguminous hays fed in addition to the concentrates help reduce the cost of production. In the summer, pasture crops such as rape, alfalfa, bur clover, crimson clover, rye, etc., make very economical and efficient supplements for hog feeding. In practically every farming district cheap and efficient forage and grain crops are available for hog production. These should be used in the most profitable manner.

The self-feeder is greatly reducing the labor cost in hog production, and the principles governing its use should become a part of every hog grower's equipment. It is especially useful in feeding growing, fattening stock, which is the largest part of hog production on most farms.

Hogs require mineral supplements to their feed. These have been furnished by allowing them free access to the following mixture: Charcoal, 1 bushel; hardwood ashes, 1 bushel; salt, 8 pounds; air-slaked lime, 8 pounds; sulphur, 4 pounds; pulverized copperas, 2 pounds. Mix thoroly the lime, salt, and sulphur, and then mix with the charcoal and ashes. Dissolve the copperas in 2 parts of hot water and sprinkle over the whole mass, mixing it

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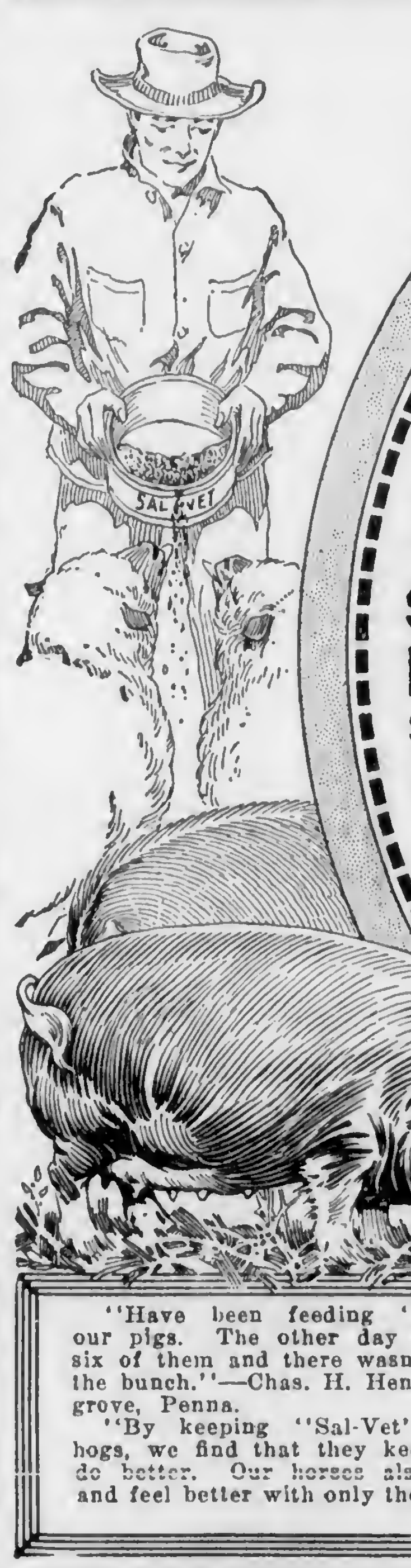

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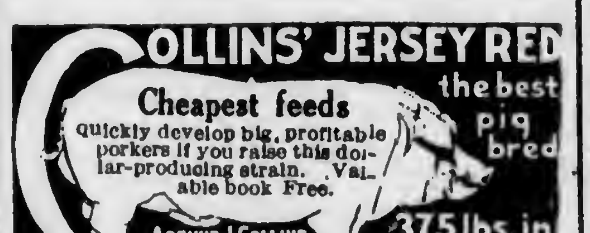

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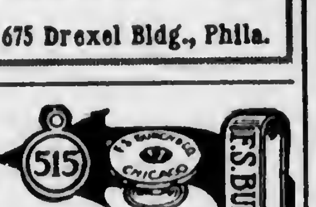

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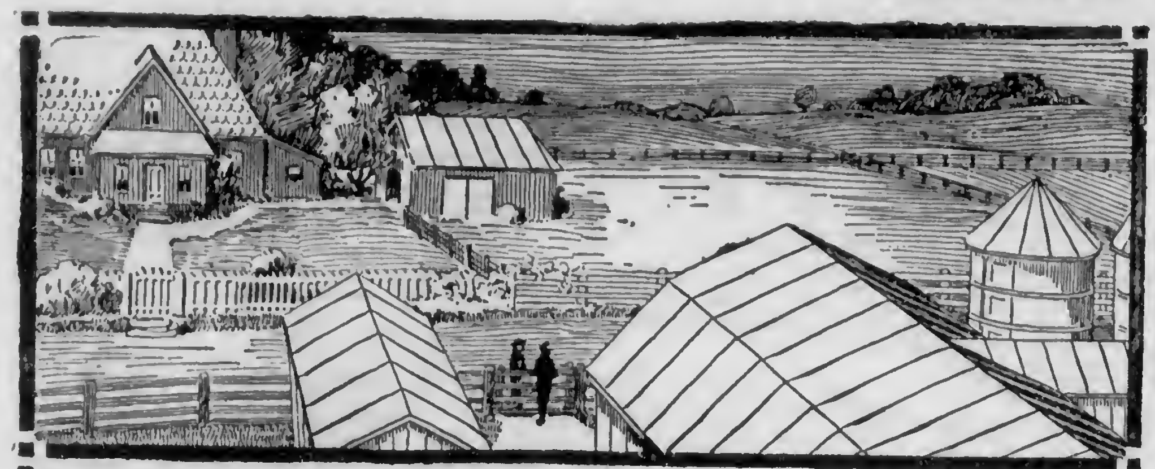

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LOW HOG MARKET

Disadvantages Overcome By Timely Breeding and Good Care

The low prices received for hogs during the past year have been discouraging to many hog raisers. The hog should be a paying animal. He requires less labor, less equipment, less capital, makes greater gains on 100 pounds of concentrates, reproduces himself faster and in greater numbers, and returns the money faster than any other farm animal. The fact remains, however, that prices paid for hogs are low and discouraging. In spite of these prices the animal that possesses the above advantages can still lift mortgages for his owner if the owner will study and apply the fundamental principles underlying the business.

To begin with, the best can be made of a poor market by having the hogs ready at the time when they are most wanted by that market. This normally occurs during the spring and again during early fall. The September and October market is usually the highest. How can the farmer take advantage of these facts to the greatest degree? The hog wanted by the market usually runs between 175 and 225 pounds. Fortunately this is the most economical weight at which to dispose of the hog. Up to this point his gains are made very cheaply. Beyond 300 pounds it is doubtful if under general conditions feeding can be made a profitable business.

The hog if properly fed can readily be put upon the market at 200 pounds in six or seven months. Therefore, have the pigs for the September market dropped in the latter part of February or during March. This will require that the breeding of the sows begin about the latter part of October or November first, continuing, if necessary, during the first week in December. The pigs for the April market should be dropped in early September. These pigs can then be weaned before the November breeding season starts. To have the pigs dropped in September it will be necessary to breed the sows during May or early June.

Under certain conditions it may be impossible to bring hogs to the 200-pound mark at six months; however, a great effort should be made to attain this goal, as time means money, and the longer hogs are held the greater will be the labor and overhead charges. The cost of feed for maintenance also will be increased.

Further, in this connection there is a recovery every two to four years so this is a poor time to close out. The wise farmer will await a reaction.

AMERICAN BERKSHIRE CONGRESS

The annual meeting of the American Berkshire Congress will be held at the New Jersey Experiment Station, New Brunswick, N. J., February 22 to 24. A program of interest to every swine grower has been prepared. Principal features of the program are as follows:

Hog Cholera—The Serum and Serum Simultaneous Treatment, W. S. Corsa, White Hall, Ill.; The Foot and Mouth Question, Dr. A. J. Marshall, Harrisburg, Pa.; Why Berkshires for the East, Henry Fielden, Edgemont, Pa.; The Breeders' Art, and Contructive Breeding, J. E. Dodge, Lowell, Mass.; Fitting and Showing Berkshires, E. J. Barker, Thorntown, Ind.; Barrow Demonstration—live and dressed, from packers' view point, Prof. W. H. Tomhave, State College, Pa.;Co-operation, Eugene T. Lippincott, Lima, O.; Reminiscences, N. H. Gentry, Sedalia, Mo.; Advertising and Public Sales, L. E. Frost, Chicago, Ill.; Hog Intelligence, or Berkshire Intellect, Dr. A. S. Knight, Gladstone, N. J.; Lantern Slides, and short talk on Feeding, Prof. McLean, Boston, Mass.; The National Hog Industry, Prof. C. F. Curtiss, Ames, Ia.;Feeding and Developing Berkshires, John F. Myers, Apple Creek, O.; Curing Hog Products, Dr. Vallie Hawkins, Fawn Grove, Pa.; Limiting factors in pork production (particularly hog buildings and equipments), Prof. Frederick Minkler, New Brunswick, N. J.; Relation of Seller and Buyer, Dr. A. L. Deubler, Wayne, Pa.; English Berkshires, Karl B. Clough, Beaver Falls, Pa.; Care of Brood Sow and Litter (young), H. V. Shulters, Cleveland, O.; Berkshire Futurity, Daniel Buckley, Broad Axe, Pa.; Judging demonstration from show and breeding standpoints, W. W. Lovejoy, Prof. C. F. Curtiss, and J. E. Dodge.

This meeting will bring together some of the foremost swine breeders in the country and should be the greatest swine meeting ever held in the East. A combination sale of 50 Berkshire swine will be held during the meeting.

SUMMER FORAGE MAKES CHEAP PORK ON THRIFTY HOGS.

Hepsey Burke

By Frank N. Westcott

CHAPTER XX (Concluded)

Mr. Maxwell lost no time in putting his resolution into effect. He mounted the wagon dressed in a rather soiled suit of overalls, by Danny Dolan's side. Danny was a teamster, a good looking youth and a devoted friend of Maxwell's since the parson had taken care of him and his family thru an attack of malignant diphtheria. But while Danny was a most loyal friend he was not of the emotional type, and so, when Maxwell had seated himself comfortably and had lighted his briar pipe, Danny started down the road at a vigorous pace, grinning broadly at Maxwell's attire as he remarked:

''So you're really goin' to work like the rest of us, I reckon.''

''Right you are Danny—four days a week anyhow. Don't I look like the real thing?''

''Sure you do; only you better not shave every day, and you'll have to get your hands dirty before you can fool anybody, and maybe your face'll give you away even then. Be you comfortable in them clothes?''

''Sure thing; I'm never so contented as I am in working clothes.''

''That's all right. You're the stuff. But how about the proper old maids in the parish who ogle and dance around you; they won't cotton to your clothes a little bit. They'll think you're degradin' of yourself and disgracin' of the parish. Here you be ridin' on a stone wagon, and you don't look a bit better than me, if I do say it.''

''I'm afraid they'll have to survive the shock somehow or other; a man has to dress according to his work.''

''Hm! Now there's that there Mrs. Roscoe-Jones and Miss Bascom; I'll bet if they saw you in that rig they'd throw a fit.''

''They'd think you'd been disgraced for life, to become a laborin' man, you bet.''

''A what?''

''A laborin' man.''

''Then you think that a parson does not labor?''

''Well, I always thought that bein' a parson was a dead easy job, and a nice clean job too.''

''Danny,'' Maxwell inquired after a momentary silence, ''don't you suppose that a man labors with his brain as well as with his muscles? And sometimes a parson labors with his heart, and that is the hardest kind of work a man ever does. The man who is most of a laboring man is the man who labors with every power and faculty he possesses.''

''Well, now, I guess that may be right, if you look at it that way.''

''Yes; you speak of a laboring man, and you mean a man who uses his muscles and lets his brain and his feelings die of starvation. To try to help some one you're fond of, who is going to the bad, is the most nerve-racking and exhausting work which any man can possibly do.''

''Hm! you always was a dum queer parson, more like the rest of us, somehow. And you don't hold that you're disgracin' your profession ridin' with me, and shovelin' gravel?''

''I don't seem to be worrying much about it, do I?''

''No,'' he agreed—and added, ''and I'm dum sure I would like a day off now and then from preachin' and callin' on old maids, if I was you. But there's times I might be willin' for to let you take my work for yours.''

''Now see here, if you'll do my work for a few days, I'll do yours.''

''Well, what'd I have to do? I ain't makin' any contract without specifications.''

''Well, suppose we say you do my work Saturday and Sunday. That means you finish up two sermons, which must be original and interesting when you are preaching to the same set of people about a hundred and fifty times a year. Then you must go and see a woman who is always complaining, and listen to her woes for three-quarters of an hour. Then you must go and see what you can do for Tom Bradshaw, who is dying of tuberculosis. Then you must conduct a choir rehearsal—not always the highest gratification of a musical ear. Sunday, you must conduct four services and try to rouse a handful of people, who stare at you from the back pews, to some higher ideals of life and common decency. Then———''

''Oh, heavens, man! Sure, an' that's enough; I stick to the stone wagon every time.''

''You'd be a fool if you didn't,'' replied Maxwell straightly. ''Then again you get your pay promptly every Saturday night. I never know when I am going to get mine.''

'You don't? Begad, and I wouldn't work for anybody if I wasn't paid prompt. I'd sue the Bishop or the Pope, or somebody.''

''Parsons don't sue: it's considered improper.''

''Well, well,'' muttered the astonished Danny. ''Be you sure you can shovel stone then?'' he asked.

Maxwell unbuttoned his wristband, rolled up his sleeve. ''If I can't, I'll know the reason why,'' he remarked tersely.

''That's the stuff,'' laughed Danny, looking at Maxwell's muscle. ''I guess I don't want to meet you out walkin' after dark without a gun. But say, why don't you swat the Bishop one, and get your pay?''

''The Bishop isn't responsible.''

''Well, I'll bet I know who is, dang him; and I'd like to swat him one for you, the miserabe old ba-of-bones.''

''Never you mind, Danny; I can take care of myself.''

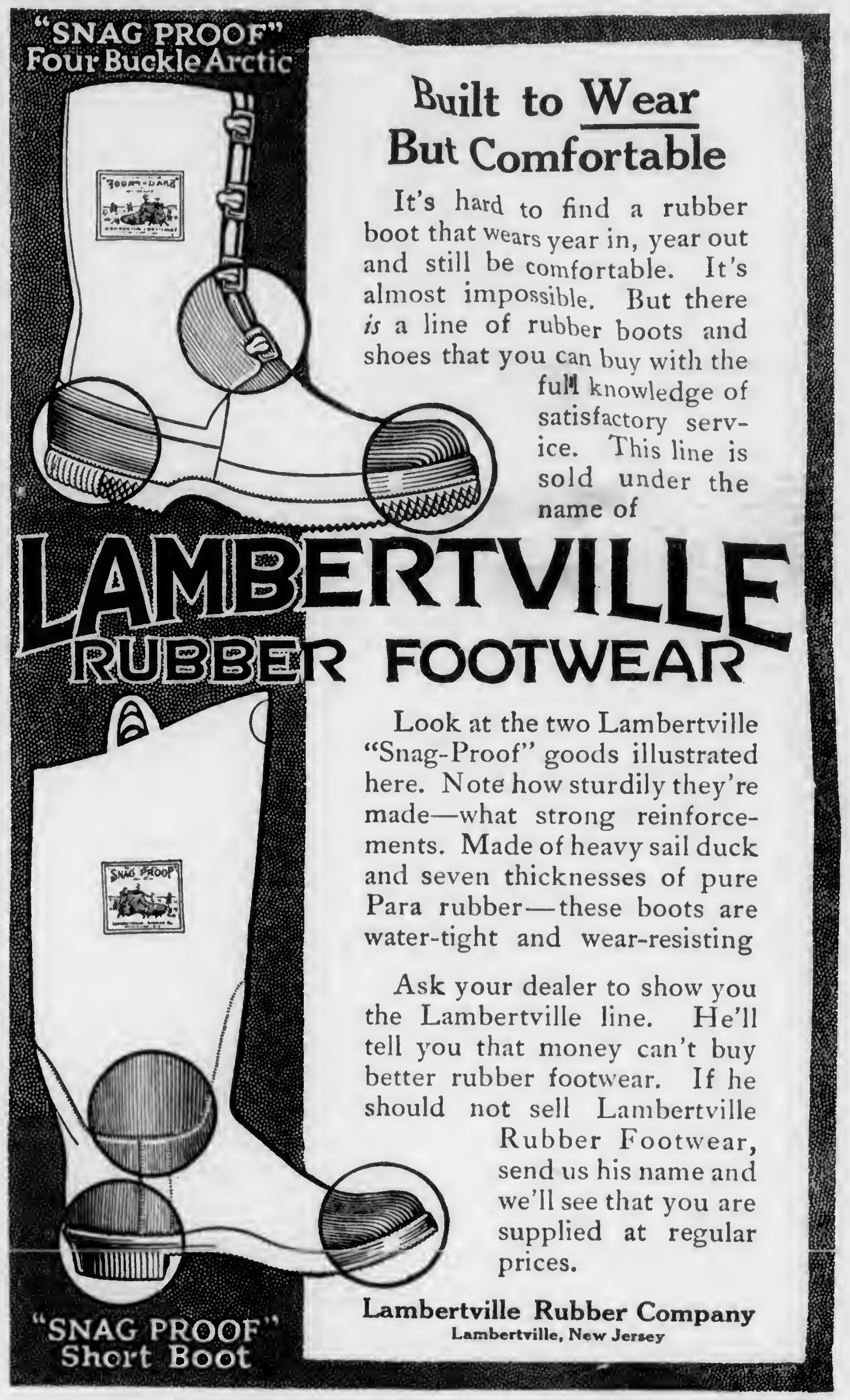
''Sure you can, and I guess you're a laborin' man all right, even if you don't belong to the Union. Why don't you get up a parson's Union and go on strike? By Jove! I would. Let your parish go to——''

''Danny, don't you think it looks like rain?''

''No, neither do you; but here we are at the stone pile. My! but how the fellers will grin when they see a tenderfoot like you, and a parson at that, shovelin' stone. But they won't think any the less of you for it, mind you,'' he reassured his companion.

Maxwell knew most of the men, and greeted them by name, and when he rolled up his sleeves and began work, they quickly saw that he was ''no slouch,'' and that he did not ''soldier,'' or shirk, as many of them did—tho sometimes they were inclined to rest on their shovels and chaff him good-naturedly, and ask him if he had his Union card with him.

Shoveling stone is no picnic, as Danny and his fellows would have put it. It is not only the hard, obstructed thrust, thrust of the shovel into the heap of broken stone, and the constant lift and swing of each shovelful into the wagon;



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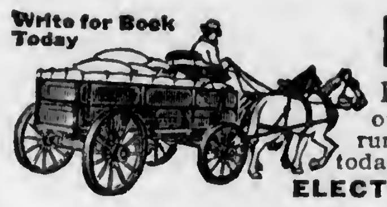

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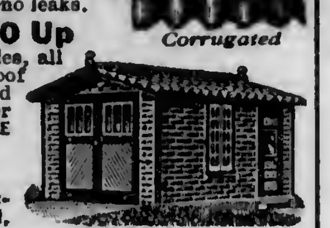
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The State For Thrifty Farmers

it is the slow monotony of repetition of unvarying motion that becomes most irksome to the tyro, and wears down the nervous system of the old hand till his whole being is leveled to the insensibility of a soulless machine.

But, tho new to the process itself, Maxwell was not ignorant of its effects; and soon he found himself distracting his attention from the strain of the muscular tension by fitting the action to the rhythm of some old sailor's chanteys he had learned at college. The effect amused the men; and then as some of them caught the beat, and others joined in, soon the whole gang was ringing the changes on the simple airs, and found it a rousing and cheerful diversion from the monotony of labor.

If a pause came, soon one of them would call out: "Come on Parson; strike up the hymn."

One by one the wagons were loaded, and driven to the road. After they had filled the last wagon, Danny put on his coat, and he and Maxwell mounted and drove out of the yard.

"Where are we going with this?" Maxwell inquired.

"Down on the state road, first turn to the left."

"Why that must be near Willow Bluff, Mr. Bascom's place, isn't it?"

"Right opposite. Bascom, he came out yesterday, and said he wouldn't stand for that steam roller snortin' back and forth in front of his house. But Jim Ferris told him he had his orders from Williamson, and he wasn't goin' to be held by nobody until Williamson told him to stop. Jim isn't any kind of fool."

When they arrived in front of Willow Bluff, they dismounted and dumped the stone, and then returned to the stone yard. At noon they camped out on the curb in front of Willow Bluff. After Maxwell had done full justice to the contents of his dinner pail, he stretched himself full length on the grass for a few moments, chatting with his mates in friendly fashion. Then he went over to the roller and assisted the engineer in "oiling up." Being a novice at the business, he managed to get his hands black with oil, and smeared a streak across one cheek, which, while it helped to obscure his identity, did not add to his facial beauty. He was blissfully unconscious of this. About three o'clock Bascom returned from his office, just as Maxwell was dismounting from the wagon after bringing a load. At first Bascom did not recognize the rector, but a second glance brought the awful truth home to his subliminal self, and he stopped and stared at Maxwell, stricken dumb. Maxwell politely touched his hat, and smilingly remarked that it was a fine day. Bascom made no reply at first.

"Can it be possible that this is you, Mr. Maxwell?" he almost whispered, at last.

"It is, to the best of my knowledge and belief."

"What in the name of heaven are you working with these men for, if I may ask?"

"To earn sufficient money to pay my grocer's bill."

Bascom colored hotly, and sputtered:

"I consider it a shame and disgrace to the parish to have our rector in filthy clothes, drawing stone with a lot of ruffians."

Maxwell colored as hotly, and replied:

"They are not ruffians, sir; they are honest men, supporting their families in a perfectly legitimate way, giving their labor and"—significantly—"receiving their pay for it."

"And you, sir, are engaged to work for the parish, as a minister of God."

"Unfortunately, I am not being paid by the parish; that is why I am working here. Neither my wife nor myself is going to starve."

"You haven't any pride, sir" Bascom fumed, his temper out of control. "We have had many incompetent rectors, but this really surpasses anything. We have never had anyone like you."

Maxwell paused again in his work, and, leaning on his shovel, looked Bascom in the eye:

"By which you mean that you have never had anyone who was independent enough to grip the situation in both hands and do exactly what he thought best, independent of your dictation."

"I will not converse with you any more. You are insulting."

"As the corporation is paying me for my time, I prefer work to conversation."

Bascom strode along the road towards his home. Danny Dolan, who had been a shameless auditor of this conversation, from the other side of the wagon, was beside himself with delight:

"Holy Moses! but didn't you give it to the old man. And here be all your adorers from town after comin' to tea at the house, and you lookin' like the stoker of an engine with black grease an inch thick on your cheek."

Maxwell pulled out his handkerchief, and made an abortive effort to get his face clean.

"How it is now, Danny?"

"Oh, it ain't as thick in any one place; it's mostly all over your face now." Then Danny laughed irreverently again. "Sure, an' you certainly do look like the real thing now."

Maxwell was raking gravel when the guests for the afternoon tea were passing; and tho he did not look up, he fully realized that they had recognized him, from the buzz of talk and the turning of heads.

Danny returned from his safer distance when he saw the coast was clear. Maxwell had a shrewd suspicion that the boy had taken himself off believing it might embarrass Maxwell less if any of the ladies should speak to him.

"Did none of 'em know you, then?" he asked.

"Not one of them spoke; I guess my disguise is pretty complete."

"Thank hiven!" Danny exclaimed. "Then the crisis is passed for today at least, and your reputation is saved; but if you don't get out of this they'll be comin' out again, and then nobody knows what'll happen. Better smear some more oil over the other cheek to cover the last bit of dacency left in you."

At the end of the day's work, Maxwell threw his shovel into Dolan's wagon and jumped up on the seat with him and drove back to town.

"Well," said Maxwell's friend, delightedly, "you done a mighty good day's work for a tenderfoot; but you done more with that old Bascom than in all the rest of the day put together. My! but I thought I'd split my sides to see you puttin' him where he belonged, and you lookin' like a coal heaver. But it's a howlin' shame you didn't speak to them women, goin' all rigged up to the party. That would've been the finishin' touch."

He swayed about on his seat, laughing heartily, until they drew up before the rectory, where Mrs. Betty was waiting to greet Maxwell.

Danny touched his cap shyly—but Betty came down to the wagon and gave him a cheery greeting.

"Well — you've brought him back alive, Mr. Dolan, anyway."

"Yes ma'am! And I reckon he'll keep you busy puttin' the food to him, if he eats like he works: he's a glutton for work, is Mr. Maxwell."

(To be concluded.)

The Gol Darned Ford

Old Zeke Perkins sold his hogs one day;
The gosh darn fool threw his money away;
Rode into town settin' straddle of a board,
And he came ridin' home in a darn little Ford.

When he came to the house and got to the gate,
He grabbed for the throttle and he put on the brake;
Tried to pull on the lines, got the throttle instead,
And that gol darned Ford kept a-chuggin' right ahead.

Zeke jerked all the levers and cut off the gas,
He kicked every pedal, then broke out the glass,
He cut all the wires and he pulled off the top,
But the gosh dinged Ford it just wouldn't stop.

He hauled out his knife and then smiled serene;
Put a hole in the tank and drained the gasoline;
He pulled out a gun and shot the tires full of lead,
But the gol darned Ford kept a-chuggin' right ahead.

Went thru the fence and up thru the lane;
Mirandy saw him coming and thought him insane.
She ran down the road and then stopped to see,
And the Ford struck her squarely where the belt used to be.

She reached out her arms as she went up in the air,
Just as Zeke went by she grabbed him by the hair;
She bounded on the seat, landed down in the bed,
And the gosh darned Ford kept a-chuggin' right ahead.

He steared for the shed and just missed the hole,
Struck an old hog and you ought to see her roll.
Out in the yard then they landed in a heap,
In a big muddy pool about six feet deep.

Zeke grabbed Mirandy and they waded to the shore—
He was glad they had stopped and couldn't go no more.
He pricked up his ears, then looked back and said:
"Why, that gol darned Ford is a-chuggin' right ahead."

—Submitted by Mrs. G. L. F., West Chester Pa.

THE TIME, NOW!

All the winter long, the troubled owner of a lame horse reads our advertisements. Then, day after day slips away while he talks, laments, listens, takes advice and hesitating—**FAILS TO ACT**—till the Springtime is on him and his horse is not yet able to work. Meantime the thrifty, prosperous, resolute man reads, considers the evidence carefully—**Decides Promptly**—and his horse is quickly cured, worked, too, if needed. That's exactly what happens every winter.

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Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Barren Cow — Leucorrhea — Infected Udder.—I have a cow that came fresh last July. She comes in heat regularly, been bred several times, but fails to get with calf. She has a bloody discharge from vagina and is not in a thriving condition. Also have a cow that gives slimy milk. C. A. S., Parks, Pa.—Dissolve 2 drams permanganate of potash in 3 quarts of clean tepid water and wash out vagina once a day. Do not breed her until she recovers from leucorrhea. Give her 1 teaspoonful of powdered sulphate iron, 1 ounce of cooking soda and ½ ounce powdered charcoal at a dose in feed, 2 or 3 times a day. Give your other cow a teaspoonful of hyposulphite of soda at a dose in feed, 2 or 3 times a day and rub the diseased portion of udder with iodine ointment every day or two.

Partial Paralysis—Articular Rheumatism.—A few weeks ago I read your advice regarding shoats that were suffering from partial paralysis of hind quarters. I happened to have three which had this disease and have been treating according to your directions, but they do not improve. Will you please advise if there is not some other remedy for this kind of a case. G. R. K., Chambersburg, Pa.—I am inclined to believe that your hogs suffer from articular rheumatism, the most of the trouble being in their joints. They should have good care, be kept in a dry, comfortable pen at about the same temperature all the time. Give them enough castor oil or Epsom salts to purge them and give each hog 10 grains of sodium salicylate, once a day, and 10 grains potassium iodide, once a day. Apply 1 part tincture iodine and 2 parts camphorated oil to sore or swollen joints, every day or two.

Loss of Appetite — Loose Teeth. — I have a 2-year-old heifer that does not appear to be sick, but seems to have loose teeth and a very poor appetite. I am unable to say whether she knocked her teeth loose by falling on the ice, or was injured by another cow. O. E., Cosheeton, N. Y.—The loose teeth are doubtless those that she is shedding, or it is possible that some of her permanent teeth have been loosened by an injury. Dissolve a teaspoonful of salt in a pint bottle of water and wash out mouth twice a day. Give her ½ oz. cooking soda, ½ oz. ground gentian at a dose in feed or water, twice a day.

Weakness—Embolism.—I have a mare 10 years old, in foal which, when driven fast, becomes very lame and breaks out in profuse perspiration. If allowed to stand still a short time she moves off very stiff, but not lame. She also perspires when standing in stable. I have given her some Fowler's solution but this may not be the right remedy. E. E. G., Bedford, Pa.—It is possible that she suffers from embolism, which consists of an obstruction in a blood vessel, or it may be thrombus, caused by an injury to a blod vessel. She should be given rest, also give her 1 dram doses of carbonate of ammonia and continue this treatment for some time, giving her 3 doses a day. If her appetite is not good give her ½ oz. fluid gentian and the same quantity of fluid extract cinchona at a dose, 3 times a day.

Feline Distemper.—Our cats, especially the kittens, seem to be troubled with a sickness causing death. No matter where they are brought from or how well they are when we buy them, they soon begin to have sore eyes and sneeze as if they had a bad cold. A sort of scab forms on end of nose. They lose their appetite and appear to be unable to eat. Their throats must be sore. We have been advised to give them gun powder and flowers of sulphur in their feed, but they refuse to eat it. E. R., Brodbecks, Pa.—Your premises are infected with distemper germs and until you get rid of the infection your cats will be apt to become diseased. Give each kitten ¼ grain quinine and 2 drops Fowler's solution and 1 drop tincture chloride of iron at a dose in a teaspoon or two of water, 3 times a day.

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The Worlds Greatest and Surest
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HAS IMITATORS BUT NO COMPETITORS!

SAFE, SPEEDY AND POSITIVE.
Supersedes All Cautery or Firing. Invaluable as a CURE for
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LIME AND ITS USES

Pure lime is a compound consisting of 71.5 percent of calcium and 28.5 percent of oxygen. Since lime is of varying degrees of purity perhaps it may be best defined as the residue of any form of carbonate of lime (limestone, oyster shells, marl) after all volatile matters have been drawn off by heat.

Lime may be classified as follows: High calcium, limes made from limestone having 80 to 95 percent of carbonate of lime; magnesium or dolomitic limes, made from limestone having 55 to 80 percent of carbonate of lime and 10 to 44 percent of magnesium carbonate, and hydraulic limes, either calcium or magnesium, having 5 to 30 percent of sand and clay. Commercially the word lime is applied to a great variety of lime products and may be said to have no definite meaning.

Forms of Lime

The farmer is offered lime in a number of different forms and under a number of different names, as for instance:

Burned Lime.—Burned lime, known chemically as calcium oxide, is variously known as caustic, quick, burned and stone lime. It is offered for sale occasionally in the lump, tho not as often as a few years ago, and as ground lime. Ground burned lime has to be used promptly after burning and grinding else in slaking it bursts the sacks in which it is shipped. Lime increases its bulk two or three times in slaking.

Hydrated Lime.—Hydrated, or water slaked lime is a compound of calcium oxide and water, and is known chemically as calcium hydroxide. It is usually sold under the name of hydrated lime. It is only in recent years that lime has been slaked before marketing. As first presented to the trade it was attributed peculiar virtues as a fertilizer and an extra price was charged for it as compared with unslaked lime. That is, about 33 pounds of water was added to each 100 pounds of lime and the total, 133 pounds, was sold at a higher rate per pound, even than the original lime. Hydrated lime is more pleasant to handle and can be stored without bursting the package in which it is shipped.

LOADING FINELY CRUSHED LIME STONE INTO SPREADER.

Carbonate of Lime.—In raw limestone, oyster shells and marl we have a compound of calcium oxide and carbon dioxide known as calcium carbonate of lime. This is the source of the forms of lime previously mentioned. For instance: 100 pounds of pure limestone when burned will give off about 44 pounds of carbon dioxide leaving 56 pounds of calcium oxide (burned lime). This 56 pounds of burned lime when slaked will take up some 18 pounds of water, making 74 of hydrated lime. Expressed as percentages, these three forms of lime when pure, run as follows: Burned lime, 100 percent lime; hydrated lime, 75 percent lime and 25 percent water; carbonate of lime, 56 percent lime and 44 percent carbon dioxide.

Air-slaked lime is a mixture of all three forms, for in slaking slowly in the air it will take up both water and carbon dioxide. If exposed long enough and thoroly enough it will go back to the carbonate. All of the above forms of lime are frequently called agricultural lime.

The Money Value of Lime

The comparative value of these different forms of lime should be based upon their content of lime and magnesia. For all practical purposes lime and magnesia are equally valuable for correcting soil acidity and no discrimination should be made against the latter providing it is not in excess of the lime. If one has offered him burned lime, hydrated lime and fine ground limestone all from the same or similar rock, the slaked or hydrated lime ought to be purchased for about three-fourths as much per ton as the unslaked lime, and the limestone for about one-half the price of the unslaked lime, taking into consideration, of course, the cost delivered at one's farm. The degree of fineness of the ground limestone is important. An agreement arranged by the directors of certain experiment stations calls for all ground limestone to pass a 50-mesh seive.

Attention should be called to some lime by-products now being offered for sale—very pure forms of carbonate of lime—at about the price of burned lime. There is no reason why they should be worth any more than a limestone carrying the same percentage of calcium carbonate, or of calcium and magnesium carbonate combined. These by-products should compete in price with limestone rather than with burned lime.

Gypsum.—In gypsum or land plaster we have a compound of calcium and sulphuric acid, known chemically as calcium sulfate or sulfate of lime. While included among the different forms of lime it will not take the place of any of the above-mentioned lime compounds in correcting acidity—and this is the main purpose for which the farmer uses lime. As an absorbent it has some agricultural value. In the treating of phosphate rock with sulfuric acid a considerable gypsum is formed which goes to market in the commercial acid phosphate resulting from this treatment. Gypsum as used at the Ohio Station in comparison with lime shows little or no value.

Wood Ashes.—Wood ashes carry on the average about 40 to 50 percent of calcium carbonate, equivalent to 22 to 28 percent of lime, besides small percentages of magnesia, potash and phosphoric acid. They are a good carrier of lime but ordinarily command too high a price to justify their use.

Slag Phosphate.—Slag phosphate carries about 35 percent of lime and 15 percent of phosphoric acid. It has great value on many soils but is open to the same objection as ashes—the price is too high. The above comprise the principal forms and carriers of lime offered for sale at the present time.

Uses of Lime

As a Plant Food.—The principal constituent of lime, calcium, is one of the essential elements of plant food, but is so very abundant in most soils that it is seldom necessary to apply it as a food. Hopkins of Illinois points out that "even strongly acid soils often contain abundance of the element calcium for plant food, not in the form of carbonates, but in silicates, which, however, have no power to correct soil acidity". While this is true, the element calcium may be deficient in some soils, especially for such plants as clover and alfalfa, which require large amounts of this element. Under such conditions lime would serve the purpose of a plant food.

As a Liberator of Plant Food.—Lime has been found by Frear, of Pennsylvania, to increase the availability of potatsh from 6 to 55 percent upon different types of soil. In soils containing very large amounts of insoluble potash this would seem to be legitimate. Lime also promotes the decomposition of organic matter and the liberation of nitrogen. This use may, of course, be easily abused. The destruction of organic matter with caustic lime may be carried on without any attempt to restore or maintain the supply of organic matter. Such use of lime is ruinous and entirely indefensible.

In certain experiments of the Pennsylvania station comparing burned lime with limestone the requirements of the test necessitated this improper use of caustic lime and the results are as might be expected. Had this experiment involved the use of a moderate amount of manure once in each rotation, or any systematic effort to supply organic matter, the results could hardly have been the same.

Neutralizing Acidity.—Numerous processes are going on in the soil which result in the formation of acids of various kinds. Chief among these processes is the fermentation and decay of organic matter. The use also of certain fertilizers, as for instance acid phosphate and sulfate of ammonia, tends to promote an acid condition in the soil. Many soils are supplied with sufficient basic materials to unite with these various acids as they develop, thus rendering them harmless. This is true of soils rich in carbonate of lime. An increasingly large number of soils, however, are coming to a point where additional basic material is needed to neutralize these acids. Lime is the cheapest base which can be used for this purpose. Of the different forms and carriers of lime mentioned above, all of them except gypsum will neutralize acidity. This neutralization of soil acidity is by all odds the most important function of lime.

Many crops do exceedingly poor in an acid soil. Our most valuable legumes, clover, alfalfa, soy beans and many others, will not thrive in an acid soil. The nitrogen-gathering bacteria so essential to the successful growing of these legumes will not develop normally in an acid environment. This also applies to the nitrifying bacteria which convert ammonia into nitrates as also to other nitrogen-gathering bacteria which work independently of the leguminous plants.

Physical Effects.—Lime exercises an important influence in changing the texture of soils. Heavy clays are lightened and made less sticky and more crumbly. This greatly assists the movement of water and air in such soils and consequently their temperature. Light soils are also benefited, for lime increases their water-holding capacity and their capilarity. The early use of lime was almost entirely for its physical effects on the soil.

How to Determine When Lime is Needed

The Litmus Test.—The simplest test is the litmus paper test. In the hands of the careful worker it seldom goes wrong. Litmus paper can be purchased of most druggists. When the soil is moist insert narrow strips of it in small openings made in many different places in the field to be tested, with a clean knife or small trowel, and press the soil close again. Ordinarily it will be found more convenient to put the soil in a cup. In moistening the soil one should first test the water to be used to know it is neutral. If the soil turns the blue litmus red or pink, acidity is indicated. The brightness of the color and the rapidity of the change indicate the degree of acidity. The litmus paper should be left in the soil a half hour or more. It is advisable to test the subsoil also, for if it be acid, more lime will be required than if only the surface soil is acid. Litmus paper can be purchased in a neutral tint, half way between the blue and red, and on soils slightly acid is perhaps preferable to the blue. The neutral paper will turn blue in an alkaline soil.

The Hydrochloric Acid Test.—Another test sometimes used is a test for calcium and magnesium carbonates in the use of hydrochloric acid. It consists in pouring a few drops of this acid on a little soil. If it produces a bubbling, or effervescence, it is evident that carbon dioxide is being liberated and that carbonates are present in the soil, thus giving a negative answer to the question of acidity.

The Behavior of Clover.—The behavior of clover is also a pretty good indication of acidity. If after one gets a good stand in the spring it gradually becomes patchy, disappearing here and there, and gets worse as time goes on, it is a pretty good evidence of acidity. The herbage of acid soils is characteristic. Clover and alfalfa are quite sensitive to acidity. Sorrel is not. The latter may be expected to take the place of clover, making luxuriant growth. Hall points out that corn, marigold, spurry, foxglove and bracken are good signs of acidity. Chestnut trees also take kindly to soils naturally deficient in lime.

The Field Test.—When on the border land of uncertainty it will be found advisable to lime a strip or two across the field in question and note the results upon all the crops of the rotation and in particular upon clover. There can be no mistaking this test.

What Form of Lime to Apply

This will depend in part upon the character of the soil which is to be limed, but, as a rule, more upon the cost of a given amount of lime spread upon one's farm. Upon peaty soils, as upon very heavy clays, it is often advisable to use burned lime. Upon soils very destitute of organic matter ground limestone would be required. If applied in moderation and with wisdom, the use of burned lime is very proper. As stated, one can generally let the matter of cost of actual lime be the principal factor in deciding which form to use. When one can spread two tons of carbonate of lime on his farm as cheaply as one ton of burned lime I should be disposed to use the former. It will readily be seen that the railroad and wagon haul come in for consideration.

Remember that good farming is one continual round of breaking up insoluble compounds; of decomposing and utilizing organic matter, and putting more organic matter and plant food back into the soil. If one does both acts he is on the road to prosperity. If he does the first and omits the second he will fail.

A word should be said about the comfort and convenience of applying the different compounds. One who has worked with burned lime, either unslaked or freshly slaked, knows that it is very irritating to the skin. Hydrated and ground limestone are not objectionable in this way.

At What Time in the Rotation?

It has been found very satisfactory at the Ohio station to lime ground that is to go in corn after it is plowed. In this way the lime gets very thoroly mixed with the surface soil the first season, the repeated cultivations of the corn bringing about this result. The objection to this plan is that the rush of spring work often interferes with carrying it out. Many farmers find it more convenient to lime for wheat, as there is more time for it at this season of the year in rotation of seed-beds. Liming under these conditions is permissible. It will be well to apply the lime some weeks in advance of seeding if possible, and harrow the ground repeatedly after liming. Carbonate of lime may be applied at any time without fear of injury to seed or crops. In many sections permanent pastures and other grass lands need liming.

A FARM ICE HOUSE BUILT OF CONCRETE BLOCKS.

How to Apply Lime

There are a number of very satisfactory lime spreaders now on the market. Some handy and ingenious farmers have succeeded in making fairly satisfactory home-made spreaders, but sometimes they cost more than the factory-made spreaders. A special lime spreader of some sort will be found more satisfactory than a manure spreader, tho the latter can be used. The ordinary fertilizer drill is too slow. Lime should be applied after plowing, rather than just before. It should not be mixed with manure.

Lime helps all the crops of our common rotations when applied to land that needs it, altho the clover crop gives an especially generous response. The following table gives some of the effects of liming upon clover at the Ohio Station:

Lime and Clover at the Ohio Station.

Plot	Fertilizers Used	Av. Yield 95-01 Unlimed.	Lb. per acre 02-06 Unlimed.	Percent of Change ! Loss !! Gain	Av. Yield 02-06 Limed.	Percent of gain From Liming.
2	Acid phosphate	2070	1649	!20	2916	71
8	Acid phosphate; muriate of potash	2296	1892	!18	3494	85
17	Acid phosphate; muriate of potash; nitrate of soda	2319	2280	! 2	4139	81
24	Acid phosphate; muriate of potash; sulfate of ammonia	2277	1701	!25	3724	119
26	Bone meal; muriate of potash; nitrate of soda	2657	3019	!!14	4164	38
18	Barnyard manure	2923	3339	!!14	4925	47
	Average of unfertilized	1712	1159	!32	1927	66

These figures call for but little comment. Note in particular that all but two of the unlimed plots declined in yield in the second period. The unfertilized plots declined most, suffering as they did for plant food as well as lime. Of the fertilized plots No. 24, which receives both acid phosphate and sulphate of ammonia, declined in yield most, viz., 25 percent, while plot 17 which receives the same amount of plant food as 24, but with nitrate of soda substituted for sulfate of ammonia declined only 2 percent. That sulfate of ammonia increases acidity is indicated, both by the decline and the sharp advance when lime is added, as shown in the final column. The bone and manure plots increase their yield in the second period without lime, but in common with all the plots of the series are greatly benefited by liming.

In conclusion let me say that when land needs lime it is a serious mistake not to apply it. Neither fertilizers nor manure will take the place of lime on some soils, and neither will give the full results of which they are capable without lime.—C. G. W.

Farm Accounts.

At the close of each year farmers should take an account of stock, feed and implements, as all business men do to find out the profit or loss for the year.

Many farmers keep few accounts of receipts and expenses, so do not know exactly whether they are getting ahead or not.

This being a slack time of the year is more suitable than the end of March when the renting year usually begins, so we do it now. By having a book similar to a ledger or day book, one can keep his accounts for each month, on one side of the page keep the receipts and on the opposite side the expenditures, then other pages may be used for recording any other items relating to stock or farm work which one wishes to record.

Begin by taking an account of stock by putting down the name of each horse and cow and what it cost or would bring at a cash sale and so with the pigs, sheep and the flock of hens, implements and grain on hand.

That inventory with cash on hand or in bank should be placed on one page and the opposite one left for a similar inventory at the close of the year. Each day, week or month one should in a small cheap book make a note of cash paid for labor, living, repairs or stock as well as for stock, eggs, fruit or anything sold, keeping amounts received for milk, hogs, or eggs sold in a line or column by themselves with the date, if possible, and also of tools bought, repairs paid or living expenses, so that at the end of each month or at least of the year one can easily add the amounts received for each kind of grain or stock sold and, on the other side have the amounts paid for labor, living, taxes, stock or seed and the cash on hand or grain and stock, so in an evening one can find by comparing the amounts received and the amounts paid out and the account of stock and grain on hand, allowing something for depreciation or wear on tools, how one stands financially at the end of the year and what he received for stock, hay or grain sold and what the expenses of living, labor, thrashing, feed or seed have been to see what he has made or where he has lost, if such has been the case.

It is a great satisfaction at the end of the year to know what one has made or where the money has gone, so as to try to improve or follow the line of farming which seems to pay best, and cut out the losing ones, if possible.

The satisfaction of knowing ones financial standing will pay well for the labor and time it takes. If the father does not care to do this a son or daughter may take pleasure and pride in keeping such accounts and be educating himself or herself by doing it along business lines.—J. N. Glover.

Value of Manure

In the various farm meetings held during the year, there is one question that arises more frequently than that of the most advantageous use of barnyard manures. Aside from the actual plant food (principally nitrogen) which they contain, manures have a humus value as well as another value which perhaps we do not consider as frequently as we ought—that of carrying bacteria, which not only hastens the decomposition of the manure itself, but all of the vegetable matter with which it comes in contact. One important reason for this seems to be that the manures carry the bacteria that help decay the muck. These set up within the soil chemical actions which make plant food available, and in a very definite way promote that condition which we call fertility.

We should bear this fact in mind in the use of manures on uplands. Instead, therefore, as often happens, of putting a large quantity of manure on a small area of sod ground, we can probably get much better results by spreading the same amount thinly over a considerable area of heavy sod. This, plowed under, will hasten the decomposition of the sod with which it is brought into contact, making plant food available and helping mechanical conditions in the soil.

Lyon and Fippin, of Cornell University, in a recent text, bring out this point very strongly, and those who have worked most carefully on the subject agree with them. It is safe then, in answering this very general question, to recommend that the sod land, which should be plowed before another crop, should be top dressed, if possible, directly from the stable with manure on hand this year. This does not mean to spread the manure in piles about the field where it has a chance to deteriorate, but spread wherever possible directly from the stable, or at least from the barnyard, thinly over the field. In plowing plan to so turn the furrow that the disk harrow will incorporate the manure thoroly with the sod turned under, remembering that there must be air before either the sod or the manure can decay, and that a deep disking will allow this air to reach the vegetable matter.

Farmers report most excellent results from the use of manure as a top dressing. Undoubtedly this does produce good results during a drouth as it helps to prevent evaporation, but year in and year out, on the averages which we have at hand, I believe our manure will produce greater results as outlined above than in any other way.—F. R. Stevens.

THIRD CROP OF ALFALFA IN 1915, ON S. A. SMITH'S FARM, CRAWFORD CO., PA.

Queries and Comments

(This department is open to all of our subscribers. Queries and short comments are invited. Queries will be answered by best available authorities.)

Oat Smut—Potato Blight

"Please give formula for treating seed oats for smut. My oats were badly affected last year. Also, for potato blight.—J. H. W., Mifflin Co., Pa.

There are different treatments recommended but the treatment by formalin is the one most used. One pint of 40 percent formalin mixed with 45 gallons of water will treat one hundred bushels. The oats should be spread out thin on a tight floor and sprinkled with the mixture, shoveling it over so that every grain becomes dampened. The grain should then be covered with sacks or blankets to keep it from drying out too rapidly. After a few hours it may be uncovered and stirred and shoveled to hasten drying ready for sowing.

The most common material in use against blight is Bordeaux mixture. This is made as follows: Take four pounds of copper sulphate (blue vitrol) tie it in a gunny sack and suspend it in a few gallons of water near the top. Take four pounds of good burned lime, put it in a vessel and add water to slack, keeping it stirred. Strain this into the copper sulphate solution after it is dissolved. Add water sufficient to make 50 gallons. For potatoes many make the mixture by using five pounds of each instead of four as it seems to be more effective. Spray three or four times from the time the tops are four or five inches high.

Greened Potatoes for Seed

I have a lot of potatoes that were left on the ground after being dug and they turned green. Do you think it advisable to plant them? A. J. B., N. J.

If the potatoes were not frozen or "cooked" by the sun, their being green will not hurt them for seed. It would be well to lay them out in the light two or three weeks before planting time. If they start stubby sprouts they are all right.

Cross Roads Farmers' Club

It had rained all day and the evening was dark and foggy, but shortly before 8 o'clock lantern-lights could be seen bobbing along in the direction of the Cross Roads' School House, indicating that in spite of the weather the farmers were arriving for their weekly Club meeting. As they entered the school house, "Peeley" Helper said: "Here we are wading in mud, and wet to the skin. What do we want to spend time talking on the moisture question for?"

"Yes," says Chairman Thorp, "That is the way with some of you fellows. You are like the Arkansaw man who couldn't mend his roof while it was raining because it was too wet, and wouldn't mend it in dry weather because he didn't need it. It is now 8 o'clock and I presume that all are here who will be here unless it is Haley and we will open the meeting."

The minutes were read and approved and the chairman called on Farmer Spencer to open the question, "Soil Moisture and How to Control it." The following notes were made from his paper:

"One of the three essentials to plant growth that we heard about at the last meeting was soil moisture. Since plants take their nourishment in the form of soup, it is necessary to have water present in the soil to dissolve the mineral plant food so that the little rootlets can "drink" their nourishment. No matter how rich the soil is in plant food, if it is absolutely dry the plants will starve and wither. Moisture is necessary from the time the seed is put into the soil so that the seed can absorb it and cause the germ to swell and grow; we call it sprouting. This sprout lives on the contents of the seed until it puts out little roots in search of food, hence we see that for best growth and biggest crops there must be moisture in the soil from seed time to harvest.

"Too much water in the soil is just as fatal as too little. There are several reasons for this. First, you fellows know you do not like your soup to be too thin. If the wife adds too much water for the amount of meat and vegetables, you complain because it is not nourishing. You must take too much water to get a little food. The same is true of the plant. Second, an excess of water in the soil causes too rapid and continued evaporation. Evaporation is a cooling process, so a wet soil is always a cold soil, and plants must have warmth. Third, air is necessary in the soil for various reasons. When the little spaces between soil particles are filled with water, it drives out the air and the plant "drowns." Fourth, such a soil can not be worked early in spring, or satisfactorily in case of a rainy season.

"How shall we overcome this? There are several things that may be done. Tile draining is the first thing for land that is too wet. Open ditches help a little but they will not drain sufficiently. Under drains take the excess water out and away and will turn an otherwise good soil from an unprofitable to a profitable condition. It is a waste of lime, manure, fertilizer, seed and labor to apply them to soil that is wet. Too many think of draining only when springs or scepy places occur. These are not the only places needing drainage. Level land of clayey soil with a hardpan not far from the surface nearly always needs draining. This kind of soil is also the kind that becomes hard and baked in very dry weather. Strange as it may seem, underdraining corrects this fault and the soil becomes more friable and retains moisture better.

"Where soils have an impervious hardpan below the surface and an open, porous condition exists beneath the hardpan, dynamiting frequently does the work, since it makes holes in the hard pan and lets the water "leak" thru.

"The next step in improving such soil is to plow down sods, green crops, manure, etc., and let them rot in the soil. When this material is mixed with the soil it makes it more open and porous so that the water can pass thru it more rapidly.

"Probably a more common problem is how to control the soil moisture and hold a supply so as to have it in dry weather. The amount of water falling on the earth in the forms of rain and snow is about the same each year but it is not always spread out evenly. We sometimes have long periods without rain and the average man begins to howl about dry weather in about 10 days in summer if it does not rain. His soil is dry and the crops drying up. What became of all the water that fell during the rainy spells? A great deal of it ran from the surface of the earth into streams; a part sank into the soil, some leaching thru to feed springs and wells. But a great deal of it was absorbed by the soil and held by it until it was brought to the surface by capilary attraction and dried up by evaporation. It is the failure to control this evaporation that causes the trouble when it ceases to rain. If the surface of the ground is protected by something so that the sun and air can not play upon it the drying process is hindered, and the moisture does not move up from below any faster than it dries from the surface.

"What can we do? Keep a dust mulch on top made by harrowing and cultivating, or keep a covering of organic material such as manure, straw, leaves, etc., on the surface. A dust mulch is as effective as anything and no man need have a cultivated crop in good soil suffer for water if he does the right thing at the right time.

"Fall plowed land should be harrowed the first time it is dry enough in the spring. The harrow should follow the plow every day in spring plowing. If the roller is used use it before the harrow and not after. Harrow frequently, and begin cultivating at once and keep it up. In this way the farmer can "bottle up" moisture when it is plentiful and have it when rains fail."

Bill Dickey: That certainly puts the matter in a nut shell and hereafter I will not get so tired when harrowing and cultivating."

The Chairman: The time has come to adjourn. The committee has chosen "The Importance of Humus" for the next meeting. I hope all members will prepare by reading and thinking on this subject.

ALFALFA IN CRAWFORD COUNTY, PA

I am sending you a picture of third crop alfalfa on land used in fall of 1914. In preparing a field for alfalfa there are three very essential things that we must look to, and make right, if we are to make a success with alfalfa. First, proper drainage; second, plenty of lime in soil, and third, inoculation. **Perhaps** I had better add paintaking preparation of seed bed. The alfalfa in the accompanying illustration seeded in August, 1914, cut three crops this season, estimated at the rate of one ton per acre for each cutting, which, considering that the first crop was severely hurt by the late freeze, is, I think a very satisfactory yield. And while it is a pleasure to watch it as it sways in the summer breezes, and, to think you have succeeded where many others have failed, it is a far greater and more substantial pleasure, to know that by so doing your land is growing more fertile each day.—S. A. Smith.

Special Sale during January and February

Buggies and Engines

We are making special inducements to early buyers during January and February that will enable you to make a bigger saving in the purchase of an American Beauty Buggy or an Economy Engine than you can make at any other time of the year.

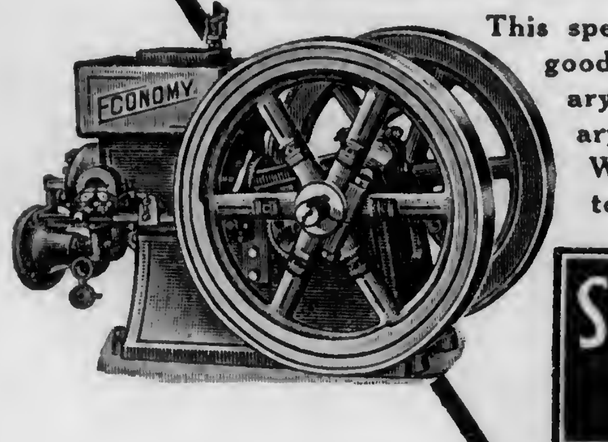
Don't buy a buggy or engine until you have seen this special proposition, as it means a big saving to you.

If you are interested in a Gasoline Engine, write for our special January and February Engine Proposition No. 84P80.

If you are interested in Buggies, write for our special January and February offer on American Beauty Buggies No. 84P80.

Shipped From a City Near You.

We carry six styles of American Beauty Buggies and a full line of Engines, Trucks, Saw Rigs, Grinders and Pumping Outfits in fifteen different cities and we ship from the one nearest you.



This special proposition good during January and February only. Write for it today.

Sears, Roebuck and Co.
Chicago, Ill.

Expensive Economy

Last Spring many cotton growers in their efforts to reduce expenses in readjusting themselves to war-time conditions, used less than the usual amount of fertilizer. Last Fall those farmers found that their losses from decreased yields and poorer quality crops were greater than their savings from the use of less fertilizers. It was expensive economy.

Northern farmers should profit by the cotton growers' experience and not make the same mistake in planting their Spring crops.

Send for our free booklets.

Soil Improvement Committee
of the National Fertilizer Association
968 Postal Telegraph Bldg., Chicago

You can't make your farm pay big profits, unless your buildings are properly built. A poorly-built house means illness and discomfort. A poorly-built barn and stables mean unhealthy stock. Poorly-built silos and sheds mean spoiled silage and rusted machinery. All three mean constant repair work—an endless outlay of money which ought to have been clear profit. You save many dollars and much future trouble if you build with

North Carolina Pine
"The Wood Universal"

It is tough, yet easily worked and equally as durable as many mineral substances often advocated for farm buildings. It is one of the most inexpensive woods known for your purposes. Furthermore, you can get it easily and quickly any place east of the Mississippi. Write today for our 160-page book on Farm Buildings. It will not cost you one cent and you will find it crammed with money-saving hints. Sells regularly for one dollar.

North Carolina Pine Association
Norfolk Virginia

State Board of Agriculture Meeting

Rural Mortgage Credits

The 39th annual meeting of the Pennsylvania State Board of Agriculture was held at Harrisburg, January 26 and 27. There was a full attendance of members but few farmers not directly or indirectly connected with the work of the Board. The day sessions were given over largely to reading of reports by the consulting specialists and standing committees. The purpose of these specialists is to investigate conditions thruout the state and make recommendation to the Board of conditions and needs. It must be said, however, that this purpose has largely been lost sight of and reports are resolving themselves into formal statements with an occasional general recommendation whose value is lost because of lack of discussion and formal action. The committee appointed at this session to outline the duties of the Board will do well to consider means of reviving and invigorating the work of these specialists and committees.

The session just closed brought the new Secretary of Agriculture, Mr. Patton, in touch with the Board for the first time. He was well received and his plea for co-operation with the Department of Agriculture met with favor. The Governor also gave more time to the meetings than has been accorded by previous governors. All members showed appreciation of this interest, but there were many expressions of regret that this same interest in the real practicing farmers has not been shown in the Governor's appointments in the Department of Agriculture.

Rural Credits

The feature of widest and most timely interest was the address on Rural Credits, given by Hon. Ralph W. Moss, of Indiana. Mr. Moss was a member of the U. S. Commission sent abroad to study rural credits and marketing, and is one of the foremost authorities on this subject in this country. He is sponser for House Resolution No. 6838, now before Congress, which provides for a system of mortgage credits and which is ordinarily taken as the basis of legislation on this subject. He is also a farmer. His address was confined largely to the provisions of the Mortgage Credit bill, which he outlined as follows:

The bill would create a national system of mortgage banks to be operated by a federation of farm borrowers, organized as a co-operative association. It would authorize a separate system of mortgage banks, organized as corporations and controlled by private initiative. The entire system would be put under the control of a non-partisan farm loan board consisting of five persons appointed by the President. This board would divide the country into twelve banking districts and organize a land bank in each district; this number to be increased as the system grows. These land banks would be required to have a subscribed capital of $500,000 before opening for business; capital to be subscribed by individuals corporations etc., if possible, and if not, by the Federal government. Government funds so used would be returned later out of subscription to capital stock made by the borrowers.

These land banks would then conduct their business thru local loan associations to be organized by farm borrowers in every neighborhood. Ten or more persons might organize such an association, each member owning land and desiring to become a borrower. Each such member would have to subscribe for stock in the local association equal to 5 percent of the face of his loan and the local association would make an equal subscription to the capital stock of the land bank. Thus the bank capital would grow in proportion to its business, always bearing the ratio of 1 to 20, and except the original $500,000, all stock would be held in trust by the local association. Whenever a member paid off his loan, the land bank would pay back at par his subscription to stock and cancel his shares.

The whole system would be controlled by the men who were actually borrowing money. All voting power would be held by members of the local associations and each borrower would terminate his membership when he paid off his loan. The local association would pass on the character of the borrower when he applied for membership, and thru its loan committee, would make an appraisal of the land offered as security. This local appraisal and recommendation would be forwarded to the land bank with the application for loan. The bank would send its appraiser, a government employe, to re-appraise the land. The loan could not exceed 50 percent of the appraised value. The land bank would then send the money to the local association which in turn would pay it over to the borrower. Likewise, the borrower would make payments to the local association which would forward payments to the land bank.

As mortgages accumulate, the land bank would deposit them in amounts not less than $50,000 with an officer of the Farm Loan Board who would hold them in trust as special security against an issue of bonds. The Farm Loan Board would cause an appraisal to be made of the mortgages and issue permission to the land bank to issue bonds. Such bonds would be free of federal and local taxes, would be secured by first mortgage on improved real estate twice the value of the face of the bond. would be secured by capital stock of all the local associations and by capital stock and reserves of land bank issuing them and further secured by assets of every other federal bank in the country, insuring ready sale of bonds.

The land bank would be permitted to charge borrowers 1 percent higher rate on mortgages than the bank pays on its bonds. This would constitute the income of the bank from which expenses would be paid, reserves built and dividends declared. The greater the income of the banks the higher would be the dividends paid to borrowers, because all surplus earnings would have to be distributed to the borrowers. No person would be granted a loan of less than $100 or more than $10,000. Loans would be made for a period of not less than 5 or more than 35 years, to be payable in fixed semi-annual installments so that all payments would be of equal size and include both interest and principal. Compound interest would be computed on reduction of the debt, so the borrower would not only reduce the debt in the amount which he applied on the principal, but he would also receive interest upon interest. The rate of interest will depend upon several factors, but Mr. Moss predicted that under this law farmers would be able to borrow money at a rate of 5 percent which would extinguish both interest and principal within a period of 35 years. The loan could not be foreclosed as long as contract payments were made, but the borrower would be given the privilege of paying off the loan in whole or in part at any interest period.

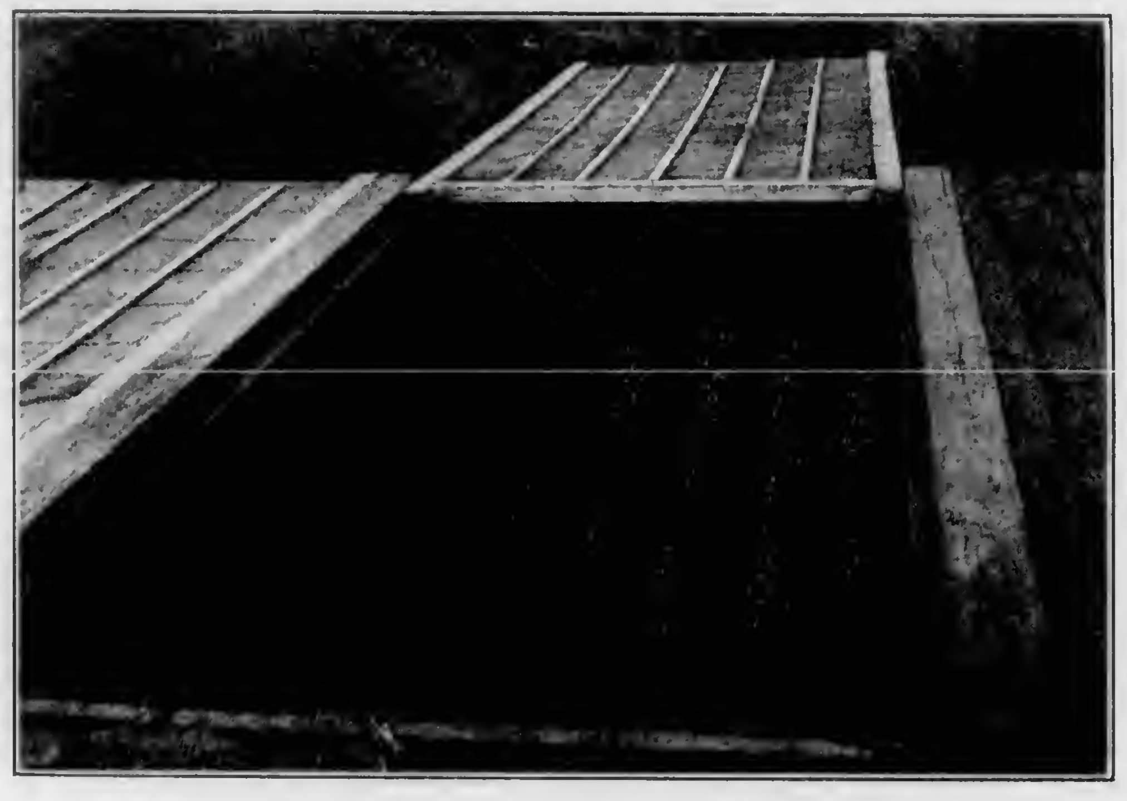
Growing Early Tomatoes-III

From Seed to Market

By C. C. Hulsart, Monmouth Co., N. J.

Transplant Beds or Cold Frames

There is more variation in the making of transplant beds by practical growers than in the making of hotbeds. In fact, the making is not quite so particular. If the grower has a good healthy, vigorous seed plant to transplant it will grow, provided it is set in a good growing soil and is kept sufficiently above the freezing point to permit growth. I make the above statement because some men who try to grow the tomato plant for early fruiting fail more often than they succeed, and wonder why. Because a tomato plant in a transplant bed does not die and grows some under glass is no guarantee that it will fruit as early and as profusely as one properly grown. Hence many failures among some tomato growers who are inclined to be more or less careless. The young seedling tomatoes should be ready to transplant to the transplant bed when about a month old. They can be grown so rapidly that they will be large enough for transplanting sooner than this, but it is not wise to force the plant while in the hot-bed. Grow them slowly and naturally and harden them off a few days before making the change.



TOMATOES IN HOTBED, READY TO TRANSPLANT.

My ideal way of making a transplant bed is to have my frames the same as for a hot-bed, but with no excavating done to speak of. We excavate perhaps one or two inches to level up the bottom. Then we put in about 3 inches of fresh warm horse manure and pat down level. Then we proceed as recommended for the hotbed, using the same top-dressing. When completed, work off each way with a small sled made for the purpose, 4 to 4½ inches, each way. Spacing 4 inches will do, but 4½ inches is better and gives a stronger plant usually. As there is but little heat expected from so small an amount of manure, and knowing the top soil used is yet cold, it is wise to put on sashes and let these beds stand for a day or two and let the sun warm them up some. If young seedling tomatoes, egg plants or pepper plants are taken from a fairly warm seed bed and transplanted into a fresh-made bed that is yet wet and cold, the damping-off fungus will claim a goodly number; particularly so if there is not much sun shining at the time.

If plants wilt badly when first set, shade the sashes partially for a day. It does no harm for the young seedlings to wilt some. I frequently set them and do not have to shade at all. If the top dressing used on the beds is not over wet when beds are made, it is well to give the young plants a watering as soon as they come up straight, which will be the following morning after setting. All plants still lying on the ground at this time had better be re-set at once.

It will probably be nearly or quite a week before those plants show much signs of growing, but as soon as they do they should be given air by raising sashes on the high side and placing an inch block underneath. As the season advances and days become warmer and plants are larger, more ventiltion must be given. This I do by turning my blocks edgewise giving two inches space and placing them in the center, lengthwise of the sash, raising the sash on that side away from the wind so the air draws over the sashes and not into the bed.

Watering

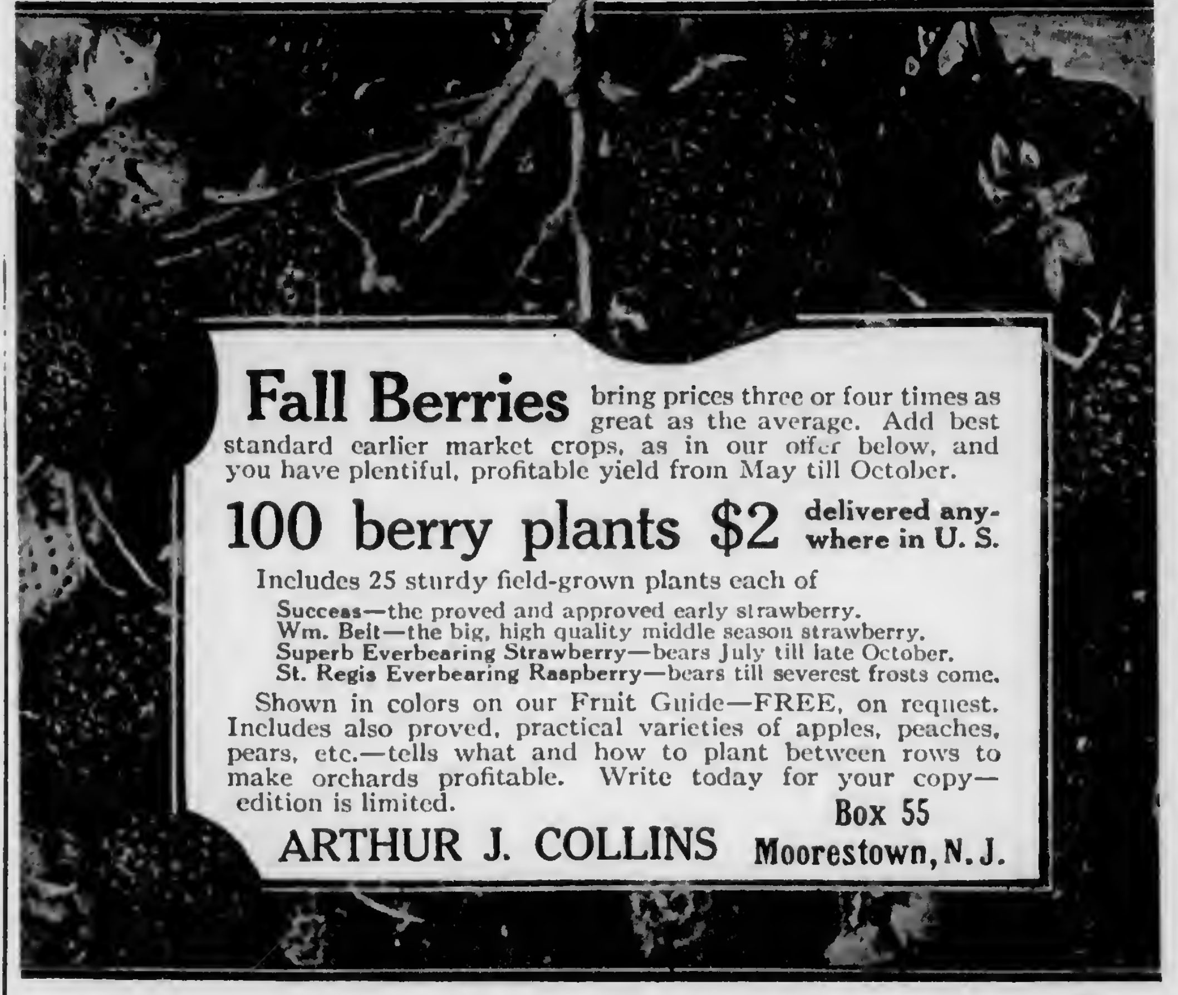
Too many fail to realize what an amount of water is required to wet thru 5 inches of soil once it becomes dry. Hence we frequently see plant beds suffering for want of wetting. I do not advocate a saturated soil, but insist that no plant can do its best in a dry soil. Therefore when watering is needed, put on enough to wet down to the roots. One good wetting is worth half a dozen make believes that only wet the top surface for half an inch.

When the weather becomes settled, on warm sunny days remove the sashes entirely. Keep them off for a short time at first, but as the plants grow larger and they become accustomed to it, leave sashes off all day. Towards the end of their stay in the beds the sashes should be discarded altogether, both day and night. As long as frosty nights occur the sashes must be covered at night to keep out the cold. Some use straw mats, some marsh hay and some heavy canvas. Anything will do that protects from the cold and is easily handled.

Trimming the Plants

This has to be done to insure a short stocky plant. Cutting the leaves from a plant does not make it grow more stocky, but I do know that where trimming is not done the plants soon become so matted together that they run up very rapidly because of the shaded and crowded condition. Trimming is done to let in sunlight and prevent this running up; and it does the trick, too. Do not begin to trim until there is danger of too much shade, and then trim enough to keep them open.

COLLINS' FRUIT GUIDE



Fall Berries bring prices three or four times as great as the average. Add best standard earlier market crops, as in our offer below, and you have plentiful, profitable yield from May till October.

100 berry plants $2 delivered anywhere in U. S.

Includes 25 sturdy field-grown plants each of

Success—the proved and approved early strawberry.
Wm. Belt—the big, high quality middle season strawberry.
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JUST off the press—a great, big, 12x9-inch, 4-color Book. Filled from cover to cover with photos of leading Fruits, Berries, Roses, Ornamentals. Illumined with pictures taken from life of orchards that are yielding fortunes for their owners. Every page bristling with facts showing you how you, too, can raise fruit with both pleasure and big profits. A masterpiece of the printer's art—*printed in Nature's own beautiful colors.* **FREE** for your name and address on postcard.

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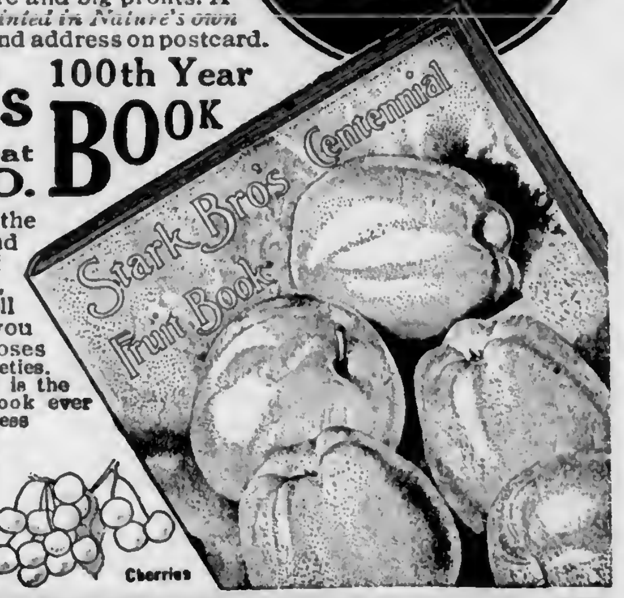
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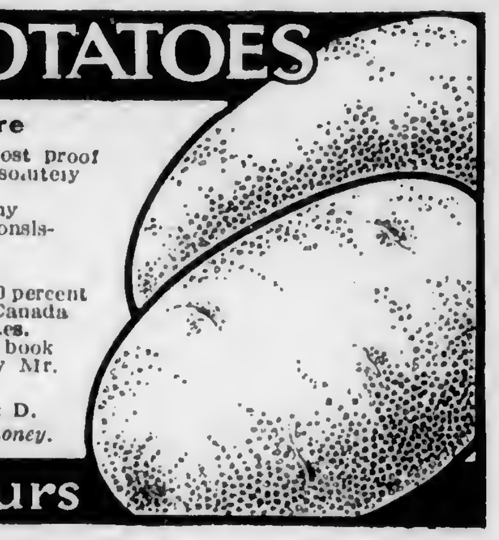

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FRUIT TREES SMALL FRUITS IN LARGE OR SMALL LOTS AT GROWER'S PRICES, direct from nursery to planter. Safe delivery, personal attention and satisfaction guaranteed. APPLE TREES TOP BUDDED TO FIVE VARIETIES—just what's needed for the home garden. Buy at rock-bottom prices of the grower and save disappointment at fruiting time. Get our illustrated catalog, mailed free upon request. **SHRUBS ROSES**

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"Adheso" stays where it will do good, and is not washed off on the ground, where spray chemicals are worthless. Made of our "Triangle" Brand Arsenate of Lead and Copper Hydrate, the only chemical of value in Bordeaux Mixture. "Adheso" gave over 99 per cent clean apples this year. Potato growers got 20 to 64 bbls. more to the acre than with Bordeaux. Unequalled on Grapes, Cherries, Peaches. Oldest Spray makers in the U. S.

Write for details and prices.

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For the planter who wants nothing but the best, we offer, at reasonable prices, stock that will produce exactly what he has a right to expect.

Our leaders are: Peach Trees, (original stock furnished by N. J. Exp. Station) Apples, including "Delicious" and 75 others. Hardy Indiana Budded Pecans and Small Fruits.

CATALOGUE FREE

It describes a full line of fruits and ornamentals, makes no extravagant promises, and the prices are right.

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Every farmer and fruit grower should have a copy. Learn what Northern grown trees will do in your orchard. Backed by 37 years experience and guaranteed. Send for this

1916 Orchard Catalog

of our own-grown apple, peach, pear, plum, cherry and quince trees. Also small fruits, ornamentals and shrubs. All well-rooted, clean and thrifty. Large, firm texture, hardy, and vigorous. Explains our Service department. Gives planting directions, plans for farm or suburban garden, etc. Write for your copy to-day.

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GOOD AS CAN BE GROWN

Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

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Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.

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As Certified Growers for 25 years our guarantee means Honest Trees, at half agents' prices. Handsome catalog free.

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Grow the Big Berries

Just as easy to have big fruit as it is to have small stuff, but you must set the right plants. We have them, and in OUR 1916 CATALOG tell how you can grow fine fruit. Peaches and Apples are also described. Write today for free copy.

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CLOVER AT WHOLESALE prices. We save you money. Buy now before advance. Crop shortest known. We expect higher prices. Don't buy Field Seeds of any kind until you see our samples and prices. We specialize on high quality, tested Clover, Timothy, Alfalfa, Sweet Clover and Alsike; guaranteed the best, sold subject to your approval and government test. Write today for samples and special prices and big Profit-Sharing Seed Guide. AMERICAN MUTUAL SEED Co., Dept. 130 43rd and Roby St., Chicago, Illinois.

By the time the plants have been in the transplant bed three weeks they should show blossom buds freely, and in a month's time some bloom should be open. This is about the age for them to go into the field—from a month to five weeks. At this time they should be well hardened off, as stout as a lead pencil and not over 10 inches high. The next article will discuss field work and harvesting.

Timely Fruit Notes

By Dr. J. P. Stewart

Use of Old Lime-Sulphur

"I have a barrel of lime-sulphur in my barn. Is it liable to be damaged by freezing? If so, how can I tell if damaged when I use it?" S. L. M., Elk County, Pa.

In answer to this question, would say that freezing will not injure lime-sulphur, but exposure to air is liable to result in considerable evaporation, and also in the formation of a considerable quantity of solids or crusts. If the crust and other solids are strained out and the remaining liquid tested with a satisfactory hydrometer and diluted accordingly, there should be no difficulty in using. Full directions on making and diluting lime-sulphur are given in Bulletin 115 of the Pennsylvania Experiment Station at State College, Pa.

Value of Carbonate of Lime

A grower in the northern part of the state wishes to know whether it is advisable to purchase carbonate of lime at 75 cents a ton, f.o.b. shipping point, and also inquires how it compares with ground lime.

In reply, would say that carbonate of lime is nothing but ordinary limestone, and if it is pulverized finely enough and does not contain too much magnesia, preferably not over 40 percent, the price named should be very satisfactory. It requires 100 pounds of this material, however, to equal 56 pounds of pulverized burnt lime.

In regard to the composition of any particular brand of lime that is now being offered by any firm in the state, I would suggest that satisfactory information can be secured from the Secretary of Agriculture at Harrisburg, because of the fact that we now have a law in operation in this state, which exercises control over lime, as well as of fertilizers to be used on land.

Means of Predicting Frosts

"How early in the day can a hydrometer be used to indicate probable lowest temperature of the night to come?" S. L. M., Elk County, Pa.

In answer to this question, would say that the instrument for determining the probability of frost is not a hydrometer but a psychrometer. It is also sometimes referred to as a wet-and-dry-bulb thermometer, or a wet-and-dry-bulb hygrometer. The old rule was that frost was likely to occur if the dew point as determined by this instrument fell below the freezing point at about 4 P. M. This method of frost prediction has apparently proved of some service in certain localities in the west, but it now seems to be generally regarded as unreliable in the more humid eastern states. In the latter sections, the forecasts issued by the Weather Bureau are the most reliable indications. When they can not be obtained, it is probable that the local indications, as determined by a careful observation of the condition of the sky, the direction and force of the wind, and the general trend of the evening temperature must still form the chief reliance of the fruit grower.

Value of the Scale Parasites

A fruit grower in another state has heard about the scale parasites in Pennsylvania and writes in to inquire whether or not they have been of real service and whether it would be possible for him to get some of them.

This is a subject upon which there has been considerable debate during the past three years. The actual facts, however, seem to be about as follows. In the summers of 1913 and 1914, the parasites of the San Jose scale became very numerous in certain parts of Pennsylvania, chiefly the southeastern counties. In many orchards during that time, they reduced the scale to apparently negligible proportions. As soon as these orchards were practically free, however, parasites evidently were compelled either to move on to other infested orchards or else to perish for want of proper and sufficient food.

One result of this is that the present area of activity on the part of the parasites is considerably west and north of its starting point and now seems to be chiefly confined to a rather narrow belt ranging from the general vicinity of Bedford, around past Altoona, to the neighborhood of Williamsport and probably beyond. The orchards and infestation are less numerous here, so that the further important progress of the parasites is still a matter to be determined. Another important result is that the orchards left behind are again becoming seriously reinfested with scale. This is because it is practically impossible, as well as inadvisable, for any parasite to pursue its prey to total extermination. Some of the parasites may also be left, and if so they will doubtless again rise and subdue the scale, but not until it has done considerable damage.

The chief conclusions therefore are (1) that the beneficial effects of the parasites are now only temporary in any given orchard. (2) This condition can only be remedied by developing some method of maintaining a satisfactory supply of the parasites over the lean years. (3) Until this is done, the chief reliance of all growers must continue to be efficient spraying with the right kind of materials to keep the scale in check.

At present also it is very difficult to locate any considerable number of twigs that are definitely known to be infested with the parasites at the time of collection, and until this difficulty is removed, the opportunity for successful artificial distribution of the parasites is very limited.

Soluble Sulphur Sprays

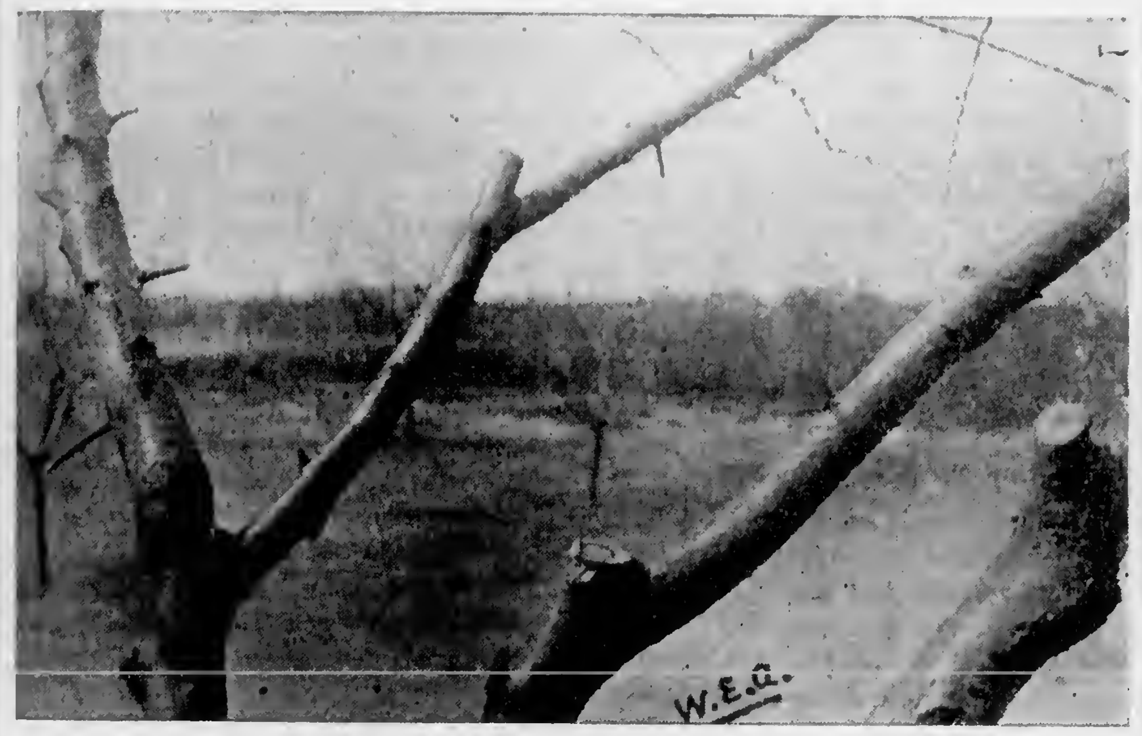
A grower in Southeast Pennsylvania has been reading some of the recent advertisements and writes in to ask what our experience is in regard to certain dry, powdered, sulphur sprays. He also asks whether they have any advantages over the ordinary home-made lime-sulphur.

In answer, we must first call attention to the fact that none of these powdered materials that have yet come to our attention are lime-sulphur. Most of them are soda-sulphur compounds and one is a compound of barium and sulphur. This is important because all the spraying experiments that we have conducted during the last six years have shown that any spray material which contains appreciable quantities of either soda or potash, is very unsafe for use as a liquid spray during the growing season, when it is combined with any of the present arsenicals. This is especially true in the case of peaches and most stone fruits, and the injury is usually sufficient on any kind of fruit to warrant the greatest caution in its summer use.

This opinion was fully confirmed in a number of tests that we made during the past summer in which the newer soluble powdered materials were used. When combined with arsenicals, none of the soda-sulphurs failed to result in severe burning, except when they were partially washed off by rain, before the applications had become dry. Several cases also of the total destruction of crop and of severe injury to the trees in the case of peaches, were brought to our attention by commercial growers who had attempted to use this combination during the past season. With the barium compound, our own experience indicates a similar danger in the case of peaches at least, altho it is usually less severe in its results.

It is possible that these new sulphur compounds can be used with fair success in the dormant applications against scale, but even this point is not yet as fully established as it should be before substituting them for standard lime-sulphur sprays which we know will do the work.

In conclusion therefore, we would simply say that while the dry soluble powder is undoubtedly a desirable form for the commercial materials, yet we do not believe that any of the present forms are the full equivalent of the regular lime-sulphur solution, and until this full equivalent does appear it will be best to continue the use of the well-established sprays, which may either be purchased or made up at home.—Dr. J. P. Stewart, State College, Pa.



SOME EXAMPLES OF BAD PRUNING.

Lessons of the Season

(Continued from last week.)

In the Garden

In the garden business this season the fact was brought out more clearly than ever that there is very little money to be made during a wet year. The good gardener today is the man who stores up in his soil all of the vegetable matter that he possibly can, so that he will be able to hold the moisture during the dry year. The man who will not watch the moisture-holding content of his soil has no place in the garden business; during a season when any darn fool can produce vegetables the profits are few and far between. I don't care whether you get your vegetable matter from sods, manure or cover crops; but be sure you get it. This is not only true in gardening but in all other lines of farming as well. If the farmers of this country are going to maintain the productive capacity of their soil, the organic content must be taken into consideration far more seriously than it has heretofore.

Use of Manure

The farmers of this state are preserving their manure better today than ever before but we still have much to learn concerning the intelligent application of it to our crops. My experience has been that the farms which are increasing in fertility most rapidly are those upon which the greater portion of the manure is applied to living grass roots. I am satisfied that we are not paying nearly enough attention to the action of living roots upon the soil. We talk a great deal about the importance of thoro tillage before a crop is planted, but we seem to forget that when we have a growing sod we have tens of millions of cultivators working all the year 'round in the form of tiny rootlets that are making the soil more friable than man ever could with all of his improved machinery.

When we stimulate this root action we not only increase the pulverizing and cultivating effect upon the soil, but at the same time we increase the organic content which is its very life. Any man who has turned down a good heavy sod in comparison with a thin spindling one and has watched for results on the two fields needs no further proof. The same thing is true of a good cover crop and if thru any mistake I fail to get a good cover crop, I consider it one of the greatest mistakes that I could possibly have made.

In but a few more months and the rush of the spring work will be upon us. Let us grasp the handles of the plow with a strong heart and a smile upon our face. Next year the sun will not always shine nor the rain descend when we think best; we will make many new mistakes to discourage us, but let us always remember that the Great Sower and Reaper of all things works in a mysterious way and that after all it is from our own mistakes that our most valuable lessons are learned.—Sheldon W. Funk, State Farm Advisor in Fruits and Vegetables.

IS STAYMAN THE IDEAL APPLE?

Probably the Stayman Winesap apple has been more generally planted in the east than any other variety. It has been heralded as the best if not the ideal apple. Recently, some dissenting opinions have been expressed. Let us hear your opinion. We invite you who have had experience in growing, selling, storing and using this variety to give us your opinion in a short letter. Has this variety been too largely planted? A certain nursery expresses the following:

"It is my business to grow this tree and possibly presumption for me to set up my opinion against that of successful fruiters and Dr. Staymans, its orginator, said, 'The time will come when all will want it' and that time seems to have come, but I do not think it is as great an apple as it's friends claim for it, and time and again I have seen boxes of fruit come into local stores, labeled WINESAP and which when opened up proved to be Staymans. Now that is significant. Specimen fruit is well colored and quality is always good, it thrives on poor soils, when Winesap does not, but the average of the fruit is too big and it lacks color. We grow more Staymans than any other variety, but in the back of my head there are a good many question marks about Staymans."

The Improved Riggs Markers

Made in Two, Three and Four Row sizes. They have been on the market many years, and have established themselves for Reliability, Durability and Usefulness. They make any width of rows and depth of furrow. They leave a mellow seed bed. No up-to-date Farmer can get along without one. If you cannot buy our goods of your regular Dealer, write us for free Catalogue and prices.

We also manufacture The Perfection Six-Row Sprayer, and the Improved Riggs Plows.

Thos Peppler, Son & Co., Hightstown, N. J.

"DOMESTIC" HILLSIDE SPRAYER

A new sprayer complete for any purpose, but indispensable for the man with a hillside orchard. Steel frame hangs 1 ft. from ground. Easily drawn; front wheels cut under for short turning. Pump capacity, 600 gallons per hour, 150 lbs. pressure. Spray mixture automatically agitated, and there's enough pressure to do the most thorough work. Domestic sprayers are known as "The Quality Line." Our interesting booklet, "Important Information about Spraying," contains spray calendars, formulas and other valuable information. Send for it and tell us your spraying necessities. Also gasoline engines and pumping outfits.

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The Chinese Woolflower

Introduced by us last year has proved a great success everywhere and a most wonderful floral novelty. It is a Celosia of new form and easy growth. Plants throw out scores of branches bearing balls of crimson wool nearly a foot thick. Also many laterals with smaller heads, and fresh green foliage. Flowers form in June but none fade before frost, continuing to expand and glow with its wonderful crimson-scarlet color, very showy and succeeds anywhere.

Seed per pkt. 10c., 3 for 25c., together with new TRAILING PETUNIA AND ANNUAL SWEET WILLIAM (fine novelties) free.

Our Big Catalog of Flower and Veg. Seeds, Bulbs, Plants and rare new Fruits free. Write for it.

JOHN LEWIS CHILDS, Inc., Floral Park, N. Y.

Inoculate Your Seed for Legumes with

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Our name is your guarantee.

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Philadelphia, Pa., February 12, 1916

BEWARE HIGGINS CIRCULATION BUREAU

Readers are warned against paying subscriptions to Pennsylvania Farmer to agents of the Higgins Circulation Bureau, of Columbus, O. We have received a number of letters recently from farmers who have paid for subscriptions to these agents and have not received their paper. Such subscriptions were not reported to us by the agents or the Higgins Bureau. Protests to the head office of the concern have brought replies indicating that the officials are as irresponsible as their agents. They state that they have never authorized their agents to take subscriptions to Pennsylvania Farmer, but show no disposition to stand responsible for the acts of their agents. The only conclusion is that the entire organization is unsafe and readers will do well to avoid paying money to their agents for any publication. We will make good any subscription to Pennsylvania Farmer paid for in good faith and seek legal means of protecting ourselves against the operations of this concern.

FARM HOME ACCOUNT KEEPING

On page 21 of this issue is an article on "Cost Keeping in a Farm Home," that handles a live problem in a practical way. Farmers are learning that if they want to get ahead, not run behind, they must keep some figures to locate where the leaks come, and that they must count the income and the outgo the same as other business men do. And as a very important part of the outgo is thru the housekeeper's hands, it is equally advantageous for her as well as for the farm and family to keep such accounts. Perhaps if more farm wives kept accounts of their housekeeping expenditures, which should include everything expended on and in the house and for the family food and clothing, together with the money value of the housekeeper's labor and time, and of the poultry or other products that she raises, there would be far fewer reports of husbands grumbling over what their wives did with "that last $5" given them, and fewer discontented wives; because the figures would be very liable to show that said $5 went about twice as far in the housekeeper's spending as in the purchase of the average farm supplies. The farm woman who kept the accounts explained in the article referred to has certainly shown that this family manages the home cost cleverly to keep it down to less than half of the farm income. However, we note that she has not included the family clothing, nor the books and papers, which, we think, should very properly be included. We wonder how many other housekeepers among our readers keep household accounts, and how they do it. Let us have your experience for comparison. This is a profitable field for study. Come into our columns and talk it over.

BUTTER INSPECTION

Congressman Mann, of Chicago, is reported as advocating a federal law calling for federal inspection of all butter entering into interstate shipment. He claims that as all substitutes for butter and all meat products are subject to such inspection, the 800,000,000 pounds of butter consumed in this country every year should be similarly inspected. The possible transmission of tuberculosis thru butter is given as the basis for his demand. Before subjecting butter to the expense of such inspection, which must eventually be borne by the consumers, it would seem wise to determine absolutely whether or not there is possibility of transmission of tuberculosis thru this product. The dairy industry has suffered more from the foolish agitation of possible and probable contamination of its products than by laws based upon established facts. More harm has been done by profitless theorizing on tuberculosis and its possible spread thru animals and animal products than on any other disease, and it is a question if the injury by way of increased prices and curtailed production has not been greater from doubts and suspicions raised by such theorizing than from actual legislation. Knowing Congressman Mann's position on the oleo question, it is easy to read his real purpose in this agitation. It is but another move to advance oleomargarine as a substitute for butter. It is well to remember that every oleo manufacturer claims that his product is churned in milk in process of manufacture, and oleo is as likely to carry the germs of tuberculosis as is butter, a condition that is highly improbable in both products.

EASTERN BEEF

On another page of this issue we publish an article asking some pertinent questions on the possible profits of raising beef cattle in the East. The discussion is timely. There is a general demand that eastern farmers devote more attention to growing cattle and more particularly to fattening cattle. This demand comes from those who would seek to increase the supply of beef for city consumption, as charged in the article referred to; and also from those who are genuinely interested in the welfare of the farmers and would see the farmers profit by diversifying their systems of farming. Certain counties of the state have fed cattle for years and are still feeding even tho the actual profits are small. The cost of feeders has advanced more rapidly than the price of finished beef, and the narrowing margin is at the expense of cattle feeders. The business of producing feeders on the large areas of the state that are suitable only for pasturing purposes would seem worth investigating. We would like reports of the experience of farmers in growing feeders as well as in feeding cattle for the beef markets. There is little to be gained by abstract arguments for or against the practice of breeding or feeding any class of live stock. Let us have figures and concrete examples of what is being done and what may be done. If either branch of the industry promises profitable returns there will be no difficulty in increasing the production. If both are hopeless, farmers want to know it, and, further, they want to know why it is not profitable at a time when beef prices to consumers are constantly increasing. It will also be interesting to know in what sections the farmers find no market for their surplus beef and pork because of lack of local buyers. The work of "systematizing" the live stock buying, killing and packing business has put many local buyers out of business and in some places has destroyed the local markets. How many of our farm sections have suffered from this condition? Are the packers now complaining of a condition which they helped to bring about by selfish and short-sighted policy? Have they killed the goose that laid the golden egg? Let us have the experience of farmers who have tried the beef cattle business.

FARMERS AND COMPENSATION

We find a great deal of discussion on the compensation laws now on the statute books of Pennsylvania, New York and New Jersey. The law as passed by the Legislature in Pennsylvania exempts farmers; that is, farmers who are engaged in general farming and not conducting any branch as a specialty such as fruit growing, dairying, poultry raising, etc. If a specialty is the leading business and some general farming done as a side line, they are subject to the compensation law and are required to take out insurance for employes. The discussion at the late state horticultural meeting showed a strong desire to have all agricultural pursuits exempted. There were resolutions passed at the meeting of the State Board of Agriculture last week in Trenton, where the New Jersey law includes farmers, to have an amendment passed exempting farmers and domestic servants. With these discussions and resolutions in mind we are aware that what we are about to say may not meet with the approval of our readers. Nevertheless, we feel it our duty to express a few sentiments that seem to be overlooked in these discussions. First, since compensation to laborers for injury or loss of life seems to be accepted as a sound and just economic policy, why should we not have a system of graduated state insurance with no trade or occupation wholly exempted? The ultimate cost of or loss by disablement is born by the public anyway. Such a plan would meet the objection of farmers that they have no way of adding the cost of insurance to the price of their products as have other classes. Second, we are opposed on general principles to farmers asking for, or receiving special or class favors. It is questionable from a moral standpoint, and in the long run tends to weaken the cause of agriculture. Third, labor will tend to avoid any vocation in which it does not stand on a par with others and feel equally safe and protected. The scarcity of labor in times of prosperity is now one of the chief drawbacks in agriculture and we feel sure that such exemption will tend to increase that scarcity. While saying these things we have vividly in mind the disadvantages under which farmers are laboring, both economic and legislative, but we cannot see how they can be bettered by enacting that which is unsound in principle. In any event, let the discussions be broad enough to cover all phases of the question, and not stop at the consideration of the immediate cost and present conditions.

RURAL CREDITS

On page 4 of this issue we publish a very brief outline of the Mortgage Credit bill now before Congress. The outline is as presented by its author, Hon. Ralph W. Moss, before the recent meeting of the Pennsylvania Board of Agriculture. This bill, known as H. R. No. 6838, comes the nearest to real rural credits of any of the systems proposed. We have felt that many of the claims advanced for the need of rural credits were greatly exaggerated, at least as applying to the old established sections of the East. We still believe that many of the plans advocated, particularly those providing for various degrees of state and federal aid, are the product of ambitious and aspiring politicians rather than the result of a well defined rural demand; and as such are dangerous rather than helpful. State or federal aid to any single industry is demoralizing. Special privilege and special concession are not sought by farmers generally, and any attempt to foist an elaborate federal-aid system upon the country should be repudiated by farmers. The Mortgage Credit bill is not a federal-aid measure. It provides for a system of land banks which shall be self-supporting after once established, and with which farmers may do a straight banking business at, presumably, a low rate of interest and with long-time credits and amortization features added. If there is an actual need of a special rural credit system, and data seem to prove that the need is acute in some sections, then this Mortgage Credit bill would seem to be the best yet proposed. It combines a number of features that are held by the older countries of Europe to be absolutely essential to success of rural credits. The requirements of local loan associations and the power of appraisal and local supervision given these local associations introduces a co-operative feature which is not only helpful but exercises a necessary check upon the borrowing and the use made of the money borrowed. The local loan association plan puts the proposed system on a basis similar to the building and loan association system, which has demonstrated its practicability. The amortization feature is essential and, as outlined, appears sound. The method of making each payment cover a part of the principal as well as the interest is the feature which lifts the proposed loan from the slavery of the ordinary mortgage loan. Obligations to pay a certain sum at stated periods for a definite period of years makes the process comparable with life insurance, which is one of the surest systems of savings. The rate of interest under this proposed plan is as yet unknown. It will depend, apparently, upon a number of conditions, the principle one being the rate of sale of the land bank bonds. The rate of interest must be 1 percent higher than banks pay on bonds sold. This means that bonds must pay at least 6 percent to enable banks to loan at 5 percent, or sell at 5 percent to permit a loan rate of 4 percent, etc. The absolute safety of the bonds should insure ready sale at a low rate at all times, but just what that rate may be is a matter to be determined by time. The system as provided for in the bill would seem to meet the essential needs of a rural credit system and is certainly safer than most of the plans now being proposed. Farmers and farmers' organizations interested would do well to secure a copy of H. R. No. 6838 from their congressmen and make it a matter of special study. It will require the support of the farmers to become a law.

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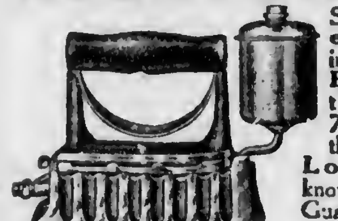

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HARRISBURG NOTES

To Settle Legality.—Early steps are to be taken by the State's Attorney general to determine whether there is any question of the legality of the new Commission of Agriculture and if it is found that the reports current are correct the next general assembly will be asked to straighten them out. There are also rumors heard on Capitol Hill that while the legal officers of the state government are working on the problem they may be called upon by the governor to make ready for some further changes in the department "devoted to the advancement of agriculture." One story is that authority is to be asked to create additional bureaus as needed, it being the plan, as indicated heretofore, to gradually work out a department which will specialize in what are coming to be considered as the big problems in food supply. The commission has authority to do this now, but the appropriations for the department were smitten by the governor last spring along with others and there are no funds available to undertake any new projects

The Keynote.—One of the most striking addresses of those heard here recently on "Rural Conditions" was by Superintendent O. G. Welfling, of the Potter County schools. In addressing the State School Directors in their annual convention he said the rural districts needed study and practical aid, not talk and advice with nothing to back it up; and that the rural schools were in need of teachers who were conversant with the needs of the country side, who knew rural folks and who could help with agricultural education and in developing farm social life rather than specialists in dead languages.

Schools Away Behind.—As a striking illustration of what has been brought about by the financial condition of the Commonwealth it may be stated that if the State Treasurer were to be called upon tomorrow to pay all the money due to school districts for support of schools he could not do it. The active fund of the state, stripped of bookkeeping terms, is less than a million dollars. There are a good many districts which are wholly rural in the list of unpaid. This condition is due to creation of special funds, diversion of what were formerly state revenues to counties and to the method of approving appropriations.

The Marketing Problem.—The state ought certainly to benefit from the studies inaugurated into the marketing proposition the last month. A committee of the new commission of agriculture has been started to find a plan whereby farmers can be apprised of better markets, while deputy secretary Carothers has taken steps to work out the way the department can help, being authorized to co-operate with the experts in the state service. At the same time the results of such investigations by the federal and other state governments are being sought by people at the Capitol.

The Coal Price Probe.—If the plans as outlined at the Capitol are carried out, the state administration will have a great chance to recover for the users of hard coal the money exacted by dealers under the guise of anthracite tax. The plan is to go into the increase back to its source and either secure return of the money collected or else credit for the sums paid. The Commission has a year in which to work.

PENNSYLVANIA FARMERS' INSTITUTES

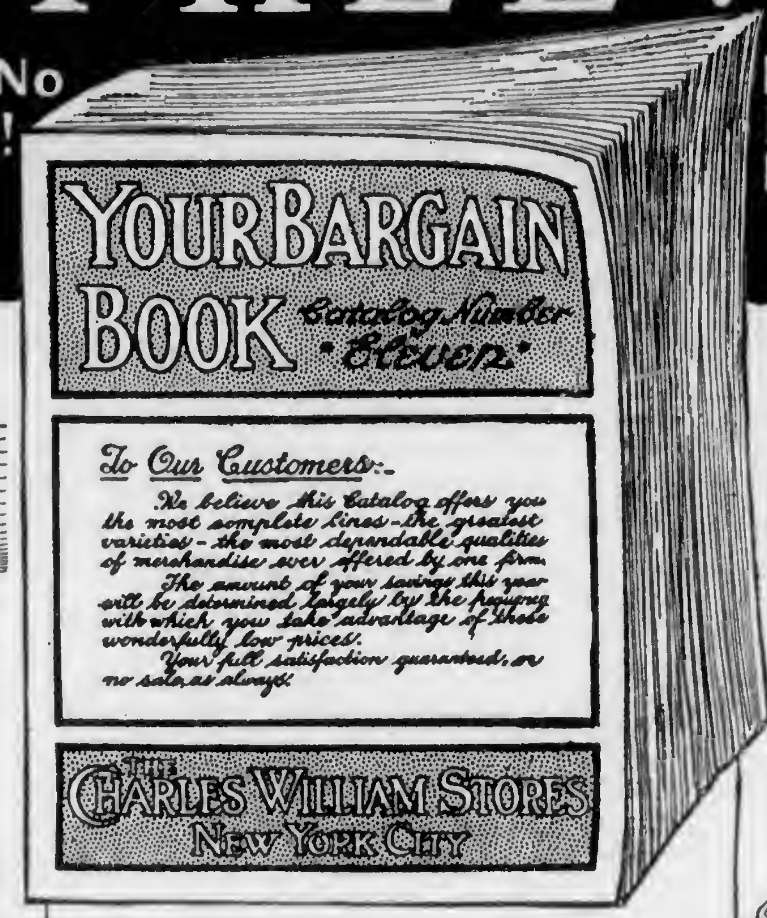
First Section. — York Co., Dover, February 14, 15; Loganville, February 16, 17; Red Lion, February 18, 19. Speakers, Sheldon W. Funk, E. L. Phillips and Chas. F. Noll.

Second Section.—Mifflin Co., Milroy, February 14, 15; Juniata Co., Richfield, February 16, 17; Port Royal, February 18, 19. Speakers D. H. Watts, M. H. McCallum and W. Theo. Wittman.

Third Section.—Venango Co., Rockland, February 14, 15; Dempsytown, February, 16, 17. Crawford Co., Cochranton, February 18, 19. Speakers, E. B. Dorsett, F. H. Fassett, Fred W. Card and Geo. E. Hull.

Fourth Section.—Elk Co., Weedville, February 14, 15. Jefferson Co., Zion Church, February 16, 17; Beachwood, February 18, 19. Speakers Wm. H. Patton, Dr. Hannah McK. Lyons and J. Stuart Groupe.

Fifth Section. — Montgomery Co., Trappe, February, 14, 15; East Greenville, February 16, 17. Delaware Co. Village Green, February 18, 19. Speakers, J. T. Campbell, Leon Otice Van Noy and C. C. Hulsart.



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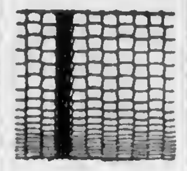

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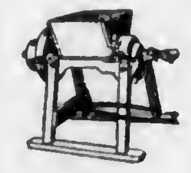

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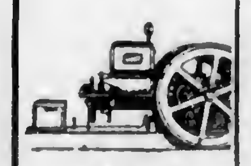

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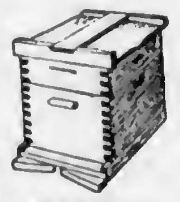

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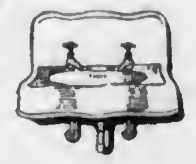

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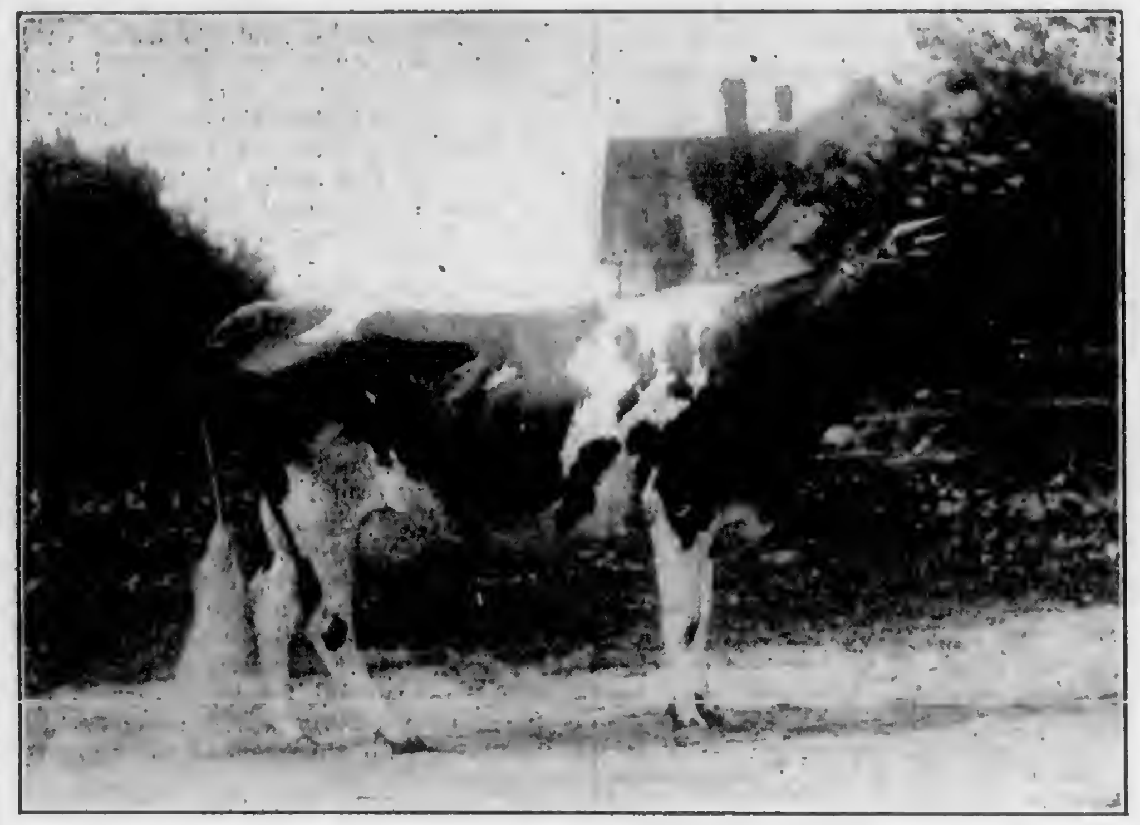
Live Stock to Keep the Boys on the Farm

We hear so much about how to keep the boys on the farm that we find our selves looking about us for examples. What is the tie that most securely binds the boy to the farm? A vital interest in his work, that he may be ambitious, happy, and contented. What will best bring about this condition? A good, wholesome home life, surrounded by a congenial family circle. Give him, in his home, the comfort which can so easily be had on the farm. Give him good reading, as some paper published especially for young people, supplementing this with some good farm papers, not forgetting those which feature live stock.

Live stock must be made a strong feature in keeping the boy at home. Therefore, as he grows older, give him a pig, or calf, or a colt, and when they are grown, after the boy has taken such good care of them, turn the profits over to the boy. We can all see some future in farming if we are getting a little profit now and then, but even the most optimistic get disheartened if the other fellow pockets all the gain. Should he prefer, allow the boy to raise an acre of corn, or other grain, and encourage him to exhibit his products at the local and state fairs and exhibitions.

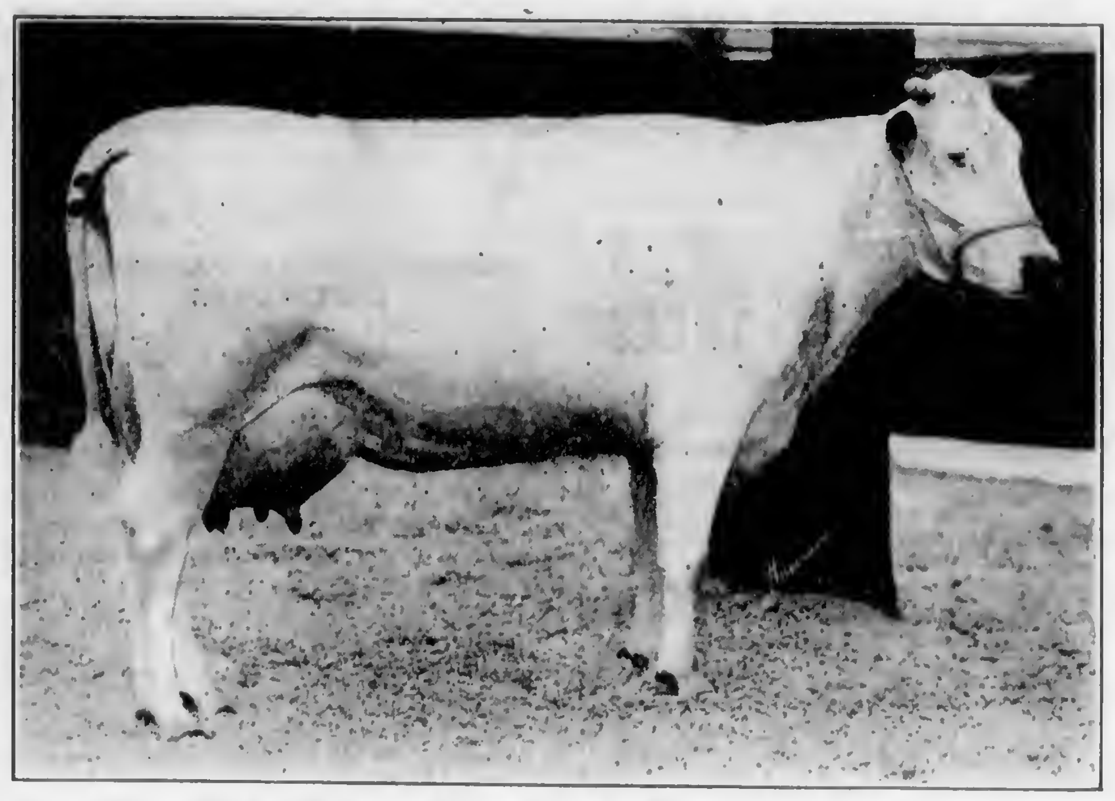
As I think of the boys whom I know, who are remaining on the farm, there first comes to my mind one who has had a lamb or a colt for his very own ever since I have known him. He liked the farm, and has always said he would be a farmer. Later, he began breeding purebred corn, and exhibited his corn at the state show. He early began to win the blue ribbons, and has never stopped. For the last three years he has won nearly all the prizes for which he could compete, including the Sweepstakes Cup in 1914 and 1915. He also won at shows in other states. He is now the owner of a good herd of registered Berkshires, and is fast building a good dairy herd. He will always believe in the future of the farm. He graduated at the local high school and supplemented this with a short course at the state agricultural college.

Another young man comes to mind who is making a signal success of clearing a rough and wooded area, and establishing a dairy farm. He has pulled stumps with a stump puller, dug them out by hand, and in turn successfully used dynamite. He has a live interest in his work, and has a good bank barn and a silo, is a member of the cow-testing association, grows and sells a few good apples, and owns a few good registered Berkshires. He is successful in the growing of alfalfa, and has a clear vision of future farm success.



A BOY'S COW, XMAS MAY 39380, GIVING 5.5 PERCENT MILK.

Two brothers, not far distant, are actively engaged in the fruit and cattle business. They market, annually, many barrels of perfect apples, receiving top prices for their product. They also put out a superior article of canned goods. One boy is establishing a dairy herd, in addition to his other interests. They are fast proving the advisability of staying on the farm. The fact that they were early given an active part in the farm management and were made to see the unbounded possibilities of the farm, kept these boys on the farm. Before taking active charge of their father's farm they took a course at the state agricultural college.



ORMSBY JANE SEGIS AAGGIE 150943, A NEW CHAMPION IN 30-DAY CLASS OWNED BY PINE GROVE FARMS, ERIE CO., N. Y.

Another young man, a neighbor, spent the early part of his life on his father's farm, one of the best in the county. This farm had on it one of the best herds of grade Guernsey cattle to be found anywhere and produced large crops. About the time this young man grew up, he went west and spent a few months traveling. But soon he came back to the farm and is now setting the pace for some of the older farmers. He is fast establishing a herd of purebred Guernseys and one of Berkshires. His interest in these two factors, as well as in the large crops of corn, wheat and hay that he grows, insure his future farm success. His herd is one of the leading ones in the local cow-testing association, of which he is a member.

KEEP THE BOY ON THE FARM.

Two other boys are actively engaged in assisting their father to build up a substantial farm business. They own about 240 acres of the best farming land in the county, of which only half is cleared. They are endeavoring to combine, to a degree, what all the aforementioned boys are trying to do. They have about 50 acres of dogwoods to be cleared away before the land will be profitable. They are trying orcharding in a small way, the trees still being young. They have gathered together a herd of cows above the average which will be used as the foundation for a good herd, to be bred up by the use of the best Guernsey bulls they can secure

A GOOD DAIRY COW APPEALS TO THE BOY.

The product of this herd is turned into cream, and the skimmilk is fed to registered calves and pigs. They are endeavoring to establish good working herds of purebred Guernseys and Berkshires.

They plan to feed silage the year round, finding this to be the cheapest way to maintain a herd of dairy cows. Both boys have completed a two-year course at the state agricultural college. One of them was a member of the 1912 stock judging team, sent to the National Dairy Show at Chicago. Years ago these boys were given a calf. When she was sold as a cow, the boys got the money. Later the boys were given two other calves and, as before, when sold, the boys got the money. They thus grew up feeling that they owned something and that something demanded some care and attention in order to be-

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Overfeeding, colic, dangerous gases, indigestion and "out of condition" stock costs the farmer, dairyman and breeder of high-grade stock, tens of thousands of dollars annually. Much of this could be saved if the ordinary ration included Xtra-vim feed. It is not a feed by itself—it is not a protein and fat ration—it is a production of MOLASSES IN DRY FORM that, under special process of manufacture,

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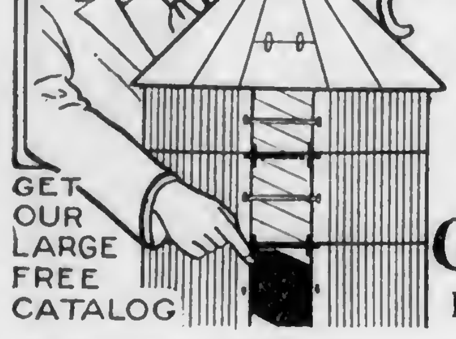

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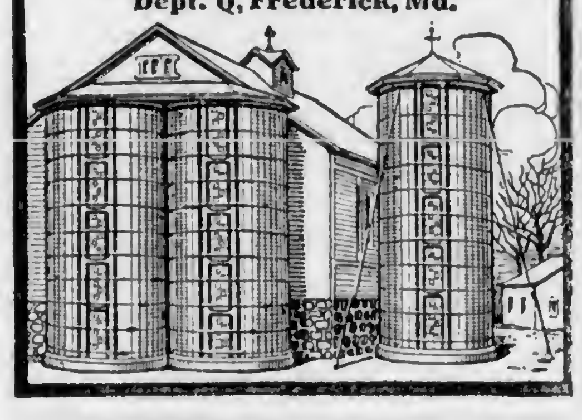

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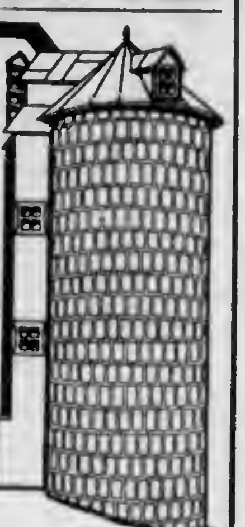

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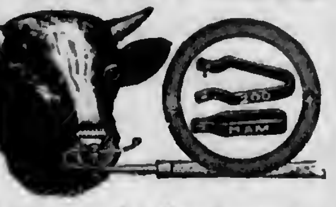


FIRST CHECK $100.00 TAKES HIM

And he is ready for service. Young Holstein bull born February 25th, 1915, sired by Spring Farm King Pontiac. Dam well bred cow. King of the Pontiacs is grandsire on sire's side and great grandsire on dam's side. This is a good buy for some one but needs quick action to get him.

STEVENS BROTHERS CO.
LIVERPOOL, N. Y.

The Ayrshire Is the coming cow. Get a bull and start your herd. Four bull calves (one a year old) from A. R. dams with records of from 8578 lbs. milk and 422 lbs. butter to 11379 lbs. milk and 561 lbs. butter. Sired by son of Finlayston with 60 A. R. records of over 10500 lbs. milk. 3 sisters of sire at 2 years averaged 10000 lbs. milk and 500 lbs. butter. All near relatives have good teats. Pictures and pedigrees on request. A. H. Forsythe, Westown School, Pa.

Registered Guernseys One bull, 3 years old; one 6 months. Sire Charmantes Rose King, A. R. Dam. Bull calf grandson of Langwater Stars and Stripes. Dam making 50 lbs. fat per month. A. J. FELL, West Point, Pa.

Holstein Herd of 20 head of the highest grade Holsteins. Each cow has a complete cow testing association record. Registered Pure Bred Bull calves for sale at all times. Plumlyn Farm, Fairview Village, Pa., near Norristown

Registered Holstein bull calves, by son of a 23 lb. cow, and from dams of good breeding. Price $30. J. B. WINKELBLECH. Lewisburg, Pa

Registered Holsteins Desirable calves for sale at prices that are right Satisfaction guar't'd. Ideal Farm, Conyngham, Pa.

Jersey Calves both sexes. Fine stock, of the most noted pedigrees in the world. Fred G. W. Runk, Allentown, Pa

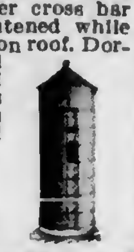
CELEBRATED MERIDALE JERSEYS. Exceptional lot of youngsters now available. Write for detailed information. Ayer & McKinney, 300 Chestnut St., Phila.

Count Its Advantages

Before you buy a silo from anyone write and let us tip you off to some silo improvements that save time, work, ensilage and real dollars.

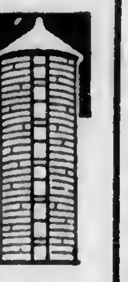
GLOBE SILO

—the only one with equal strength door frame—extra thick side posts. Cross bar bolts to side post. Has quick action adjusting nut. Simple movement of wrench loosens door no matter how badly pinched. One piece door fastener. Double spline with joints sealed. Doors slide under cross bar without being removed. Hoops tightened while standing on "handle ladder". Extension roof. Dormer window in roof free. Silage packed tight to top of silo—means 5 ft. added to height. All these exclusive features—and more—at a price lower than you plan to pay for an ordinary standard silo. A postal will do.



The Globe Silo Co.
5-15 Globe St., Sidney, N. Y.

TRIPLE WALL CRAINE FROST-PROOF SILO



Three walls, instead of the usual one, make this silo air tight, frost and water proof; preserves silage perfectly. Requires no hoops. **Costs no more than single wall silos.** Most durable. Guaranteed. Many satisfied users. Send postal for catalog.

W. L. SCOTT LUMBER CO.,
Box 140 Norwich, N. Y.

SILOS

OPENING ROOFS
FULL SILO WITHOUT REFILLING
CUTTERS AND BLOWERS
WRITE FOR CATALOG AND SPECIAL PRICES NOW
E. F. SCHLICHTER CO.
(AGENTS WANTED) 10 S. 18TH ST. PHILA, PA.

REGISTERED JERSEYS

Two bulls 12 and 16 months of age. Also a few bull calves from 3 to 5 months old, good individuals and highly bred. Being over stocked, can offer attractive prices.

LYNNEWOOD FARM
A. D. BLOOM, Mgr. Ogontz, Pa.

HOLSTEINS $15.00

¾ heifer calves $15 each express paid in lots of 5. Reg. heifer $100.; bulls $25 to $100.; 8 reg. 2 year olds due in Sept. $180 each; grade cows $45 up. Carload grade yearling and 2 year olds $30 each. 40 reg. cows, some with records 20 to 25 lbs. butter in 7 days bred to 31 lb. bull. Also 10 reg. Berkshire sows bred. JOHN C. REAGAN, Tully, N. Y.

Holstein bull calves for sale; grandsons of the $50,000 bull, King Segis Pontiac Alcartra No. 79602 WILLOWHURST FARMS. R. G. Williams & Sons. Canton, Pa.

Holsteins 4 bull calves $30 each, 2 mos. old, Korndyke breeding. 5 heifer calves $100 each, 2 mos. old, fine individuals; light colored and well bred. W. H. MACE. Cortland, N. Y.

HOLSTEIN BULL 8 months old, for sale. Good individual, well grown; dark in color, good breeding and price reasonable. WM. A. GOOD, Nescopeck, Luz. Co. Pa.

Reg. Holstein Bull calf; sire by Son of King Segis. Also two heifer calves for sale. C. C. BRAYMAN, Westerlo, N. Y.

Guernseys Special February sale yearling bulls and bull calves. A. R. Breeding. EDWIN B. MAULE, Parkesburg, Pa.

come profitable. Nothing can be better for the proper development of a farmer boy.

Give the boys something to do. Plan with them and ask their opinions. Give them what pleasures and privileges are possible and they will learn to love the farm. A boy enjoys a nice horse and good buggy, a pleasure which the girls very often share. Get interested yourself, and so interest the boy in better farming and the production of better crops, along with the growing of more and better live stock. Do not necessarily make two blades of grass grow where one grew before, but grow one blade at less cost than you ever grew it before. Get the boy interested in live stock. If he can point to a cow, even tho a grade, and say "that cow made so many pounds of butter fat last year; she is a good one, and will be retained," or "she is below the average, and must be sold," then he will feel that he has something to look forward to.

In this effort to keep the boy on the farm do not forget the social life of the community. The grange, the most influential social factor in the community of which I write, offers a great opportunity to all young men. One of these boys is lecturer, another is steward, another is assistant steward, a fourth acts as press agent, and a fifth is a new member of the grange. They all take an active interest in this organization as well as in all other movements for the good of the community These boys who "stayed on the farm" are all young men, but still consider themselves "boys". Any one of them could obtain a good position in the large cities paying from $60 to $100 per month at the start, and they would make good. Some of them have received very tempting offers, but they prefer farming.—Gladden Davis, Harford Co., Md.

A NEW 30-DAY RECORD

Ormsby Jane Segis Aaggie 150943, owned by Oliver Cabana Jr., of Pine Grove Farms, New York is the new Champion in the 30-day production class. She is a senior four-year-old, and her official record under test by the New York Agricultural College is 7.29 pounds of butter and 100.5 pounds milk for one day; 44.42 pounds butter and 721.5 pounds of milk in seven days, and 180 pounds butter and 3,050 pounds of milk in 30 days.

This cow was purchased by Mr. Cabana as a heifer for only $250. She first freshened at the age of 2 years and 10 months, and made an official record of 17.24 pounds of butter and 437 pounds of milk in seven days. She freshened again at age of 4 years, producing a heifer calf by King Segis Pontiac Columbo, and made a seven-day record of 22.94 pounds butter and 535 pounds milk. She freshened again November 13, 1915, producing another heifer calf, this by Rag Apple Korndyke 8th and put on test in which the above record was made. She will be continued in test for a year. It will be interesting to note her success against the present record for a year of 27,761.1 pounds milk and 1,205.09 pounds butter fat, held by Duchess Skylark Ormsby.

DAIRY RATION

I have mixed hay (clover and timothy) and corn fodder. Kindly suggest a mixture of ground oats, corn and cob meal and linseed meal to feed with this roughage and tell how much to feed. Subscriber, Wind Gap, Pa.

Using only the feeds here named, and assuming that the mixed hay carries a fair proportion of clover, the grain mixture would need to be made up of about 300 pounds corn and cob meal, 120 pounds of oats and 130 pounds of oil meal. This would bring the cost for oil meal rather high. The ration could be cheapened somewhat by adding gluten or dried brewers' grains or both. If gluten is added, mix about 300 pounds corn and cob meal, 130 pounds oats, 90 pounds oil meal and 125 pounds gluten meal. If brewers' grains are added in the place of gluten, the mixture would be about 300 pounds of corn and cob meal, 125 pounds of oats, 75 pounds of oil meal and 120 pounds dried brewers' grains. If local prices made it advisable to add both brewers' grains and gluten to the grain mixture, mix 300 pounds of corn and cob meal, 180 pounds oats, 77 pounds oil meal, 110 pounds gluten and 120 pounds of brewers' grains. Local prices on these feeds should determine the selection. In each case feed one pound of feed for each 3½ pounds of milk given per cow per day.

A SILO SURVEY

Altho the silo is a great feed saver every year, it has been especially valuable in preventing the loss of soft corn or increasing the usefulness of the drouth-hurt crops of the last few years. This is one of the many conclusions drawn by I. F. Gillmor, Marion County, Ia., Farm Bureau. Mr. Gillmor believes that a valuable part of his service to the people whom he represents is to find out just what good things the best farmers are doing and let others know about them. Consequently he made a careful silo survey of his county in which he found 200 silos, of which 118 are wood stave, 29 solid concrete, 27 flooring stave, 6 vitrified tile, 6 concrete stave, 4 pit, 2 brick, 2 concrete block 1 modified gurler and 1 stone.

The stone silo was the first one built. It was erected in 1893 and is still in good condition, but, aside from this one, the more permanent silos were largely built in 1914. Prior to that time, the less durable materials had been used, but during 1914 over one-third of the silos constructed were of material other than wood, 21 being solid concrete, 6 cement stave, 5 tile, 2 concrete block, 1 brick, and 4 pit. Of the the 94 silos built in 1914, prior to August 1, all were of solid concrete and 75 percent of all silo owners interviewed stated that if they were building again, their choice would be solid concrete.

The vitrified tile silo is worth careful consideration wherever the tile can be secured cheaply enough, Mr. Gillmor believes. He personally watched the first silo of this type ever constructed and has seen it many times since, and, altho it was built before special silo tile could be secured and the ordinary four-cell building block 8x8x16 inches was used, that silo proved satisfactory, and most of those built since have followed the plans prepared by the builder of this original tile silo.

The pit silo has the advantage of a very low first cost. Two of those in Marion county are fairly large and were put in on the same farm as an experiment. The others are much similar, one of them being an old cistern, holding only fifteen tons. It showed the owner the advantage of silos so clearly that he soon decided to construct a large concrete silo. The owners of these pit silos do not feel that getting the silage out is especially difficult, altho they may be more dangerous because the gas which they collect does not get away rapidly. A frame with a pulley is arranged over top and the silage is hoisted in a large galvanized tub. In case of large pit silos, feed boxes were built over the outer portion of the top of the silo so that the bottom of the box formed part of the silo roof and the silage was simply dumped on the edge of the silo.—Mo. Press Bulletin.

What Standardization Means to Motor Car Buyers

IT means VALUE. Just to the extent that a car is standardized does the buyer's dollar approach the maximum of purchasing power.

Standardization means definite, proved quality, known manufacturing costs and reduced selling costs.

Of the million autos that will be sold in 1916, 75% will be standardized cars selling for less than $1000.00 each. This remarkable American achievement is the direct result of standardization.

Finally the upholstery has been standardized by the almost universal adoption of

DU PONT FABRIKOID
REG U S PAT OFF

MOTOR QUALITY

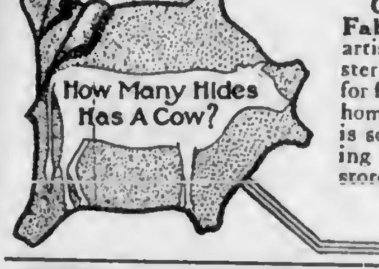
40% of all 1915 cars sold were upholstered in this proved, guaranteed material and in 1916 the total will be at least 60%.

Fabrikoid is the only standardized automobile upholstery. It wears better than coated splits (commonly sold as "genuine leather") and has the artistic appearance and luxurious comfort of the best leather.

Rayntite Fabrikoid for tops, single or double texture, is guaranteed one year against leaking, but made to last the life of the car.

To get the most for your money, buy a standardized car

Du Pont Fabrikoid Co.
Wilmington, Delaware


How Many Hides Has A Cow?

Craftsman Fabrikoid, the artistic upholstery material for furniture and home decoration is sold by leading department stores.

Progressive Farmers

keep a binder to harvest crops at the right time, without waiting for others to do it for them when they get to it. It is just as important for you to own an Ensilage Cutter. Let us tell you why you should own a

PAPEC
PNEUMATIC
Ensilage Cutter

Cut your green fodder and pack your silo full—at the right time. Save the value that is lost by delay. The Papec is simple—few parts—all easy to get at. **Guaranteed** to cut and lift silage to top of **highest silo**, with any power, provided the cutting wheel does not fall below the moderate speed of 600 revolutions a minute.

Your engine will run it. Thousands are now successfully operated by 4 to 8 H. P. gas engines. The Papec runs at slow speed, therefore uses **less power and lasts longer.**

Cutting blades strike heavily and make clean, regular cut along their entire length. Easily adjusted in a minute's time, and once set, stay set.

Six fans instead of four increase blowing power. Silage flows without clogging, through small pipe, in fine, steady stream—not in bunches. **Silage packs firmly as silo fills.**

Send for 1916 Papec Book FREE.

Explains the many money and time-saving Papec advantages. Various sizes and new patented self-feeding device.

PAPEC MACHINE CO.,
Box 78 Shortsville, N. Y.
Convenient Distributing Points throughout the U. S.

THE PAPEC

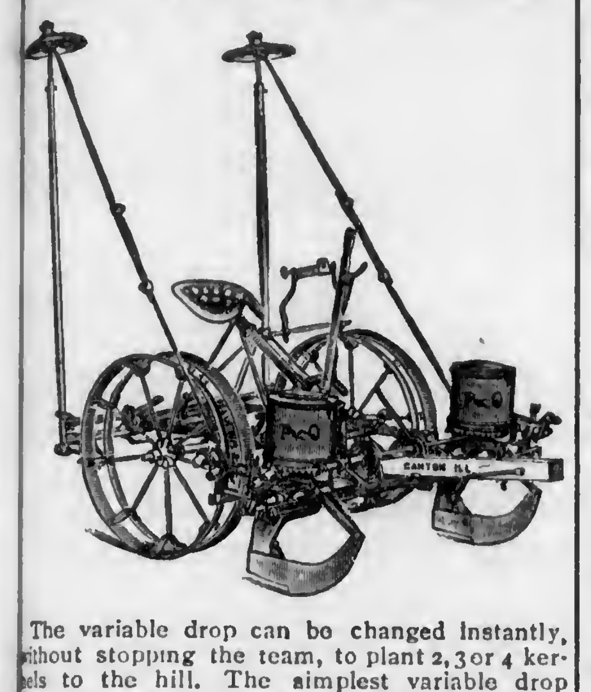
BONNYMEADS FARM

The place to secure Holsteins and Guernseys that produce. It is a fact we can give you great value in young bulls or a few females from officially tested or untested dams. 250 head in the herd. Write or visit. BONNYMEADS FARMS. R. D. 1, Harrisburg, Pa.

P&O

Variable Edge Drop Corn Planters

Furnished with 30 or 36 inch wheels, oncave or open center, adjustable to all tandard widths with wire to match, acording to local requirements. Can be urnished with Flat Drop Attachment, Ferilizer Attachment, or Pea and Bean Atachment. Double disc markers. A perect stand of corn is assured with a P&O Planter. "It's the Way We Build Them."



The variable drop can be changed instantly, ithout stopping the team, to plant 2, 3 or 4 kerels to the hill. The simplest variable drop ound on any planter; easily operated from the eat; the driver operates it with his foot. Ample ongue adjustment for any sized team. Reel can e used on either side. Large hoppers, easily lted to change plates or remove corn; plates can e changed without emptying hopper. Hoppers re the combination type; flat drop plates may be sed. Can be instantly changed from variable ill drop to variable drop drill. Sight feed, withut glass; unobstructed view.

Regular runners, stub runners or disc furrow peners can be furnished. Dropping mechanism erfect; congestion is impossible; valves carry ne hill in reserve and hill cannot be doubled. Plunging motion of lower valve forces seed out ithout scattering. Cushion spring at end of the ongue keeps the proper tension on front frame n uneven ground. Every planter is actually ested with seed in the hoppers before leaving he factory. P & O Planters are the simplest and trongest made.

We also make Flat Drop Planters and Drills, ean Planters and Kafir Corn Seed Plates.

Ask Your Dealer or Write Us.
Parlin & Orendorff Co.
Canton, Illinois.

P&O Light Draft Plows Are Backed By An Unqualified Guarantee

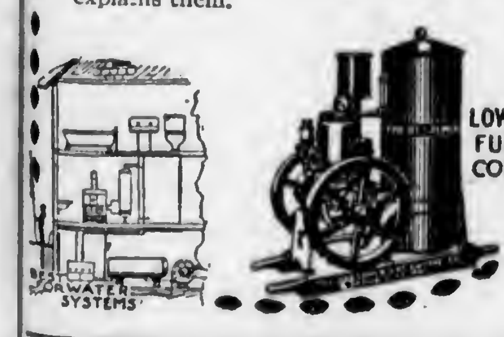
BESSEMER KEROSENE ENGINE

30 DAYS FREE TRIAL

We don't make the most engines in the world—and we don't want to! We prefer to make one good engine rather than two poor ones. That is why thinking people buy the Bessemer. Figure ahead, and the Bessemer always comes out best. Made as a Kerosene engine—and not a converted gasoline type. Sizes 2, 4, 6, 8 and 10 H. P. Also direct connected to farm machinery, electric lighting plants, saws, hoists, etc. Get our facts and study them.

THE BESSEMER GAS ENGINE CO.
142 Lincoln Ave., Grove City, Pa.

Those who need more power should use the Bessemer Fuel Oil Engine. 15 to 200 H. P. Free catalog "O" explains them.



Cheap Feed Dried Salvage Grain from mill fire—feeding value uninjured. Price low—Ask for sample. BARTLETT CO., Mill L, Jackson, Mich.

DE LAVAL

O.K'd by nearly two million cow owners

MORE De Lavals are being sold than all other makes combined—nearly 2,000,000 are now in use. Year by year an ever increasing proportion of farm separator buyers reach the conclusion that the De Laval is the only cream separator they can afford to by or use.

In fact, about the only excuse ever offered for buying any other separator nowadays is that its first cost is a little less than the De Laval.

But they soon find out that the last cost of a cream separator is what really counts, and when they realize that the De Laval gives the most and best service for the money they buy a De Laval.

Over 40,000 users of inferior machines discarded them for De Lavals during the past year in the United States and Canada alone.

Better be right in the first place and start with a De Laval.

THE DE LAVAL SEPARATOR CO.
165 Broadway, New York 29 E. Madison St., Chicago
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

Water Systems for Country Homes

Every country home should have a good water supply system. It provides comfort, affords fire protection and is useful in many ways.

We have filled nearly 15,000 orders for tanks, towers, and water supply systems of all kinds and for all purposes.

We can furnish you one to meet your individual requirements—ready to install. Your plumber or any good mechanic can do the work.

Complete Systems for as little as $39

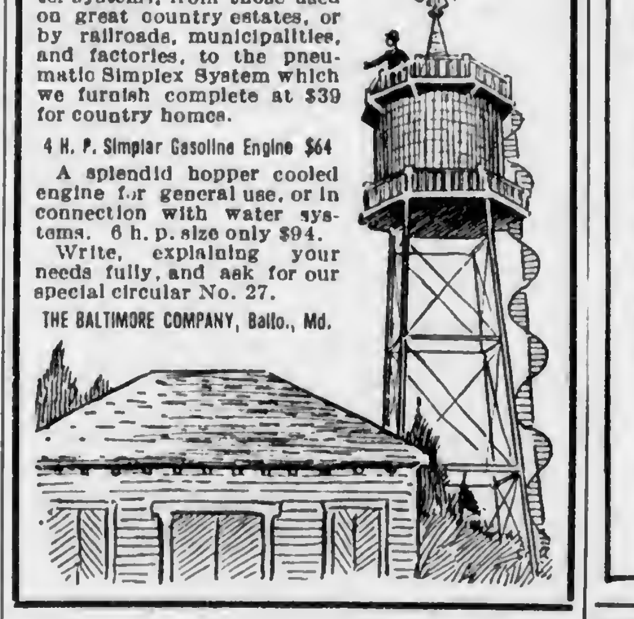
We install all kinds of water systems, from those used on great country estates, or by railroads, municipalities, and factories, to the pneumatic Simplex System which we furnish complete at $39 for country homes.

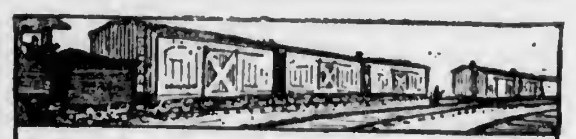
4 H. P. Simplar Gasoline Engine $64

A splendid hopper cooled engine for general use, or in connection with water systems. 6 h. p. size only $94.

Write, explaining your needs fully, and ask for our special circular No. 27.

THE BALTIMORE COMPANY, Balto., Md.





Why Not Cut Off the Two Cars of Filler?

It takes 400,000 cars to carry Fertilizers to our farmers every season. Forty per cent.—2 cars out of 5—is Filler. Order higher grades and Nitrate of Soda for your active Nitrogen and save freight.

The greater producing capacity of high-grade fertilizers without much filler means bigger out-bound tonnage for railroads and bigger purchases by farmers.

Send for "Cost of Available Nitrogen."

DR. WM. S. MYERS, Director
25 Madison Ave., New York

Potash! — Cheap!

Release the potash already in the soil and make it available for plant food by the use of lime. Use

Warner's
LIMOID

Perfectly hydrated **Pure Cedar Hollow Lime** in tight paper or burlap bags. Always ready for any purpose. Can be stored in any dry place.

Ask your dealer for Warner's "Limoid"

Can be used also for whitewash, orchard spraying, brick and stone mortars. Write us for interesting pamphlet called "Farm Economies."

CHARLES WARNER COMPANY
Wilmington, Del. Philadelphia, Pa.

ROMAN AUTO COMPANY, INC.

Winter time is the time to buy a car if you want to save money. Cars are lower in price during December and January than any other time. 1000 cars, 1916-1915-1914 models — Roadsters, Touring Cars, Limousines, Trucks, Delivery Wagons, etc. A few specials.

Fords, Touring & Roadsters...	$150 up
Cadillacs and Hups	$200 up
E. M. F. and Studebakers	$175 up
Hudsons and Buicks	$225 up
Chalmers and Overlands	$250 up
Wintons and Packards	$300 up
Haynes & Peerless	$500 up
Reo & Packards	$300 up
Pullman & Stutz	$300 up
Jitney Busses & Trucks	$200 up

WRITE TODAY

For our new catalog "A" giving price on every style and auto manufactured, together with valuable information for the automobilist.

ROMAN AUTO CO., Inc.
203 N. Broad St. Philadelphia, Pa.

SAY you saw the advertisement in Pennsylvania Farmer when you are writing to our advertisers.

Farmers Drain Your Land. Increase the value of your land by using JACKSON'S Drain Tile. Acres of Swampy Land reclaimed, and made fertile with our tile. We are also manufacturers of Hollow Brick and blocks. Dealers in Sewer Pipe, Flue Lining and Builders' Supplies. Write for our catalogue "Benefits on Drainage and How to Drain." JOHN H. JACKSON TILE CO. Inc., 110 THIRD AVENUE, ALBANY, NEW YORK.

7 WO DER C WS 7 of Th World

And Ho y Made THEIR ASTON NG RECORDS

You no doubt have heard of these s nder Cows.” You may know them by name and by record. But, do you know ade their astonishing records?

Everyone of these seven World's Champion SCHUMACHER FEED as the base of the ration during its record-making, record-breaking

In each instance SCHUMACHER FEED was a necess the energy, stamina and continued health, so necessary to any of the daily food. The owners of these cows of which undergoes the strain of long continued milk production. breeds—at different farms and different times, were all in acc . Dairyman, you may not be trying for World's records, lecting SCHUMACHER FEED as a part of the rations to you surely are anxious to get bigger yields, stronger con- these important tests. These men know feeds as itutions, “every-day-on-the-job” health conditions, stronger breeds. They also know that the best feed must lves, etc. If SCHUMACHER FEED will help do this and get the best results in the pail. It is also a significant ake World's Champions, it will help your cows to do better back of almost every World's Record of recent yea d make better records for you. It has proved BEST for the SCHUMACHER FEED as the “unseen power” w EST cows in the world—it will prove BEST FOR YOURS.

SCHUM HER FEED

The Record-Making, Rec Feed of the World's Champions

SCHUMACHER FEED is a "wonder feed"—the most palatable fee as suggested below, in addition to producing bigger yields, you will see "better conditions," brighter eyes, more vigor and life, less sick conditions, because of its varied and ideally balanced food elements. It is composed of kiln-dried, finely ground products of corn, oats, wh ntifically blended and balanced to meet the exacting requirements of the dairy cow to best advantage. When fed on the following plan, it

This Feeding Plan Will Surprise Y

Feed as the grain part of the ration, three sacks of SCHUMACHER FEED sack of gluten, oil meal, linseed meal, dried brewers' grains, dried distillers' grain, Malt Sprouts, Blue Ribbon Dairy Feed or any other high protein mixture. When cottonseed meal is used, feed four to five sacks of SCHUMACHER FEED to one of cottonseed meal.

As a suggestion of the amount to feed each cow, give one pound of the above mixture with all the roughage and ensilage the animal will consume, to every three or four pounds of milk that the animal yields.

lso Good For Horses, Hogs and Calves

use SCHUMACHER FEED is strictly a grain ration, it is also the best and most economical feed for horses, brood sows, growing pigs, calves and cattle. For these animals it is a complete and balanced ration —ready to feed with ensilage, hay or other farm roughage. You can sell your high-priced whole grains, buy SCHUMACHER and save money and get far better results in growth of bone and weight in flesh.

If your dealer cannot supply you, write to us. Send today for a copy of our latest booklet, "WORLD'S GREATEST COWS AND HOW THEY MADE THEIR ASTONISHING RECORDS"—free postpaid.

THE
Quaker Oats Company
CHICAGO, U. S. A.

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1

World's Champion Junior 3 Year Old

24612.8 lbs. Milk 1395.06 Butter in 365 Days

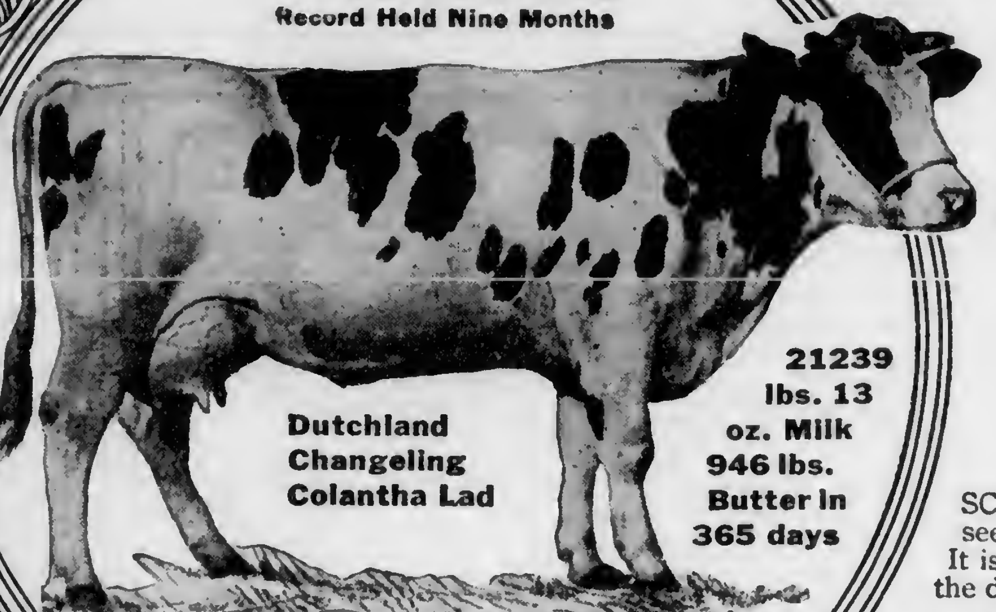
Finderne Holingen Fayne

Schumacher Feed an Important Part of Her Ration

"Now I certainly claim we have a most extraordinary cow, but I will give your feed a little credit for this great performance as we have used your SCHUMACHER FEED and your Blue Ribbon Feed for 50% of the grain feed which she has been given during this one year's test and besides this grand cow producing such an enormous amount of milk and butter, she has gained 250 lbs. in flesh. It would seem that to make a wonderful record like this one would need to have a great cow and in connection with the cow to feed her some good feed, that is, SCHUMACHER FEED and your Blue Ribbon Feed." Very truly yours, (Signed) Bernhard Meyer, Finderne, N. J.

2

World's Champion Junior Three-Year-Old
Record Held Nine Months



Dutchland Changeling Colantha Lad

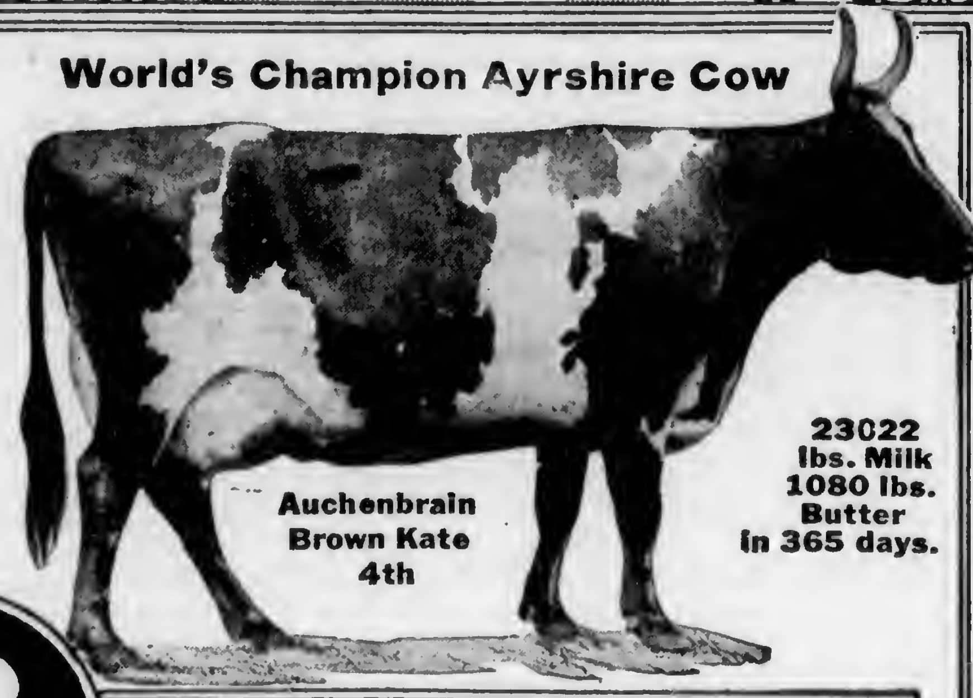
21239 lbs. 13 oz. Milk 946 lbs. Butter in 365 days

Schumacher Feed Praised by Her Owner

"Your SCHUMACHER FEED has scored another big success as our new world's champion junior three-year-old heifer Dutchland Changeling Colantha Lad is being fed this feed as part of her grain ration. Her stable mates, Dutchland Colantha Vale and Dutchland Colantha Mona are also being fed same ration and will have world's records in the near future."—Fred. F. Field Holstein Co., Brockton, Mass.

3

World's Champion Ayrshire Cow



Auchenbrain Brown Kate 4th

23022 lbs. Milk 1080 lbs. Butter in 365 days.

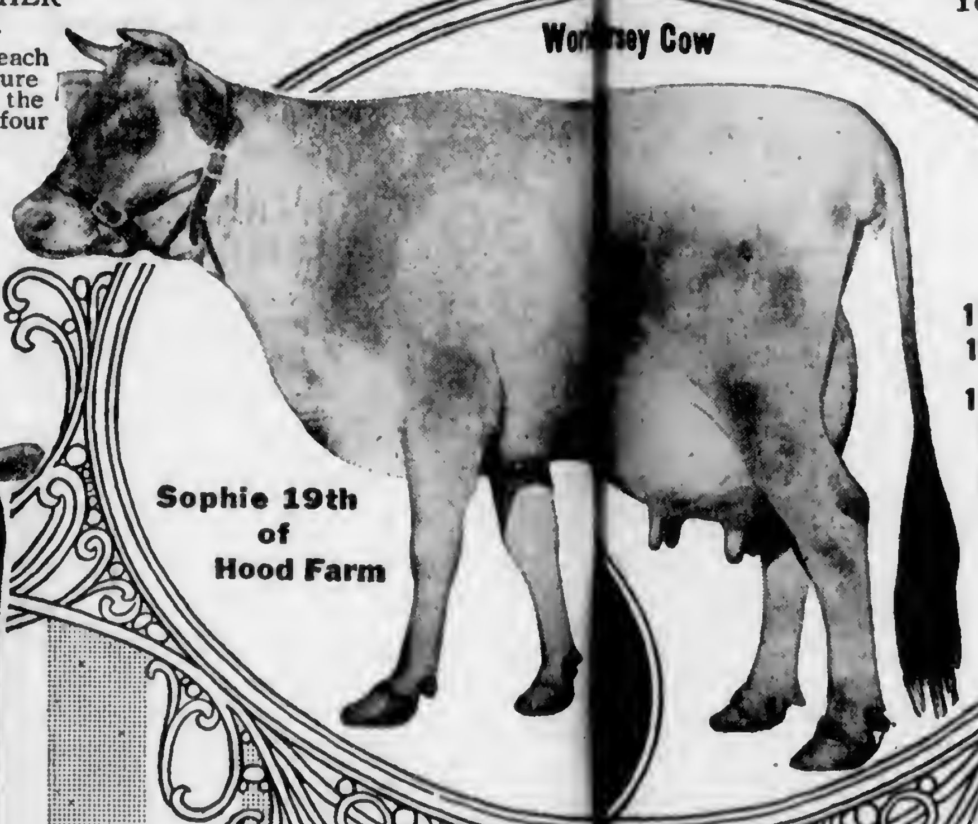
Would Not be Without Schumacher Feed

"We had such good results with your SCHUMACHER FEED, fed our world's champion cow—

"AUCHENBRAIN BROWN KATE 4TH, who produced 23022 pounds milk, 1080 pounds butter, in one year, that we have since fed it to all of our test cows. Yours truly,

Penshurst Farm, (Signed) E. S. Deubler, Supt., Narberth, Penn.

Wor sey Cow



Sophie 19th of Hood Farm

17557 lbs. 12 oz. Milk 1175 lbs. 7 oz. Butter In 365 days

Here's What He out Schumacher Feed

"It will probably intere ave been feeding SCHUMACHER FEED to Sophie 19th of H finished her last record January 20, 1914, which makes her the of the world, and stamps her the greatest dairy cow living o CHUMACHER FEED a splendid feed for dairy cows, and a the milk and butter production." Very truly E. Dodge, Mgr., Lowell, Mass.

5

World's Champion Milk and Butter Cow

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Gives Schumacher Feed Much Credit

"We have made another world's record with our Holstein cow 'Finderne Pride Johanna Rue No, 121083.' I am glad to say that during her test she was fed mostly on your SCHUMACHER FEED, which in my estimation is a very valuable feed for dairy purposes." (Signed) Bernhard Meyer, Finderne, N. J.

6

World's Champion Four-Year-Old Jersey for Six Months

14315.6 lbs. Milk 785.9 lbs. Butter Fat in 365 Days

Flying Fox's Maid

Schumacher Feed Helped Make This World's Record

"As a good example of the result of feeding SCHUMACHER FEED, I am pleased to report the record of our Junior four-year-old Jersey, Flying Fox's Maid. 265318, who has just made a record of 14316.6 pounds milk containing 785.9 pounds butter fat, exceeding the best previous record by nearly forty pounds. Her milk brought $572.02 at wholesale, and the cost of her feed was $170 75, leaving a net profit of $401.27 for the year. She was fed SCHUMACHER FEED for the last six months of her test that feed replacing ground oats in her ration, and although fed no meal or hominy, she finished in better flesh than she started. The result was so satisfactory that we are now feeding the entire herd in the same manner, and consider your SCHUMACHER FEED one of the most essential elements of our ration. Sincerely yours,

D. E. Moulton. Prop. Gilsland Farm, Portland, Me.

7

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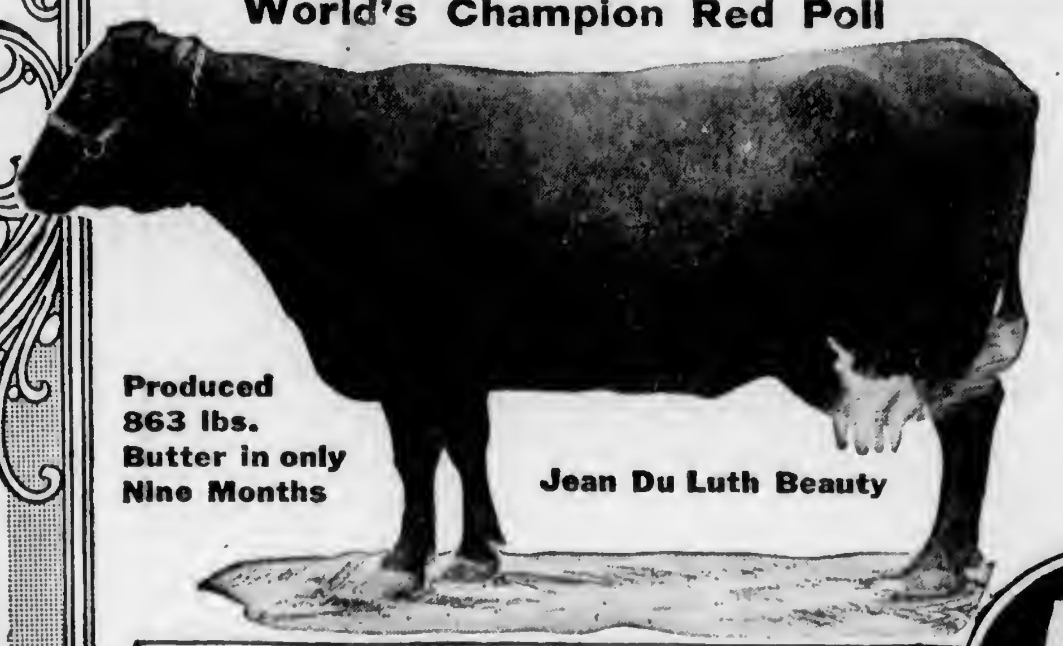

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(46)

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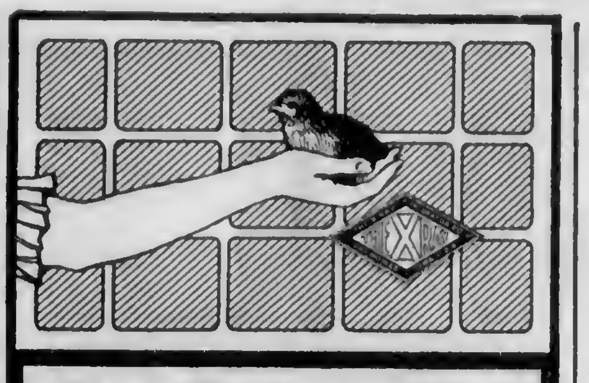

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Poultry

THE "NO DROPPING BOARD" IDEA

Most people consider a poultry house incomplete without a dropping board. Custom and general practice regard platforms under the roosts as essential. Usually the advocate of "no dropping boards" is not even given a respectful hearing and is regarded as knowing very little about poultry.

The arguments against dropping platforms are rather numerous and they really are worth considering even tho we do not quite agree with them. First: The daily, weekly or semi-weekly removing of the droppings is eliminated, thus doing away with a rather unpleasant task and saving considerable labor To remove the droppings accumulated in a 500-hen laying house requires from 12 to 30 minutes daily. It is essential in poultry keeping to reduce labor to the minimum. However, without dropping boards the litter may have to be removed more often, thus partly offsetting the saving of labor in platform cleaning.

Second: More important than the saving of labor is the question of sanitation. If the droppings are not removed frequently and care taken to keep the platforms disinfected and dry, they furnish an excellent place for the growth of disease germs. It is better to have no droppings boards than to have them and not keep them clean and sanitary. The general farmer who is too busy with other farm work to give his birds the proper daily attention might well consider this. Contrary to the general opinion of those who have never tried out this idea, a few minutes after the birds are up in the morning the voidings are scattered by the scratching in the litter and the expected unsightly condition under the roosts is very rarely seen. In scratching for grain the hens always work the litter away from the light towards the rear of the house. So with or without the platforms, this litter should be thrown forward and if that under the roosts is then thrown to the front of the house it will give very satisfactory results in dryness and be far better than neglected dropping boards. There also is absent the unpleasant odor so often found in houses where the droppings are allowed to remain on the platforms. It surely is not sanitary to have the layers roosting within ten inches of their accumulated voidings. We must also remember that when the birds are confined to their houses even with the platforms, one-half of the voidings will enter the litter anyhow.

Third: On the general farm where the litter is applied to the land for crop production, this plan does away with the storing of the droppings and the usual consequent loss of nitrogen. Being mixed with straw it is spread easier and more uniformly, giving better results in crop production than if it is unevenly scattered.

Fourth: Eliminating the platforms results in cheaper building, more simple construction, greater convenience and makes it easier to control vermin. Very simple roosts can be used, 2x4, or 2x5 inch side pieces can be nailed to the partitions, first cutting out to a depth of about one and one-half inches, spaces just wide enough so that 2x3-inch roosts can be easily set in edgeways. The roosts can be placed in these spaces and when cleaning they can simply be removed from their places and pushed to the back of the house. This method of construction does away with all hinges, is simple, and saves all expense of building the platforms. If nests are placed under the dropping boards, a portion of the rear of the house is dark and very hard to get at for cleaning. Under the plan suggested the sun has access to the very rear of the house and cleaning is made far easier. The absence of ploughed and grooved boards, the ease of access and the movability of the roosts, make it very easy to control lice and mites Wall nests will have to be used but a very simple, cheap, convenient and satisfactory type of wall nest can easily be designed.

Our Practice

This is another one of the problems which each of us must decide for ourselves according to our own special convenience, desires, location and type of business. I was at one time an advocate of the "No Dropping Board Idea" and built two large laying houses, 22 by 80 feet, having no platforms beneath the roosts. They were used for over two years with very satisfactory results. One of our state poultry experts remarked that our houses were the only large commercial poultry houses he had ever seen in the state that had no dropping boards.

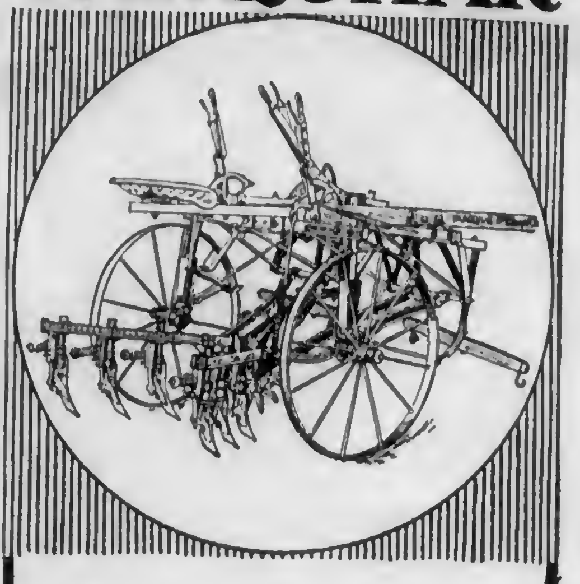
It is rather difficult and usually unwise to go contrary to general practice After considerable thought, the decision was reached that for two reasons at least it was wise to give the platforms a fair trial. First: In a long laying house, especially if the partitions do not extend the whole length of a house having a semi-open front, there are likely to be drafts. A dropping board will keep all air from blowing on the birds from below the platform thus cutting down the danger of drafts and much danger of colds. Second: It seemed that with frequent cleaning of the platforms, the use of "floats" or some other absorbent to keep the voidings dry, and with disinfection once each week, it would be possible to maintain a better sanitary condition in the house, especially in the cool, damp misty weather of a mild winter, when the danger of colds and the resulting diseases is greatest. As poultry is a major interest on our farm, it seemed well worth the extra labor and inconvenience if better sanitary conditions could be obtained.

So we installed dropping boards in three-fourths of one house leaving the other fourth as it was, in order to make a fair comparison. After two months of observation, I am now ready to install the platforms in both houses, believing it a wise investment. However it does seem reasonable that on the general farm where the farmer does not give his layers enough time to keep the platforms in good sanitary condition and where the droppings are allowed to accumulate from the viewpoint of more simple, cheaper construction, the saving of labor and even for sanitary reasons, it may pay to consider eliminating the dropping boards. At any rate if a house is built without platforms, it is not much more expensive to install them later. — Paul R. Guldin, Berks County, Pa.

THINGS I HAVE LEARNED

Old plaster, pounded up and kept in a hopper, does as well as oyster-shell in supplying the hen with the lime needed for the formation of bone and eggshell. Fresh lime should not be given to poultry.

In cases of crop-bound, give the bird a tablespoonful of olive oil and gently work the crop with the fingers. If this does not remove the obstruction, pluck the feathers off the crop and cut a slit thru the skin and crop. Empty the crop and remove the obstruction. Sew up crop and skin with silk thread. Feed nothing for thirty-six hours and then lightly on soft food for a week.



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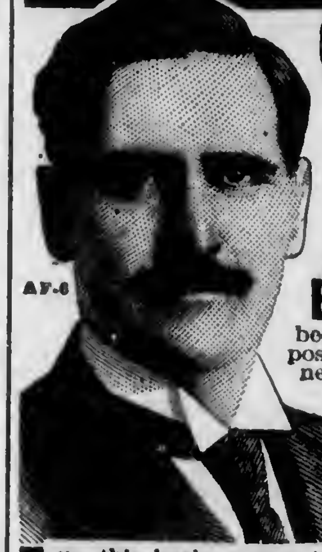

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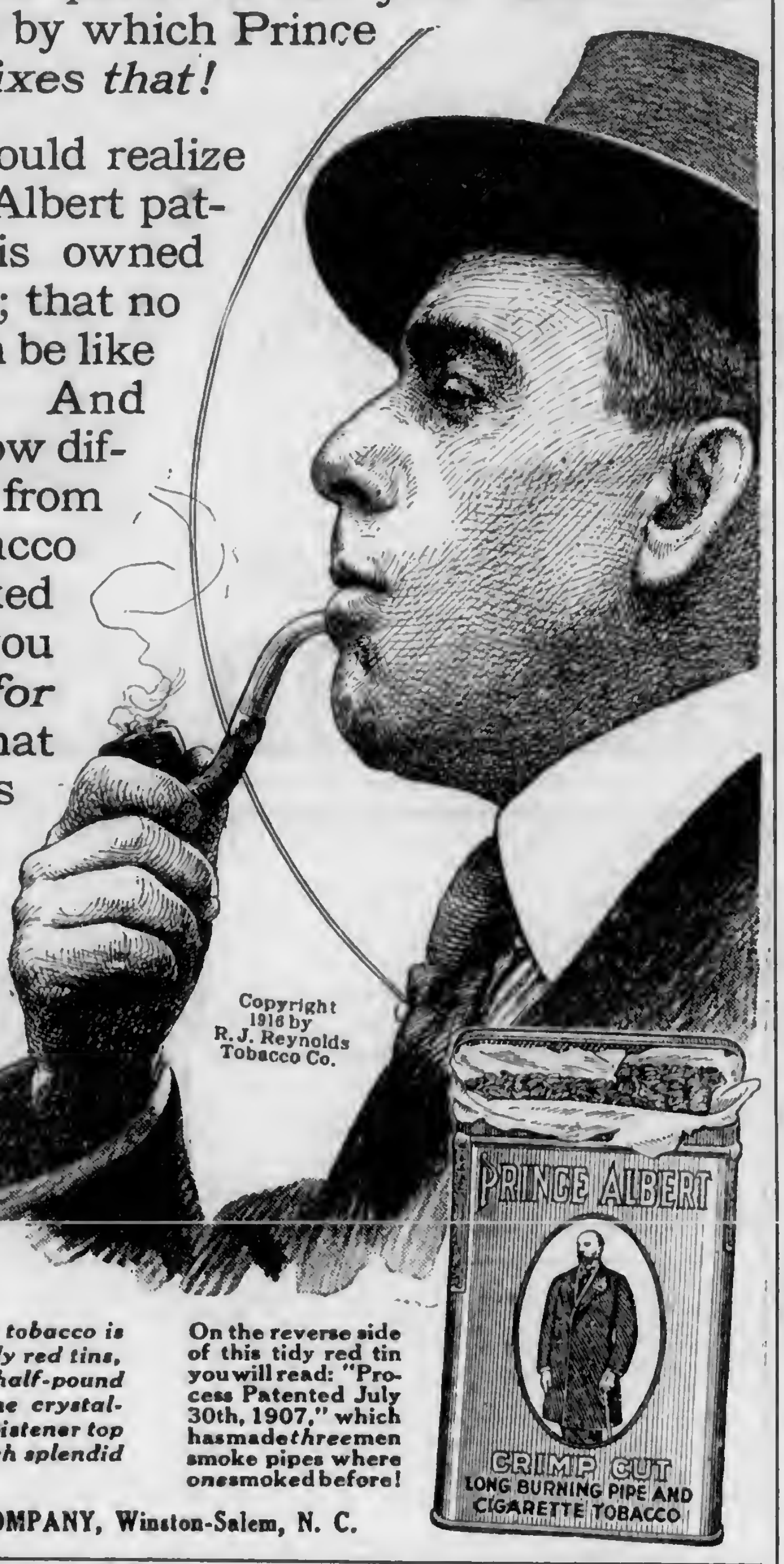
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The Pennsylvania Berkshire Breeders' Association will hold its annual meeting in Reading the same day. An attractive program of prominent speakers on pork production, including Prof. Tomhave, is arranged for the meeting. It will pay you to come and attend both. Lunch on the grounds. **Sale Starts at 1 P. M. For Catalog address**

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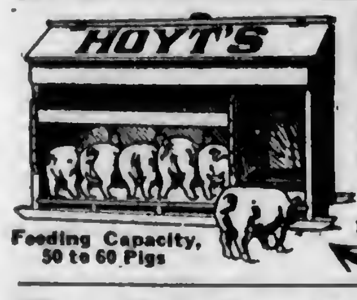

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SAY you saw the advertisement in Pennsylvania Farmer when you are writing to our advertisers.

Can the East Grow Beef Profitably?

THERE IS A THRILL IN HOLDING THE LINES OVER A SPIRITED HORSE THAT IS NEVER FOUND IN HUGGING A STEERING WHEEL.

Farmers in the East are constantly being urged to grow more beef cattle. It is easy to urge others to do certain things, but this question needs discussion of concrete facts. No man is a safe adviser without a personal, practical experience on the subject of which he speaks. Theory is good, in its way, but practical application and experience is, as a rule, the only reliable guide. We recall President Cleveland's remark when discussing a matter in which a great deal was involved, "that we are confronting an actual condition and not a theory" and many times has this same thought been embodied in words, since used by him. My mind has been led into this train of thought by hearing and reading from time to time, a good deal about the scarcity of cattle for beef purposes and the various schemes advanced to obviate it.

Armour makes the complaint that soon they will be unable to secure cattle in sufficient numbers to keep their packing houses supplied. They intimate very clearly that it is up to the farmer to provide the deficiency. Another way you observe, of putting it that the farmer is under obligation to feed the world. The presumption is that Armour, as well as meat packers in general, is in the business for what there is in it, and the general impression is that they have been able to find a living profit, to say the least. And yet they have the cool effrontery to advise the six and a half million farmers of the United States to increase their horned stock two head each year. A bullock is fairly well matured as a rule when three years old, hence you observe that they would have the cattle supply increased six head per farm, or in the aggregate 39,000,000 head, which added to the more than 66,000,000 head now on hand, would make the total in round numbers 105,000,000. Even at present prices farmers have not increased their herds, no doubt because it was not a paying proposition, and if it was placed on a basis of a 50 percent increase in supply the price would hardly be enhanced. This scheme would doubtless prove a great benefit to the packer, but where would the farmer come in?

During Farmers' Week at State College, a professor high in authority, it is reported, advised the audience to use land available to the raising of cattle, with the same end in view, apparently, the increase of numbers for beef purposes. Here we are afraid we have the theoretical again. How many cattle has this professor produced upon his own land, beginning with the calf a day old and ending with the fat, matured bullock at the slaughter pen? If he has had this experience, he, as a good business man, which he should be when he presumes to advise others along business lines, ought to be able to tell just what the beef cost per pound. To do this every reader will observe his information will be brought down to a concrete form, and, if regarded as authentic and reliable, he could, with all propriety insist that his hearers could go and do likewise under similar conditions.

I would remind him, however, that in his calculation he must bear in mind that even before the calf is dropped there are items of expense to be taken into account, and these items, the risks and expense of the breeding stock, the theorist seldom thinks of. It is somewhat on a par with the published wheat and other crop reports of the nation, as representing so many dollars. One might suppose the money already in bank, without deducting a single penny expended in producing the crop. The reports overlook the fact that in case of wheat the seed alone represents more than one-tenth of the entire crop, not to mention interest on investment, taxes, fertilizers, labor costs and incidentals.

Now the pertinent question is, does cattle raising and beef production pay in the eastern states? This can be answered only by the practical man, the man who has seen it tried effectively and knows just what the results are. The fact that this industry has diminished is very strong evidence that it has not been a paying proposition. But from personal experience the writer can testify that it has not been a paying business. Some years ago we were closely identified with a fine young farmer. He bought a half interest in a fine farm in one of the best counties of the state. He bought it at a price which was regarded as cheap. His habits were excellent in every respect. The owners of this farm felt, of course, that cattle feeding was the proper thing. Some money had been made in the past in the business. At least, considering all the advantages of the system, of maintaining the fertility of the soil among the others, nothing had been lost. A fine grade of cattle was bought year after year for several years, by a competent judge of cattle and a good business man. These cattle were fed and taken care of in the best manner as results in gain in weight clearly attested. But in spite of all this, it became more and more evident, as the years went by, that this young man would not pay his indebtedness if he continued in this losing game. Cattle feeding was discontinued and attention turned to other lines on the farm. The mortgage decreased and was soon entirely paid. That man still lives on that farm, owns it all, and has thousands besides, but he has not fed a herd of cattle since.

Another similar experience is that of a young farmer well known to the readers of Pennsylvania Farmer. He began his life work upon a fine farm in a choice county in Pennsylvania. Cattle feeding had been carried on for many years on this farm. Both he and the owner of the farm thought he must engage in the same. He did so faithfully and well for a few years until he too realized that he was scarcely keeping square. What he made on certain crops was absorbed by loss on cattle feeding.

The general impression now, to the uninitiated, doubtless is that cattle feeding must be profitable on account of the high price of beef. Just here is where the hurt comes in and injury is done thru advising without definite knowledge. Some are thereby misled often too of the class that cannot financially stand it. Cattle feeding last year did not pay. As an instance, one of our bright, industrious middle-aged farmers, a grange member, received for his corn fed to cattle 40 cents per bushel and not a penny for hay, labor and other expenses.

In conclusion, there are some problems to be solved in our country, needing solution badly. Probably some of our educators can reach the kernel. They may know better than they say. Perhaps they do not say, because pet and paying schemes might be endangered thereby. Truth is mighty and tho it may be crushed for a time it will rise again. There is a panacea for these ills, and whenever the people demand it the solution is at hand.—James G. McSparran, Lancaster Co., Pa.

TO COMPUTE THE WEIGHT OF HOGS

Of course the scales are the only reliable means of getting the exact weight of a hog, but I have found that the following rule gives a pretty close estimate of the amount of pork in a fat hog:

"Measure the girth in inches back of the shoulder, and the length in inches from the square of the buttock to a point even with the point of the shoulder blade. Multiply the girth by the length and divide the product by 144 for the superficial feet, and then multiply the superficial by 11 if the girth is less than 3 feet, or by 16 if over 3 feet, and the result will be the number of pounds of pork in the four quarters of the animal."

If the animal is lean and unthrifty, a deduction of 5 percent should be made from the above result. I have used this rule is estimating a number of hogs and found that it came within a very few pounds of the actual number of pounds of pork made from the hog as shown by the scales.—A. J. Legg, Nicholas Co., W. Va.

CORRECTION BY MR. SWEIGART

We beg to correct an error in our statement appearing in your January 8th issue having omitted the charge of 3,500 eggs for Incubating at a value of $66.10; oil for incubators, $3.75, making a total of $69.85 to be added to our cost account of $2,255.78, making a grand total of cost, $2,325.63 which when deducted from our total receipts of $3,791.73 makes a net profit of $1,466.10 instead of $1,535.95 as given in our annual report.—Chas H. G. Sweigart, Chester Co., Pa.

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BEST YIELDS			AVERAGE YIELDS		
Potatoes .	375	bush. per acre	10 Prize Winners	321.3	bush. per acre
Corn . .	115	bush. per acre	10 Prize Winners	96.74	bush. per acre
Wheat .	59.86	bush. per acre	10 Prize Winners	48.50	bush. per acre

The crop shown in the photograph was good but not good enough to win a prize.

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THE COOK FARMS, Lexington, Ky. Box 436-E.

Registered Berkshires A few boars of excellent breeding. 8 months old, blood of Masterpiece 77000. Archer B. Mifflin, Mine Run Farm, Audubon, Montgomery Co., Pa.

Berkshires Splendid lot of large improved gilts and young boars, all Dukes of Sussex 6th strain that will breed on.
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VALLIE HAWKINS, Fawn Grove, Pa.

Chester White pigs, service boars, brood sows and gilts. Registered free. Satisfaction guaranteed. John L. Van Horn, Troy, Pa.

Registered Berkshires of quality, the big kind; both sexes, price low.
W. J. McCONNELL. Oxford, Pa.

O. I. C. A few Ohio Improved Chesters both sexes for sale at farmers' prices.
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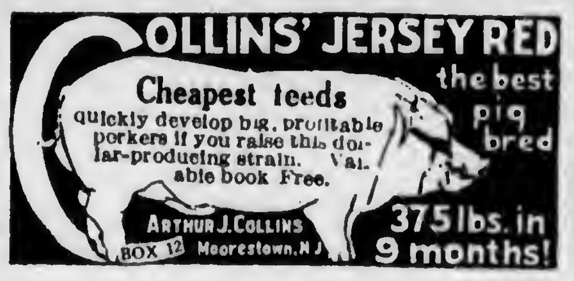

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M. F. CRUM, Sand Brook, N. J.

O. I. C. Silver strain fall pigs, none better. Write for catalog. WHITE HOMESTEAD
F. C. White, R. D. Cincinnatus, N. Y.

Reg Chester White Brood sow; also boar pigs ready for service, at special price, $15. C. C. BRAYMAN, Westerlo, N. Y.

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Satisfied with "Woodrow Farm" Berkshires
All fashionable families; outstanding individuals. Open orders given especial care
P. F. BUCKLEY, Woodrow Farm, Broad Axe, Pa.

Bellevue Farm Durocs Best blood lines of the breed, all ages. Can furnish pigs not a kin of Jan.-Feb. farrow.
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Shropshire Sheep Rams and ewes from noted English and American flocks. Quality high. Prices reasonable.
NUTWOOD FARMS, R. D. No. 4, Syracuse, N. Y.

For Sale Registered Chester Whites and Poland Chinas. All ages. Recording free.
J. A. BOAK, Route 4, Newcastle, Pa.

Berkshires A limited number of boars and gilts from spring litters.
ATKINSON BROS. Wrightstown, Pa.

Percheron Stallion for sale. Monarch No 44152, black, about 1600 lbs., eight yrs. old. Fisher Welles, Jr., Wyalusing, Pa.

Thoroughbred Mule-foots Born Aug. 5th, $10
H. H. STUART, Beacon, N. Y.

Durocs. Choice bred gilts for March and April farrow. Service boars and fall pigs, mated not akin IRA D. JACKSON, R 10, VAN WERT, O.

Large Berkshire Swine Registered High Grade. Prices reasonable; write
HOME FARM, Center Valley, Pa.

Hillcrest O. I. C. Fall Pigs, Service Boars, Bred Sows. Reg. free. Prices low.
F. S. MURDOCK, Hartstown, Pa.

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For your crops' sake, you should know the TRUTH about limes. The successful experiences of others form your best guide. Before you buy lime, ask for our free book of LIME FACTS.

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Acid Soils and Acid Stomachs

are both a part of Nature's Plan of Economy. You can utilize the acid in your soil to make Rock Phosphate available and get Phosphorus at ½ its cost in other forms. You can increase your crops of corn and oats 10 to 20 bus. per acre—grow clover where it would not grow before and make your land permanently fertile by using your acid with our *Finely Ground Rock Phosphate* at a cost of $1.00 per acre per year. Write for the booklet that tells how.

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12 CLAY STREET Columbia, Tenn.

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A Free Trial Package is Mailed to Every-One Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof and as durable as oil paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 156 North St., Adams, N. Y. and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.

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NITRATE AGENCIES CO.
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I have started thousands of breeders on the road to success. I have a very large and fine herd. Every one an early developer, ready for market at six months old. I want to place one hog in each community to advertise my herd.

O. S. BENJAMIN R. F. D. 3 Portland, Michigan

Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., Feb. 7, 1916.

Arrivals of potatoes were fairly heavy during the past week, regardless of the reported quiet market. Thru the country, growers are selling at figures equal to the market prices of the city, which fact indicates that the buyers look for an upward trend in the potato market. The large proportion of shipments received here were from the western sections; the near-by growers holding their stock in storage for advanced prices. Sales for the week have ranged at about the following quotations: Fancy Pennsylvania stock, $1.15 to 1.20; York State $1@1.10; western, $1@1.10. The stock from Michigan showed considerable frost and was sold at reduced figures. Jersey Rose continue to sell at 60 to 70 cents per basket and Cape May Red Stock is selling at $1 to 1.10 per bushel. The demand for sweet potatoes is slightly improved with only moderate receipts. Jersey sweets are moving at 45 to 55 cents per basket; Virginia stock $1.50 to 1.75 per barrel.

Vegetables

Warm weather and poor quality curtailed the demand for onions. Receipts have averaged about 30 cars daily, and large quantities of the stock were soft and sprouted. The best offerings sold at $2.25 to 2.50 per cwt., while the poorer stock sold largely at $1.50 to $2. Second-grade onions and picklers sold at 75 cents to $1.25.

Today there are 61 cars of cabbage on the tracks most of which is offered at $5 to 7 per ton. This price is from $2 to 3 below the figure secured for fresh arrivals on Thursday and Friday. This condition is not expected to hold thru the promised cold wave for this week.

Fancy near-by celery is in good demand at 9 to 11 cents per bunch. New York State celery ranges from 85 to 75 cents per bunch depending on the quality.

Root crops are in better supply with quotations revised on parsnips, rutabagas and carrots. Parsnips have been a continual drag on the market in the past six weeks and today are offered at prices to accommodate the buyers, sales ranging from 85 cents to $1.15 per barrel. Carrots, $1.75 to 2; white turnips, $1.50 to 1.75; beets, $1.75 to 2 per barrel; yellow turnips, 60 cents per bushel.

Fruits

The exportation of apples to January 29th is reported nearly one million barrels short of last year's total on the same date. Receipts of apples in the past week have been light and showed effects of the warm weather. Scald is evidenced on the Staymans and Yorks which were stored in the warm weather. No tendency for advanced prices was shown; neither was there evidence of a serious break. York State Kings brought $2.75 to 3; Hubbardstons, $2.25 to 2.75; Greenings, Spys and Baldwins, $2.50 to 3; Jonathan, $2.50 to 3.25; Grimes Golden, $2.50 to 3; Winesaps, Rome Beauty, Staymans, $2.50 to 3.25; York Imperials, Twenty Ounce and Pippin $2 to 3; Ben Davis, $1.75 to 2.50. Number 2 grades sold largely at $1.50 to 2 per barrel. A peculiar attitude noticed on the part of the trade is that apples from 2½ to 2¾ inches diameter are in greater demand and will bring equal or better prices than 3-inch stock. This is probably due to the supply of well matured and large sized fruit harvested in the past season.

Poultry

Prices have continued firm both on live and dressed poultry with fancy stock continuing scarce. Chickens of desirable size and quality were kept well cleaned up at full prices. Fresh killed dry-packed fowls sold at 18 to 20½ cents according to size; old roosters, 15 cents. Jersey broilers sold at 24 to 26c; other fancy near-by stock 22@24 cents. Fancy turkeys are in light supply and sell readily at 27 to 28 cents; near-by good to choice stock, 23 to 26 cents; old toms, 23c. Near-by spring ducks 18 to 20c; geese, 16 to 18 cents.

The market for live poultry has been active; prices ruling firm for fancy stock. Fancy live fowl sold at 16 to 18c; roosters, 12 to 12½c; spring chickens, fancy, 17 to 18c; ducks and geese, 16 to 18c.

Eggs

A further decline was made today of two cents per dozen or three cents below the quotations of last week. Today fancy near-by extras are selling at 31c per dozen. Near-by first, 26½c; current receipts, 26c. Western extra firsts are selling at 26½c; first, 26c; seconds, 21@22c. Fancy selected, candled, fresh eggs jobbed today at 32 to34c per dozen.

—Selmarad.

NEW YORK PRODUCE

New York City, Feb. 7, 1916.

Conditions are better in the butter market, especially for the top grades. Advices do not indicate enough in sight to meet the increasing demand. Trade in cheese continues quiet. Exporters still holding off. Shipments of eggs continue light. Strictly first class eggs are scarce, altho seconds and poorer are plentiful. Market for dressed poultry continues strong and supply is scant. Little change in apple market, and potatoes are selling at steady prices.

Butter. — Creamery extra, (92 score) per pound, 31@31½c; higher score, 32½@33c; thirds to firsts, 23@31c; state dairy, 20@30c; packing stock, 17@20c.

Cheese.—Whole milk specials, 18c; daisies, 18½c; skims, fresh choice, 15¼c.

Eggs. — Fresh gathered, extra, 33c; firsts, 29@30c; thirds, 24@25c; dirties, 20c; near-by whites, fine to fancy, 39@40c dozen; ordinary to good, 34@38c; browns, 35@36c.

Dressed Poultry.—Fresh soft meated—Barrels, Philadelphia and Long Island, fancy, 3 to 4 pounds to pair, 40@42c; Philadelphia and Long Island, average, 3 to 4 pounds to pair per pound, 28@30c; fancy roasters, 24@25c. Capons, 24@30c. Fowls, 16@19c; old roosters, 14½c; squabs, $2.25@6.25 doz. Spring ducks, per pound, 14@20c. Turkeys, dry picked, 22@28c.

Apples.—These prices show the range from "B" to "A". Jonathan, bbl., $2@4; York Imperial, barrel, $2.25@3.25; Winesap, barrel, $2.50@4.50; Twenty Ounce, barrel, $2@2.75; Greening, barrel, $2.00@3.00; King bbl., $2.00@3.50; Northern Spy, $2.25@4; Baldwin, bbl., $2@3; Hubbardson, bbl., $2@3; Ben Davis and Gano, bbl., $1.75@3; Common, bbl., $1.50@3.

Vegetables.—Beets, per bbl., $1.25@1.50. Carrots, bbl., $1@2. Cabbage, near-by, ton $3@6. Danish, $7@10. Celery, choice, crate 50@75c. Turnips, barrel, $1.00. Onions yellow, $1@2.50 bag. Squash, Hubbard and Marrow, $1.75@2.25 bbl. Potatoes, Jersey, $2.50@3.00 bag. Long Island, $4 bag. Sweets, $1.75@2.50 barrel.

Country Dressed Veals.—

Choice,	17 @
Prime	16 @16½
Fair to good	13½@14½
Coarse, heavy	13½@14½
Common	12½@13
Buttermilks	11 @12
Grassers	10 @11

YORK PRODUCE MARKET

York, Pa., Feb. 7, 1916.

There were not the thronging crowds to be seen this week at the various markets on account of the inclement weather. Eggs are firmer, with slight demand. Butter is weakening. Potatoes are being sought at $1 to $1.10 wholesale and 15 to 18 cents per ½ peck.

Eggs.—27@30 cents per dozen.

Butter.—Country, 28@30 cents lb; separator, 32@35 cents lb; milk, 6 cents quart.

Poultry.—Hens, 13@15c lb; dressed, 45@90c a pair.

Vegetables. — Potatoes, 12@18c ½-pk; $1.10@1.25 per bu. Cabbage, 3@7c per head. Lettuce, 8@10c per head. Beets, 4@5c bunch. Radishes, 5@6c bunch. Onions, 4@5c bunch; 10@12c ½-pk. Lima beans, 25c quart. Soup beans, 14@18c quart. Lard 12@13c lb. Celery, 7@10c per stalk. Cucumbers, 3@5c each. Turnips, 10@12c per ½ pk. Spinach, 10c per ½ pk.

Fruit.—Apples, 12@25c per ½-pk. Pears, 12@15c per ½-pk. Grapes, 10@12c a basket.

Retail Grain Market.—Wheat, $1.30; corn, 90c; oats, 62c; rye, 92c; bran, $1.45 cwt.; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.26; corn, 77@80c; oats, 50c; rye, 82c; bran, $25 per ton; middlings, $27@32 per ton.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., Feb. 31, 1916.

Receipts for the week ending Saturday evening, February 5:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,164	6,619	7,135
Previous week	3,096	6,876	7,962

Calves. — Total receipts of calves for this week were 1,087 against 1,224 last week.

Beef Cattle.—Western and Southern cattle in ample number, sufficiently supplied the current needs. Demand was more satisfactory, and prices steady. Bulls of the desirable sort ruled strong, while the choicest cows and calves realized former rates.

Best steers	$8.50@8.75
Choice	8.25@8.50
Good	8.00@8.25
Medium	5.25@6.75
Common	7.00@7.25
Bulls	6.50@7.00
Fat cows	5.25@6.75
Thin cows	2.75@4.00
Veal Calves.—	
Exceptional lots	$11.50@12.00
Good to choice	11.00@11.25
Medium	9.00@10.00
Common	7.00@ 8.00
Southerns and barnyards	4.00@ 5.00

Sheep and Lambs.—Values were firmer on all of the better grades, arrivals being only moderate, and inquiry showing improvement.

Wethers, extra,	$ 8.25@ 8.75
Choice	7.75@ 8.00
Good	7.25@ 7.50
Medium	6.50@ 7.00
Common	4.50@ 5.00
Ewes, heavy fat	6.50@ 7.50
Lambs, extra	11.25@11.50
Good to choice	10.75@11.00
Medium	9.75@10.00
Common	8.00@ 9.00

Hogs.—There was a fractional advance in the price range under a reasonable absorption. Westerns, as to size and quality, $11.50@11.75 net.

City Dressed Stock. — Hogs, sheep and lambs were held a trifle firmer, while all other meats of a high standard closed steady to firm. Trade was moderately fair.

Steers	10 @14
Heifers	9 @13
Cows	8 @11
Veal calves	14 @16
Extra calves	18 @
Barnyards	10 @13
Country dressed	12 @14
Extras	15 @
Sheep	12 @14
Extra wethers	15 @
Lambs	16 @17
Extra lambs	19 @
Hogs	11¾ @12

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., Feb. 7, 1916.

Hay and Straw.—The market for desirable grades of hay is steady to firm under small supplies and a better demand. All top grades move readily at quoted figures. Under grades continue dull with little demand. Straw is quiet but steady.

Grains.—There is a fair export demand for wheat but speculation in western markets is bearish and prices declined somewhat. Offerings of corn are moderate and the market rules steady with but little trading. There is little trading in oats, but receipts are light and values are steadily maintained. Feed is steady with fair trade and moderate offerings.

Hay.—No. 1 timothy, medium bales, $21.50@22; No. 2 do., $19.50@20; no grade, $10@14. Light mixed clover, $19@19.50; No. 1 do., $18.50@19; No. 2 do., $18.50@19.

Straw.—No. 1 straight rye, $13.50@14; No. 2 do., $12.50@13; No. 1 tangled rye, $11.50@12; do., No. 2 $10.50@11. No. 1 wheat straw, $10@10.50; No. 2 do., $9@9.50. No. 1 oat straw, $9.50@10; No. 2 do., $8.50@9.

Wheat.—No. 2 red, $1.33@1.35; No. 3 red, $1.33@1.35; rejected A, $1.30½@1.32½; rejected B, $1.29@1.31.

Corn.—No. 2 yellow western, 84@85c; steamer yellow 82½@83½c; western No. 3, 80@82c; southern, yellow, 80@82c; ear corn, 80@81c per 70 pounds.

Oats.—No. 2 white, 58@59c; No. 3 do., 55@56c; No. 4 do., 54½@55½c; standard white, 56@57c; sample oats, 51½@53c.

Feed.—Winter bran, in 100-pound sacks, $25.50 per ton; spring bran, do., $24.50@25.

Flour.—Car lots, winter clear, $5.65@6; straight, $6@6.25; patent, $6.35@6.75. City mills, choice to fancy patent, $7.25@7.75; do. regular grades, $5.65@6.75. Rye flour, $5.50@6 per bbl.

NEW YORK HAY AND GRAIN

New York City, Feb. 7, 1916.

Hay and Straw.—The hay market is steady to strong. Sales from track delivery points not being up to dock delivery. Rye straw is firm, some grades selling up to $15.

Grains.—Wheat is quiet with a fairly steady undertone. There is a general tendency in the export trade to wait to see what is done about Argentine wheat. Prices advanced about 2 cents during the week. Corn is a bit easier. Cash demand has quieted down and export business is slow. Oats are generally steady.

Hay.—Large bales—No. 1 timothy, $25@25.50; No. 2 $22@24; No. 3 $19@21; fancy clover, light mixed, $22.50@23.50; No. 1 $19@21; No grade, $13@16.

Straw.—Per ton, No. 1 rye, $14.50@15; do., No. 2, $14; oat straw, $9.

Wheat.—No. 1 Northern, $1.57; No. 2 $1.55; No. 3 $1.53.

Corn.—No. 2 yellow, 87⅞c; No. 3 yellow 85⅞@86¾c.

Oats.—No. 3 white, 57¼@58⅞c: No. 4 55@55½c; ordinary to fancy, 55@56¼c.

Rye.—$1.08@1.09½.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $24.50. Standard middlings, $26; flour, do., $28 to arrive. Red dog, to arrive, 140-lb. sacks $32.50. Oil meal, $40.25@41. City feed, bulk bran, $23.40. Heavy feed in bulk, $24.40. Red dog, $32.50. Flour middlings, $31.50.

NEW YORK MILK MARKET

New York City, Feb. 7, 1916.

The supply and demand for milk are close and inclined toward shortness. The supply of cream is estimated to be about 1,400 cans a week below demand. The receipts of milk last week increased over those of the previous week by 3,001 cans while cream receipts fell off 554 cans. The market value is approximately 4 cents a quart for grade B in the so-called 26-cent zone.

The receipts of milk and cream in 40-quart cans for the week ending February 5 were as follows.

Railroad	Milk	Cream
Erie	43,781	2,609
Susquehanna	9,695	101
West Shore	17,216	1,031
Lackawanna	56,575	1,375
N. Y. Central (long haul)	81,005	1,380
N. Y. Central (short haul)	21,750	34
Ontario	41,344	2,398
Lehigh Valley	40,920	775
Homer Ramsdell Line	3,580	31
New Haven		
Pennsylvania	7,211	153
Other sources	1,165	21
Totals	331,836	9,978

PHILADELPHIA BUTTER MARKET

Philadelphia, Pa., Feb. 7, 1916.

The butter market is steady at a decline of about 1 cent from last week. There is a light supply of desirable goods. Cheese is firm with light offerings and a steady demand.

Butter. — Fresh, solid-packed creamery, fancy specials, 34c; extras, 32c; firsts, 29@31c; seconds, 25@26c; near-by prints, fancy, 35c; firsts, 27@28c; seconds, 25@26c; special, fancy prints, 38@41c.

Cheese.—N. Y. full cream fancy, 18½@18¾c; fair to good, 17¾@18¼c; part skims, 11@16c.

ELGIN BUTTER MARKET

Elgin, Ill., Feb. 5, 1916.

Butter sales were made today at 30 and 30½ cents. Thirty tubs sold at 30 cents and 50 tubs at 30½ cents.

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Cost Keeping in Farm Home

For several years past in various household magazines there have appeared articles dealing with the cost of living. Different housekeepers have given itemized expense accounts showing exactly what it costs them to run a house, and economic experts have shown how salaries from $600 up should be divided and proportioned to cover every department ideally. But every one of these articles that I have read has dealt with conditions pertaining to city or town life, where variations of either rent or taxes must be considered, and where everything is bought from nuts to kindling wood. Some few have been from suburbanites who had a backyard garden or a few chickens to supplement the bill of fare. Not one has told about a farm home and its problems, or the opportunity the farm housekeeper has of either wasting or conserving the resources of the farm.

The whole question is, how much will the farm supply toward the daily upkeep, and how much actual cash outlay must be expected? Ninety percent of the people living on farms have exactly what they can make off of them and not a cent more. Part of what they raise is consumed on the place, another part must be turned into dollars to purchase those articles of food, supplies and utensils impossible or impracticable to be produced at home.

At present there is in some sections a decided "back to the land" movement. Men in the city on a good salary are investing their savings in a farm, and removing there with their families, frequently with not much margin to live on until the acclimating period is over and the farm becomes a paying proposition. If I were one of those wives I would want a lot of information before I consented to the change.

What is the proper household allowance on a farm, or rather how much besides what the farm supplies is needed to keep a family in a happy, flourishing condition? Does it pay better to kill your own pork and beef and have all the accompanying grease and labor and also concern as to whether it will spoil before eaten, or is it better economy to sell the hogs at wholesale prices and buy meat in smaller quantities as needed? Is it profitable to raise your own fruit and vegetables and have eternal trouble over blight, scale, bugs and other pests besides the work of preparation for the table, or shall we buy canned goods by the case? Is it more economical to make your own butter or buy it for 35 cents or 50 cents per pound? In dairy sections where whole milk is sold the decision is rather decidedly in favor of buying.

Local conditions and individual tastes will make a vast difference in estimates, and no rule can be laid down as to what it should cost any particular family to live. I can only show what has been done on our farm by giving an accurate account of our household expenses for one year, January 1, 1913 to January 1, 1914. The net income of our 100-acre farm was about $1,500. This had to supply a family of four adults with clothing, spending money, vacations, run the house and leave a good percentage to go back into the business. We have other ambitions besides eating all the profits.

For basis of comparison with other accounts we included everything within the lawn fence as being non-productive and easily comparable with a house on a big town lot.

House improvements and repairs		$261.43
Furnishings		21.58
Labor		17.00
Laundry		67.75
Coal		71.28
Light		12.65
Grounds		8.60
Foods:		
Meat	$93.23	
Breadstuffs	22.24	
Sugar, 693 lbs.	34.69	
Butter, 98½ lbs.	41.49	
Groceries	61.58	253.23
Total costs		$713.52

Some of these items may be surprisingly low, while others, I know, are high. The house improvements consisted of modern bathroom with accompanying well and sewer — everything done in first-class manner. Furnishings expense is low, partly because the house was well stocked previously, but chiefly because we were saving for the new bathroom.

Mother and daughter run the house, and we consider ourselves fortunate to be independent of maids. Household help is even more difficult to secure in the country than in town or city, while farm labor is usually more plentiful, so we call it very poor management for a woman to waste her time and strength over garden, cows, chickens, or doing anything for which a man is stronger and better fitted. Our house labor item consisted mostly of a very small boy during school vacations, who was of marvelous assistance to gather and prepare vegetables, run errands, weed flower beds, etc. Then during housecleaning we frequently borrowed one of the farm men to help with the heavy end. Our meals and work are arranged so that we have from 1.30 to 5 o'clock every afternoon for napping, sewing or calling—and frequently more if we manage properly. The bulk of our washing and ironing goes out every week at $1.25. Occasionally we have some extra heavy flat work done at the steam laundry.

Coal costs us about 30 cents cwt and is used for the kitchen range thruout the year, and in two double heaters about five months. A number of fireplaces in generous use are supplied with wood from the farm. Kerosene lamps are used for lighting, and all expense and supplies are charged to that account. The bill for grounds was for some new trees, shrubbery, repairs for fences, sharpening the lawn mower, etc.

The food expense always depends on the size of the family, the guests, extra labor, threshers and our own absences from home. Our family was as changeable as the weather, so I kept a careful record of every person who ate at our table. It amounted at the year's end to 6,172 persons (an average of 5.63 at a meal), making the average cost of food per meal for one person .041 cents.

This does not take into account any foodstuffs raised on the farm. We found it impossible to value these because so often it would be something not marketable. Take chickens, for instance. We had all we wished to use (47 that year), but we did not take the pick of the flock, but used the ones with feathers off color, under size ones, an old rooster, a fat hen, or when picking for market there would invariably be one slightly torn or disfigured whose market appearance would be marred, but would be just as good for the table.

Eggs used amounted to about 175 dozen, chiefly odd sizes and discards in sorting for market. In the spring when price is away down we preserve quantities in water glass, and these keep us supplied from October to February, when all fresh ones are sold at a good price. We have a dairy and sell our milk whole. In flush seasons we have

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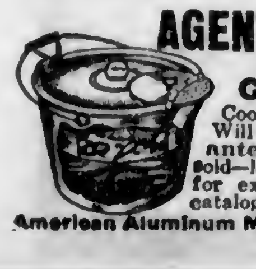

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all the milk and cream we can use and when it is scarce we adapt our needs accordingly; we probably average using 3½ quarts per day. Rabbits can be had for the shooting during open season.

The average price for butter sounds extravagant, but we sacrifice quantity for quality. Very little was used in cooking as we found satisfactory substitutes, one of which is carefully rendered chicken fat.

Breadstuffs included flour, cornmeal, yeast cakes. For white bread we buy the best spring wheat flour. We also use a great deal of graham flour made from our own wheat at a nearby mill, but only the cost of milling was charged for this and the corn meal.

We have not cured any of our own meats for eight years, and shall probably never return to it. If we had a large family of meat eaters and lived at a distance from town it would be a different matter. We can buy dried beef with as fine flavor as any home cured, and careful figuring shows that there is very little difference in price if purchased by the round. If we have a lot of extra men to feed we buy a ham. With our own family it would mean too steadily eating at it to keep it from spoiling. Managing this way, we have no fat for soap making, and that job is eliminated. It really is not a paying proposition anyway with the wholesale price of meat, say, 10 cents per pound, when soap can be bought for 5 cents.

The amount of sugar sounds big, but we put up quantities of fruit and have some kind of stewed fruit on the table every meal. Last year we had rhubarb by the middle of April, strawberries all June, then cherries, raspberries, blackberries, currants, gooseberries, elderberries, crabapples, with grapes during September and October; pears at intervals from August to Christmas, and apples every month except June and July. This year we should have peaches and plums also. We follow the old adage "Sell what we can, and can what we can't". If any crop fails we regret its loss, and eat something else.

The same way with vegetables. We have a big garden (the kind worked by a horse and hoe-harrow), and plenty of things are planted. Frosts, floods, and drouths may come, but we usually have enough of all for ourselves and a good quantity to sell or give away. We had 12 varieties to use last summer and also the following which were stored for winter: Salsify, carrots, parsnips, turnips, cabbage, potatoes, onions, celery, quantities of tomatoes, canned both for stewing and for frying, dried corn and some jars of canned asparagus, string and lima beans.

Some people claim that it is cheaper to buy most of these things if cost of growing and labor of preparation is taken into consideration. Perhaps it is, but you will manage with far less quantity and it will usually not equal home-grown stuff. There is no better diet than one consisting largely of milk, eggs, fruit and vegetables. I have noticed that if the amount of any of these is appreciably reduced, the meat bill is enlarged accordingly, and as that is the most expensive commodity effort should be made to keep it within limits. (Editor's Note.—Excessive use of meat also causes rheumatism and kidney ailments, doctor bills and decreased physical efficiency.)

In the grocery bill is included 100 pounds of lard at 13 cents, a box of soap, rice tea, coffee, cocoa, starch, salt, beans for baking (on account of tedious hand shelling we do not care to raise them). We indulge very little in out-of-season or foreign products. Mushrooms appear all over our meadows every summer, frequently weeks at a time, so cultivated ones at winter prices do not appeal to us.

Many of these problems will never come up with a town housekeeper. Her markets are supplied with products of every clime. She seldom knows what is in or out of season but buys what suits her fancy or her purse. With us it lays between utilizing what is already at hand probably spoiling to be used, or buying something else just for the sake of a change. The simplest way out of the difficulty is for the farmer to plant everything adapted to his locality, and then his family will have a wide range of diet at a minimum of cost.—E. S. B., Chester Co., Pa.

Chicken and Oyster Pie.—Cold boiled chicken, 50 good large oysters and a slice of ham are needed. Make 1 quart good white sauce, using the oyster juice as part of the liquid. Line a deep dish with biscuit dough, cut the chicken in even pieces and put in dish alternately with the oysters and the diced ham. Pour the sauce over all and cover with crust ½ inch thick. Have a hole in top for steam to escape, and pinch edges close together. Bake ½ hour, and serve hot.

Oyster Croquettes. — One-half pint raw oysters, ½ pint cooked veal, 1 heaping tablespoon melted butter, 3 tablespoons cracker crumbs, yolks of 2 eggs, and 1 tablespoon onion juice. Chop the oysters and veal very fine. Soak the cracker crumbs in oyster liquor, then mix all the ingredients, and shape, dip in beaten egg, roll in bread crumbs and fry.

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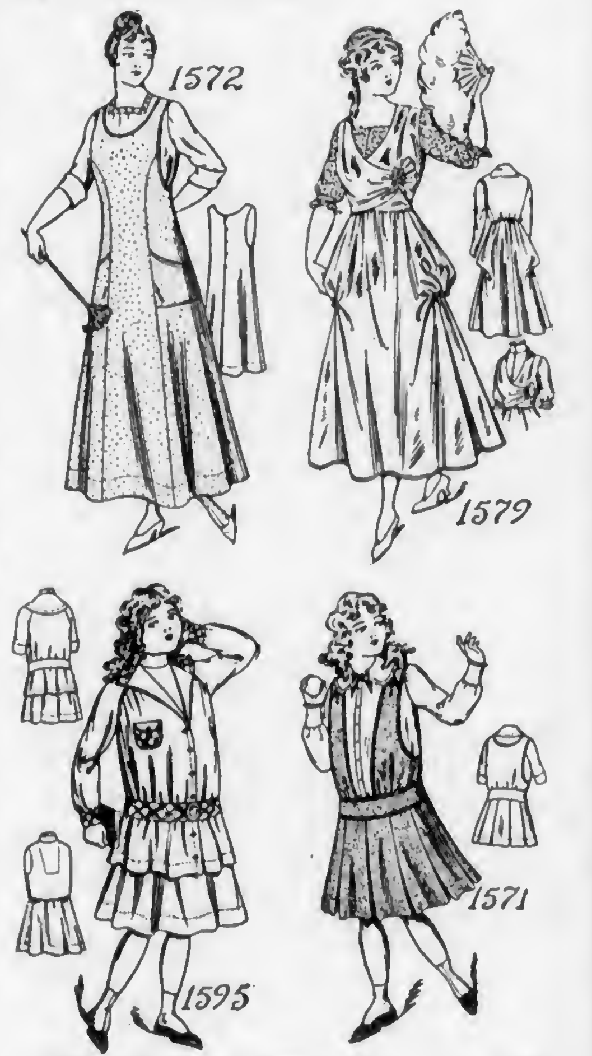
Be sure to give the figures and letters of each pattern exactly as printed at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-63 So. Third Street, Philadelphia, Pa.

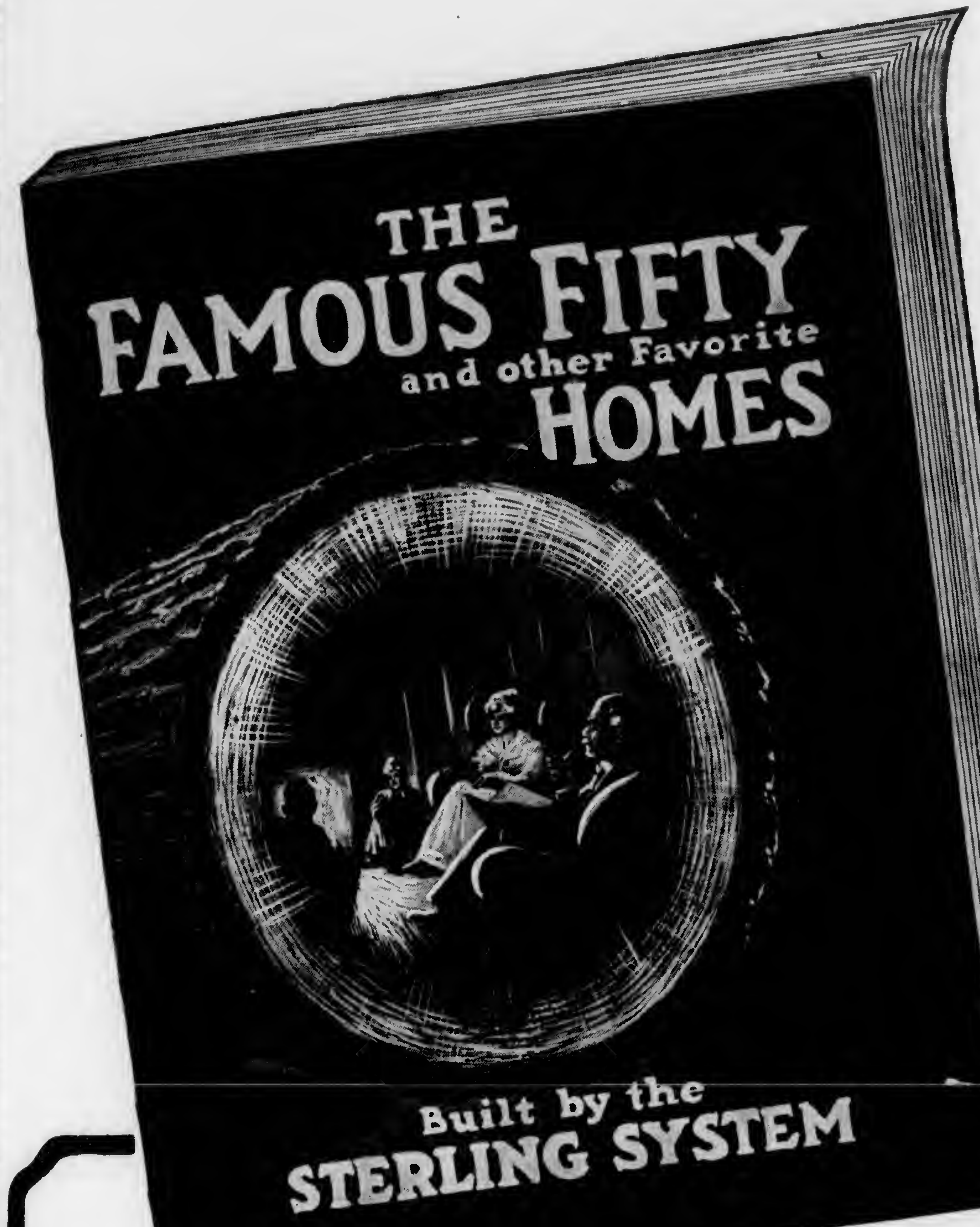
1572.—Ladies' Apron.—Cut in 3 sizes: Small, medium and large. The medium size will require 5¼ yards of 36-inch material. Price of pattern, 10 cents.

1579.—Costume for Misses and Small Women.—Cut in 3 sizes: 16, 18 and 20 years. It requires 5⅛ yards of 44-inch material for an 18-year size. The skirt measures about 3¼ yards at its lower edge. Price, 10 cents.



1595.—Girls' Dress.—Cut in 4 sizes: 8, 10, 12 and 14 years. It requires 4½ yards of 44-inch material for a 10-year size. Price, 10 cents.

1571. — Girls' Over-Blouse with Guimpe.—Cut in 5 sizes: 4, 6, 8, 10 and 12 years. It requires 2 yards of 27-inch material for the guimpe or underwaist, and 4 yards for the dress for a 10-year size. Price, 10 cents.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Grange

Among the Granges

Lycoming County, Pa. — Thursday evening the P. O. S. of A. Hall at Oriole, Lycoming county, was the scene of an elaborate function, it being the annual banquet of the Oriole Grange and the installation of officers. The Oriole Grange is very young, but already its influence is being felt in Nippenose Valley. The Oval Grange was the guest of the Oriole Grange on this occasion, about one hundred people sitting down to the banquet, which was served at ten o'clock. Previous to this the installation took place, Frank Shoulder, of Bottle Run Grange, acting as master of the installation ceremonies. The banquet was served by the women of the Oriole Grange and was an elaborate affair. At the close of the banquet, short talks were given by the guests from Oval Grange. Wm. Byerly talked on the Benefits of the Grange, illustrating what had been accomplished in their county since the organization of the farmers. He dwelt on the spirit of good fellowship, which the Grange fosters, found in the social life, as well as their business relations. Mr. Shoulder made the address of the evening. He talked on the Ritualistic service of the order and what it means.

. . . . .

Bottle Run Grange, a few miles above Newberry, celebrated its tenth anniversary with an all-day meeting one day recently, about two hundred Grangers attending the anniversary party. This Grange, one of the youngest in the county, is one of the most active, having a large membership, composed of not only the men and their wives of that community but many of the young people as well. Brother Grangers from Pine Run and West Branch Grange were special guests taking part in the afternoon's discussions. A delicious dinner was served by the women of Bottle Run Grange. During the afternoon an entertainment was given, the members of this grange furnishing music, instrumental and vocal, and recitations. Several addresses were made. L. A. Pidcoe, master of the Grange, talked on the interest shown in this organization today—an organization which stands for the community. O. R. Artley, one of the guests, also talked briefly, congratulating the grange on their standing and the good they were accomplishing in this community. The address of the afternoon was made by R. H. Bell, Farm Bureau expert from this county. Mr. Bell took for his subject, "Co-operation". He referred to the meaning of the word and then told what was being accomplished by those who were taking advantage of this method of cooperation. He referred to the results being secured by the North West Fruit Growers, the Orange Growers of California, the Onion Growers of Texas and the Southern states, as well as those who raised strawberries, grapes, and other fruits and marketed them by this method. He declared that only thru co-operation could the farmer make his business profitable. Mr. Bell referred briefly to the plans the Farm Bureau of Lycoming county were now perfecting in order to help the farmers of this community. He discussed the "Oats Campaign" now being contemplated in order that the farmers not only harvest a larger crop, but that they secure a better grade of oats. He closed with a plea that they consider this subject the most important in their farm work. Supper was served before the guests left and the day closed with a regular Grange meeting held in the hall.—D. D.

Clearfield Co., Pa. — Pomona Grange No. 33, met at Clearfield, Pa., January 13, 1916. Reports in writing were received from part of the subordinate granges and two deputies made reports, all showing the need of active work to build up the Grange.

E. H. Harmon, Secretary of the Fire Insurance Co., reported for the Company, which is in good financial condition. Some unusually heavy losses made the assessment rate high the past year. Also it was shown that January 1, 1916, some $4,000 of last year's assessment was uncollected or in agent's hands.

Pomona passed a resolution endorsing the holding of a county fair at Clearfield. At the afternoon session W. C. Pentz, Esq., of Du Bois, explained the provisions of the law governing contagious diseases of animals, finding that the pay for slaughtered animals is generally inadequate with the exception of that for foot and mouth disease. Mr. Pentz believes the clause exempting farmers and employers of domestic servants will be declared unconstitutional by the courts.

A number of interesting questions were discussed by the members and good music and recitations enlivened the proceedings.

A resolution was passed asking Judge Bell to refuse to grant licenses in the County in line with the temperance sentiment of the people as expressed in the remonstrances that will be presented at license court.

The officers were installed in a very dignified and impressive manner by C. H. Dildine of Orangeville, Pa., member of the Executive Committee of State Grange.

The Fifth Degree was conferred in full form upon 5 candidates. After this Brother Dildine exemplified the unwritten work of the Grange. Dinner and supper were served in the basement of the hall and a very profitable and enjoyable session was held.

. . . . .

Clearfield County Agricultural Society held its annual meeting for election of officers, etc., January 1st. Afterwards the Executive Committee, representing the Society, passed a resolution "that a county fair will be held at Clearfield provided the Chamber of Commerce provide a guarantee fund and farmers and others support it, if the park can be secured at a reasonable price."

The Chamber of Commerce has since undertaken to raise the guarantee fund by the 28th and the owner of the park has made a satisfactory price for one year, with the first chance to buy at anytime given the Agricultural Society. Much interest is manifested and prospects seem good for the holding of a real agricultural fair next fall.—T. W.

Burlington Co., N. J.—The annual meeting of Burlington County Pomona Grange was held in I. O. O. F. Hall, Moorestown, on Tuesday, January 25, with an attendance of about six hundred. In morning session the officers were installed by B. Howard Jones and wife, assistant steward of New Jersey State Grange, assisted by Mr. Craig and wife, of Monmouth County. Then reports of subordinate granges were read. There are 10 subordinate granges in the county with 2,500 members, of which Moorestown has 430, and Columbus has 425 members. In afternoon session different committees reported. The Lecturer's program was very interesting. Among the visitors were Bro. Havens, Overseer of N. J. State Grange; Mr. Heritage P. Asa Moore, of Gloucester Co.; Mrs. Rodgers, of Chester Co., Pa.; R. W. DeBaum, of N. J. Experiment farm; Col. E. A. Stevens, Supervisor of stone roads of N. J.; George Reid, Farm Demonstrator of Burlington Co., and F. E. Embree, Manager of Burlington County Farmers' Exchange. The next meeting will be held in Pemberton, the fourth Tuesday in April. The officers were installed for two years.—D.

Bucks County, Pa. — The executive committee of the Farm Bureau in Bucks County held a meeting, Saturday afternoon, January 28, in the Court House, Doylestown. Arrangements were made for the annual meeting to be held in the afternoon of February 16, at Doylestown. Election of officers.

Solebury Farmers Club will meet at the Friend's School House, February 12. Two questions will be answered on the Workmen's Compensation Law from the employer's and employe's standpoint.—Mrs. M. R. Ely.

York County Experience.—What shall we do with the middlemen? is a question which just now is receiving general discussion, particularly in connection with the farmer and his interests. He seems to be the party who is most to be blamed for our agricultural ills; and yet, he has grown up with our industry and is largely the product of his environment. Moreover, we find him in every other form of industry in the community and among them there is little or no discussion of his necessity or otherwise and many of them would not get rid of him if they could. They need him. This leads us to ask, after all, whether we would be as well off without him as many of us would think. Let me give a little experience.

Gideon Grange, No. 810, of Hanover, was started here in 1885. With it they began a purchasing and sales agency to "save the middlemen's profits." Like most of such things it worked well during the period of early enthusiasm and went thru many changes. First with an arrangement with a wholesale grocery house until they found it too troublesome; then after other changes, a store room of their own was built and put in charge of a man who did not prove worthy of the trust committed to him, and this was abandoned and then an arrangement was made with a retail grocer who was to allow a special discount on all purchases by grangers from him which lasted for a few years until the grocer determined to abandon it, he said it caused too much trouble with his other customers, and now, after about 30 years of experiment we find ourselves back in the hands of the good old middle man and he is glad to receive us. I do not know how about the "fatted calf" but we hope some day to get a slice.

Just across the Maryland line from us there is a grange at Silver Run which has been flourishing for some years. It has its own hall and has been running a store of its own for some years, in charge of some one employed to attend to it. This fall the grange determined to abandon the store and sold it out to a private party who is running it in his own interests. I presume they, too, got a lot of valuable experience as their share of the profits.

The truth is easily understood. The average grange in the country does not have business enough to justify running a store of its own and keep a competent man to attend to it and hence, in the long run will find it just as cheap and a great deal less trouble to pay the middleman his profit and call him a first rate fellow after all.

. . . . .

On February 19, Pomona Grange will meet at Hanover, 1 P. M. We expect an address from State Master J. A. McSparran.—D. P. F.

TOLL ROADS

I note that the editor asks what the readers think of the toll roads as a system. D. B. F., of Pa., recommends them and of course they have some advantages but it seems to me that the disadvantages far outweigh these advantages. Years ago we had a toll road passing thru this county from Gauley Bridge to Weston. This was operated by a company until the Civil War. Then it was abandoned and the road reverted to the public.

It seemed a hard task to keep it up so about twenty-five years ago the county court of this (Nicholas) county appropriated money to put about 25 miles of this road up in good shape and then they undertook to keep it up by toll gates. This system was very unpopular, so much so that it was soon abandoned. Not so much that the traveling public cared so much for the few cents paid to the gate keeper, but the bother of stopping to pay toll and to wait for making the change was often a more costly expense than the few cents exacted by the gate keeper. Think of a whole string of wagons, it may be five or six teams all being held up to wait for the toll gatherer to make the change. When the first wagon reached the gate all had to stop until the first one paid up and passed the gate and in case of six wagons the hindmost one would have to wait on five teams to get the privilege of paying perhaps five or ten cents to the gate keeper. Then another trouble, if a man lived half a mile from the gate he had to pay every time he passed thru. If he lived three or four miles he got the use of the road between the gates free of cost provided he did not go thru the gate. Persons living beyond the jurisdiction of this road had to pay for the use of the road while they had the pleasure of giving persons from the toll road county free passage over the road which they were taxed to keep up.

Perhaps the editor would not call it a system that only took in a part of the roads, however, it would be difficult to get a system that would take in many of the roads and still pay expenses. The toll system requires many collectors and employes which gives room for graft as well as the public road system.—A. J. Legg, Nicholas Co., W. Va.

RURAL ROUTES

Gentlemen: I have read both articles on the rural routes with much interest and must say that I do not agree with the N. J. subscriber as to the "overpaid" carrier and the curtailing of expenses.

The route on which my mail is delivered is 28.4 miles long since re-routed. About five miles of this is also covered by other routes. Part of this route is very hilly.

The carrier on this route leaves the post office at 9.30 A. M. If the roads are solid he is back at about 5.30 P. M. During the season of heavy roads it is usually 6.30 P. M. I do not consider this carrier over-paid.

As to reducing the deficit, I will state an instance of an Assistant Post Master at Washington, who was appointed from one of our neighbring towns, and who in order to "boost" the post office of that town, caused four routes to be removed from their former, and near starting points to his "home town."

Two of the carriers retrace two miles without serving mail, one four miles, while the fourth who started from a town nearly twice the size of the one where he now starts from, drives over two miles of mountainous road not to curtail expenses but to boost the "home town" post office of an Assistant Post Master at Washington, who will probably some day wish to attain a higher office.—Subscriber, Schuylkill Co., Pa.

Every public question deserves free, frank discussion by the people.

Hepsey Burke

By Frank N. Westcott

CHAPTER XXI

Uninvited Guests

A few nights later, when Maxwell returned from his work he found Mrs. Burke sitting on the front platform of the tent with Mrs. Betty; and having washed, and changed his clothes, he persuaded their visitor to stay to supper. After supper was over they sat out doors, chatting of Maxwell's amusing experiences.

They had not been sitting long when their attention was attracted by a noise up the street, and going to the fence they saw a horse, over which the driver evidently had lost control, galloping towards them, with a buggy which was swerving from side to side under the momentum of its terrific speed.

Maxwell rushed into the middle of the street to see if he could be of any assistance in stopping the horse and preventing a catastrophe; but before he could get near enough to be of any service the animal suddenly shied, the buggy gave a final lurch, overturned and was thrown violently against a telegraph pole. The horse, freed, dashed on, dragging the shafts and part of the harness. The occupant of the buggy had been thrown out against the telegraph pole with considerable force, knocked senseless, and lay in the gutter, stained with blood and dirt. Mrs. Burke and Betty lifted the body of the buggy, while Maxwell pulled out from under it the senseless form of a man; and when they had turned him over and wiped the blood from his face they discovered, to their utter amazement, that the victim was no less a personage than the Senior Warden, Sylvester Bascom.

Of course there was nothing to be done but to carry him as best they could into the tent, and lay him on a lounge. Maxwell ran hastily for a doctor, while Hepsey and Mrs. Betty applied restoratives, washed the face of the injured man, and bound up as best they could what appeared to be a serious wound on one wrist, and another on the side of his head. The doctor responded promptly, and after a thoro examination announced that Bascom was seriously hurt, and that at present it would be dangerous to remove him. So Mrs. Betty and her guest removed Maxwell's personal belongings and improvised a bed in the front room of the tent, into which Bascom was lifted with the greatest care. Having done what he could, the doctor departed, promising to return soon.

In about twenty minutes there were signs of returning consciousness, and for some time Bascom looked about him in a dazed way, and groaned with pain. Mrs. Burke decided at once to remain all night with Mrs. Betty, and assist in caring for the warden until Virginia could arrive and assume charge of the case. After about an hour, Bascom seemed to be fully conscious as he gazed from one face to another, and looked wonderingly at the canvas tent in which he found himself. Mrs. Burke bent over him and inquired:

"Are you in much pain, Mr. Bascom?"

For a moment or two the Senior Warden made no answer; then in a hoarse whisper he inquired:

"Where am I? What has happened?"

"Well, you see, something frightened your horse, and your buggy was overturned, and you were thrown against a telegraph pole and injured more or less. We picked you up and brought you in here, cleaned you up, and tried to make you as comfortable as possible. The doctor has been here and looked you over, and will return in a few minutes."

"Am I seriously injured?"

"You have two bad wounds, and have evidently lost a good deal of blood; but don't worry. Mrs. Betty and I and the rest of us will take good care of you and do all we can until Virginia is able to take you home again."

"Where am I?"

A curious expression of mild triumph and amusement played across Mrs. Burke's face as she replied:

"You are in Donald Maxwell's tent. This was the nearest place where we could bring you at the time of the accident."

For a moment a vestige of color appeared in Bascom's face, and he whispered hoarsely:

"Why didn't you take me home?"

"Well, we were afraid to move you until the doctor had examined you thoroly."

The patient closed his eyes wearily.

It was evident that he was growing weaker, and just as the doctor returned, he again lapsed into unconsciousness. The doctor felt of Bascom's pulse, and sent Maxwell hastily for Doctor Field for consultation. For fifteen minutes the doctors were alone in Bascom's room, and then Dr. Field called Maxwell in and quietly informed him that the warden had lost so much blood from the wound in the wrist that there was danger of immediate collapse unless they resorted to extreme measures, and bled some one to supply the patient. To this Maxwell replied:

"I am strong and well. There is no reason why you should hesitate for a moment. Send for your instruments at once; but my wife must know nothing of it until it is all over with. Tell Mrs. Burke to take her over to Thunder Cliff for an hour or two, on the pretext of getting some bedding. Yes, I insist on having my own way, and as you say, there is no time to be lost."

Doctor Field took Mrs. Burke aside and the women immediately departed for Thunder Cliff. The necessary instruments were brought, and then the three men entered the sick room.

In about twenty minutes Maxwell came out of the invalid's room, assisted by Doctor Field, and stretched himself on the bed.

Bascom's color began slowly to return; his pulse quickened, and Dr. Field remarked to his colleague:

"Well, I think the old chap is going to pull thru after all; but it was a mighty close squeak."

Meanwhile, the messenger who had been sent out to Willow Bluff to apprise Virginia of her father's accident returned with the information that Virginia had left the day before, to stay with friends, and could not possibly get back home until next day. It was decided to telegraph for her; and in the meantime the doctors advised that Mr. Bascom be left quietly in his bed at the new "rectory," and be moved home next day, after having recovered some of his lost strength. Mrs. Betty and Mrs. Burke took turns in watching by the invalid that night, and it might

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have been observed that his eyes remained closed, even when he did not sleep, while Mrs. Burke was in attendance, but that he watched Mrs Betty with keen curiosity and wonder from between half-closed lids, as she sat at the foot of his bed sewing, or moved about noiselessly preparing the nourishment prescribed for him by the doctors, and which the old gentleman took from her with unusual gentleness and patience.

It was Mrs. Burke who, having learned of the time when Virginia was expected to return home, drove out to Willow Bluff with Mr. Bascom, and assisted in making him comfortable there before his daughter's arrival. He volunteered no word on their way thither but lay back among his cushions and pillows with closed eyes, pale and exhausted—tho the doctor assured the Maxwells that there was no cause for anxiety on the score of his removal. when they urged that he be left in their care until he had regained more strength.

It was a white and scared Virginia who listened to Hepsey's account of all that had happened — an account which neither over-stated the Bascom's debt to the Maxwells nor spared Virginia's guilty conscience.

When she found that her father had been the guest of the Maxwells and that they had played the part of good Samaritans to him in the tent in which the Senior Warden had obliged them to take refuge, she was thoroly mortified, and there was a struggle between false pride and proper gratitude.

"It is very awkward, is it not, Mrs. Burke?" she said. "I ought certainly to call on Mrs. Maxwell and thank her —but—under the circumstances——"

"What circumstances?" asked Hepsey.

"Well, you know, it will be very embarrassing for me to go to Mr. Maxwell's tent after what has happened between him and—my father."

"I'm not sure that I catch on, Virginia. Which happenin' do you mean? Your father's cold-blooded ejection of the Maxwells from their house, or Mr. Maxwell's warm-blooded sacrifice to save your father's life? Perhaps it is a bit embarrassing, as you call it, to thank a man for givin' his blood to save your father."

"It is a more personal matter than that," replied Virginia, gazing dramatically out of the window. "You don't quite seem to appreciate the delicacy of the situation, Mrs. Burke."

"No, I'm blessed if I do. But then you know I'm very stupid about some things, Virginia. Fact is, I'm just stupid enough to imagine—no, I mean think—that it would be the most natural thing in the world to go straight to the Maxwells and thank 'em for all they've done for your father in takin' him in and givin' him the kind of care that money can't buy. There's special reasons that I needn't mention why you should say thank you and say it right."

Virginia examined the toe of her boot for some time in silence and then began:

"But you don't understand the situation, Mrs. Burke."

"Virginia, if you don't stop that kind of thing, I shall certainly send for the police. Are you lookin' for a situation? If you have got anything to say, say it."

"Well, to be quite frank with you, Mrs. Burke, I must confess that at one time Mr. Maxwell and I were supposed to be very good friends."

"Naturally. You ought to be good friends with your rector. I don't see anything tragic about that."

"But we were something more than friends."

"Who told you? You can't believe all you hear in a town like this. Maybe some one was foolin' you."

"I ought to know what I am talking about. He accepted our hospitality at Willow Bluff and was so attentive that people began to make remarks."

"Well, people have been makin' remarks ever since Eve told Adam to put his apron on for dinner. Any fool can make remarks, and the biggest fool is the one who cares. Are you sure that you didn't make any remarks yourself, Virginia?"

Virginia instantly bridled, and looked the picture of injured innocence.

"Certainly not!" she retorted. "Do you think that I would talk about such a delicate matter before others?"

"Oh no; I suppose not. But you could look wise and foolish at the same time when Maxwell's name was mentioned, with a coy and kittenish air which would suggest more than ten volumes of Mary Jane Holmes."

"You are not very sympathetic, Mrs. Burke, when I am in deep trouble. I want your help, not ridicule and abuse."

"Well, I am sorry for you, Virginia, in more ways than one. But really I'd like to know what reason you have to think that Donald Maxwell was ever in love with you; I suppose that's what you mean."

Virgina blushed deeply, as became a gentle maiden of her tender years, and replied:

"Oh, it is not a qustion of things which one can easily define. Love is vocal without words, you know."

"Hm! You don't mean that he made love to you and proposed to you thru a phonograph? You know I had some sort of idea that love that was all wool, and a yard wide, and meant business, usually got vocal at times."

"But Mr. Maxwell and I were thrown together in such an intimate way in parish work, you know."

"Which did the throwing?"

"You don't for one moment suppose that I would intrude myself, or press myself on his attention, do you?"

"Oh my gracious, no! He is not the kind of a man to be easily impressed. He may have seen a girl or two before he met you; of course I mean just incidentally, as it were. Now, Virginia Bascom, allow me to ask you one or two plain questions. Did he ever ask you to marry him?"

"No, not in so many words."

"Did he ever give you any plain indication that he wanted to marry you? Did he ever play the mandolin under your window at midnight? Did he ever steal one of your gloves, or beg for a rose out of your bouquet, or turn the gas out when he called?"

"No, but one night he sat on the sofa with me and told me that I was a great assistance to him in his parish work, and that he felt greatly indebted to me."

"Hm! That's certainly rather pronounced, isn't it? Did you call your father, or rise hastily and leave the room, or what did you do?"

"Well, of course it was not a proposal but the way he did it was very suggestive, and calculated to give a wrong impression, especially as he had his arm on the back of the sofa behind me."

"Maybe he was makin' love to the sofa. Didn't you know that Donald Maxwell was engaged to be married before he ever set foot in Durford?"

"Good gracious, no! What are you talking about?"

"Well, he certainly was, for keeps."

"Then he had no business to pose as a free man, if he were engaged. It is dreadful to have to lose faith in one's rector. It is next to losing faith in—in—"

"The milk-man. Yes, I quite agree with you. But you see I don't recall that Donald Maxwell did any posing. He simply kept quiet about his own affairs—tho I do think that it would have been better to let people know that he was engaged from the start. However, he may have concluded his private affairs were his own business. I know that's very stupid; but some people will persist in doin' it, in spite of all you can say to 'em. Perhaps it never occurred to him that he would be expected to marry anyone living in a little sawed-off settlement like this."

"There's no use in abusing your native village; and"—her voice quavered on the verge of tears—"I think you are very unsympathetic." She buried her nose in her handkerchief.

Mrs. Burke gazed sternly at Virginia for a full minute and then inquired:

"Well, do you want to know why? You started with just foolishness, but you've ended up with meanness, Virginia Bascom. You've taken your revenge on people who've done you nothin' but kindness. I know pretty well who it was that suggested to your father that the mortgage on the rectory should be foreclosed, and the Maxwells turned out of house and home. He's always been close-fisted, but I've never known him to be dead ugly and vindictive before.

"Yes. You were behind all this wretched business — and you're sorry for it, and wish you could undo the unkindness you've done. Now I'm goin' to talk business—better than talkin' sympathy, because it'll make you feel better when you've done what I tell you. You go and call on Mrs. Betty immediately, and tell her that you are very grateful to her husband for saving your father's life, and that money couldn't possibly pay for the things she and Mr. Maxwell did for him, and that you're everlastingly indebted to 'em both."

"But—but," wailed the repentent Virginia, "what can I say about the tent? Pa won't go back on that—not if his life had been saved twice over."

"Never you mind about that. You do your part of the business, and leave the rest to the other fellow. You can bet your bottom dollar it won't be the Maxwells that'll raise the question of who turned 'em out of the rectory."

"I'll go right away, before I weaken. Oh," she cried, as Hepsey put a strengthening arm about her, "I've been wrong—I know I have. However shall I make it right again?"

When Virginia arrived at the tent and pulled the bell-cord, Mrs. Betty pushed apart the curtains and greeted her visitor with the utmost cordiality.

"Oh, Miss Bascom! I am so glad to see you. Come right in. Donald is out just now; but he will return presently, and I'm sure will be delighted to see an old friend. This way, please. Is your father improving satisfactorily?"

This greeting was so utterly different from what she had expected, that for the moment she was silent; but when they were seated she began:

"Mrs. Maxwell, I don't know how to express my gratitude to you for all you have done for my father. I—I—"

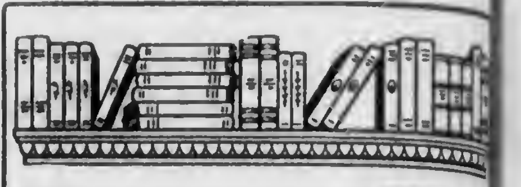
"Then I wouldn't try, Miss Bascom. Don't give the matter a single thought. We were glad to do what we could for your father, and we made him as comfortable as we could."

Virginia's heart was quite atrophied, and so with choking voice she began:

"And I'm afraid that I have not been very civil to you—in fact, I am sure that I owe you an apology———"

"No, never mind. It's all right now. Suppose you take off your things and stay to supper with us. Then we can have a real good visit, and you will see how well we dwellers in tents can live!"

(To be continued.)



PIECES *to* SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

TWENTY YEARS AGO

I wandered to the hotel, Tom,
And stood beside the bar,
Called for a glass of lemonade.
And smoked a bad cigar.
No one was there to greet me, Tom,
And few are left to know,
When we were on the turf
Some twenty years ago.

The barkeeper is a younger man,
The one who used to sell
Corrosive tanglefoot then
Is roasting now in—well,
The other wears a diamond stud,
His hair is combed quite low
And looks just like the one we
Knew some twenty years ago

Old soaks called for booze, Tom,
With the same old grin,
While others burned their throats
With what I think was gin,
And women stood beside the doo
Their faces seamed with woe
And wept just the same as they did
Twenty years ago.

I asked about old time friends,
Those cherished, sporty men.
Some were in the poor house, Tom,
And some were in the pen.
The one we liked the best, Tom,
The hangman laid him low;
The world is much the same, dear
Tom, as twenty years ago.

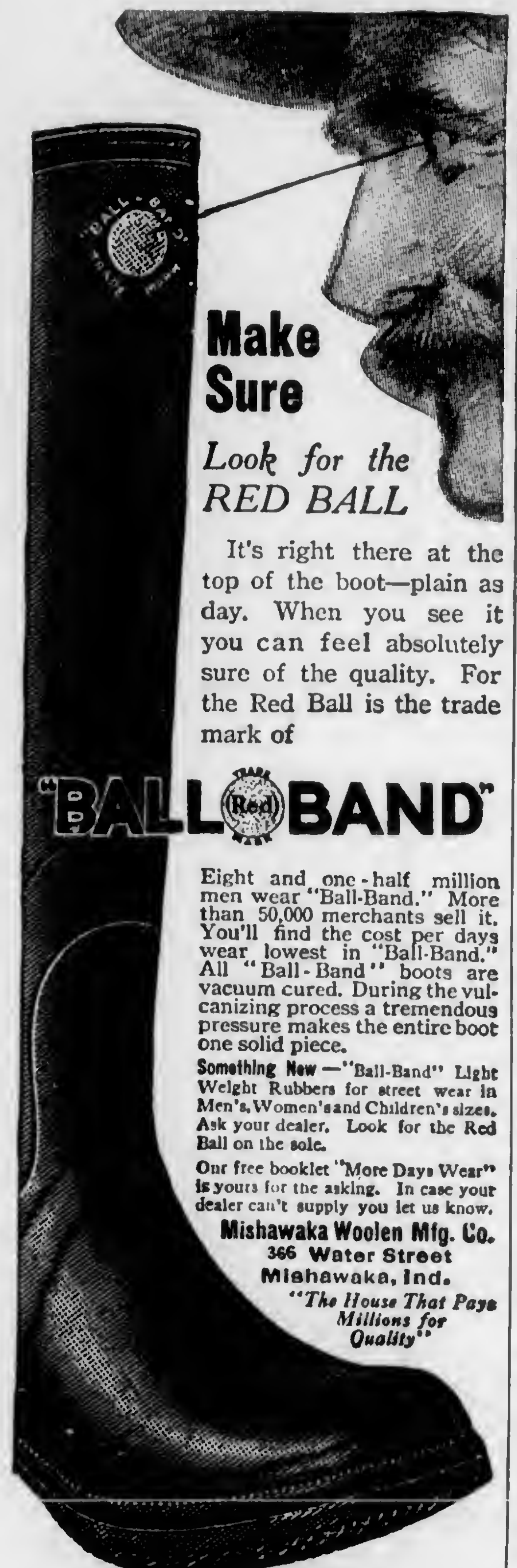
I asked about that wealthy chap,
Who'd never drink alone,
And always claimed that he for one
Could always hold his own.
He perished with the jim-jams
Out in the cold and snow.
Ah! few survive who used the booze
Some twenty years ago.

New crowds lined up against the bar
And called for crimson ink;
New hands trembled as they poured
The stuff they oughtn't drink.
But the same old watchword rings:
" 'Tis rounds on me you know
The same old cry we heard,
Some twenty years ago.

I wandered to the church-yard, Tom,
And there I saw the graves
Of those who used to drown themsel
In red fermented waves.
And there were women sleeping
Where grasses and daisies gro
Who wept and died of broken hearts
Some twenty years ago.

And there were graves where childr
Slept, have slept for twenty
yea
Forgetful of the woes that marked the
Fitful sojourn here.
And 'neath a tall white monument
Death there lieth low,
The man who used to sell the booze,
Some twenty years ago.

Submitted by—
S. Jennie Way, Clearfield Co., P



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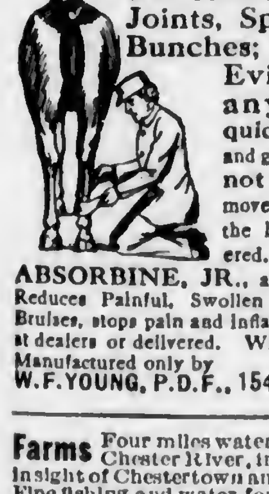

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Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Pigs Have Fits—Warts on Bull.—I have derived great benefit by using prescriptions which have appeared from time to time in your veterinary column. I would like to know what to do for two pigs three months old. They appear to take fits as soon as they come to feed trough. They come to the trough all right, take a mouthful or two, commence trembling, stagger backwards, fall over, kick and struggle, breathe heavy for a few minutes and then get over it. These attacks come on about every week. I feed mixed feed and meal with skimmed milk and dishwater. They appear to be thriving. I also have a bull two years old with warts on neck and body, which at first are flat then increasing in size. I am told they are seed warts. D. L. B., Franklin Force, Pa.—Usually fits of this kind are caused by pigs filling the mouth and throat too full of cold food, producing either a spasm of the larynx or throat, causing choking which is followed by a sort of convulsive fit. It is possible for them to have increased blood pressure on brain, causing them to tumble down; however, it is more likely to be result of choking. Heat their food, spread it out thin and make it sloppy. Apply a saturated solution of salicylic acid in alcohol to warts, 3 times a week.

Lice on Horses, Cattle and Pigs—Obstructed Teat.—Our horses, cattle, calves and pigs appear to be troubled with lice. I would like to have a remedy that would not only kill them, but keep them off. We also have a cow with one clogged teat and it makes her hard to milk. T. E. C., Crooked Creek, Pa.—Apply 1 part coal-tar disinfectant and 30 parts water, or any one of the lice-killing remedies regularly advertised in this paper. But remember that killing what lice are on your livestock is not enough, you must kill those that are lurking around your stables by spraying with some solution. Dilating teat canal with teat expander is about all that you can do to make milking easier.

Indigestion—Impaction.—About four weeks ago one of my cows ate too many cull cabbage, which caused indigestion and stoppage of bowels. For one week her bowels did not move and since she was relieved she does not chew her cud very often. J. C. T., Lancaster, Pa.—Give her 1 ounce cooking soda and 1 ounce ground gentian at a dose in feed, three times a day.

Lymphangitis.—I have a 12-year-old mare that is inclined to have lymphangitis. She had the first attack four years ago. Since then she has bothered me every winter. I feed her two quarts of oats, one quart of bran with some roots daily. I also give her some saltpeter. She is with foal and I would like to know if it is a good plan to feed saltpeter to horses. S. M. A., Troy, Pa.—Your brood mare should be exercised every day and not over-fed. High feeding and lack of exercise is the principal exciting cause of lymphangitis. After having one attack the animal is more susceptible to a second attack. Bandage leg in cotton for two or three hours after she has been exercised. Don't give saltpeter to your horses—give the same quantity of acetate of potash and it will do more good and less harm.

Piles.—I have a sow, with pig, that is troubled with piles. C. N., York, Pa.—Dissolve 1 ounce of acetate of lead and 1 ounce of tannic acid in a quart of water and apply to protruding parts twice a day. It is possible that some surgical work should be done on your sow; however, this is work for a veterinarian. It is well to keep in mind that constipation and weakness are the principal causes of piles.

Vertigo.—I have 17 fall pigs about 11 weeks old that, in the morning before feeding, act pretty good, but after eating their feed they stagger around and seem to have poor control of themselves. F. L. S., Bedford, Pa.—Change their feed and perhaps give them less corn and more ground oats, oil meal and tankage.

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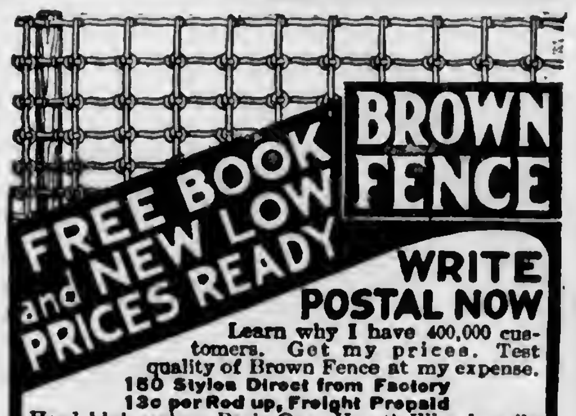

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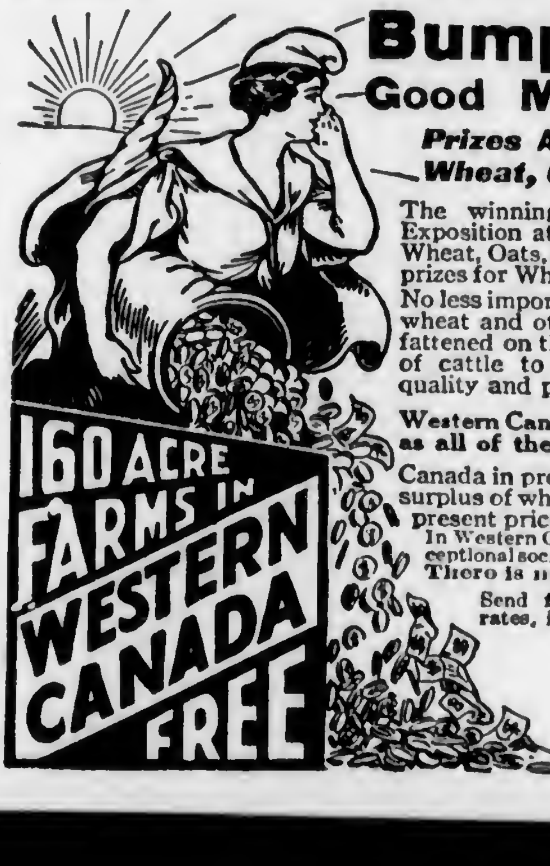

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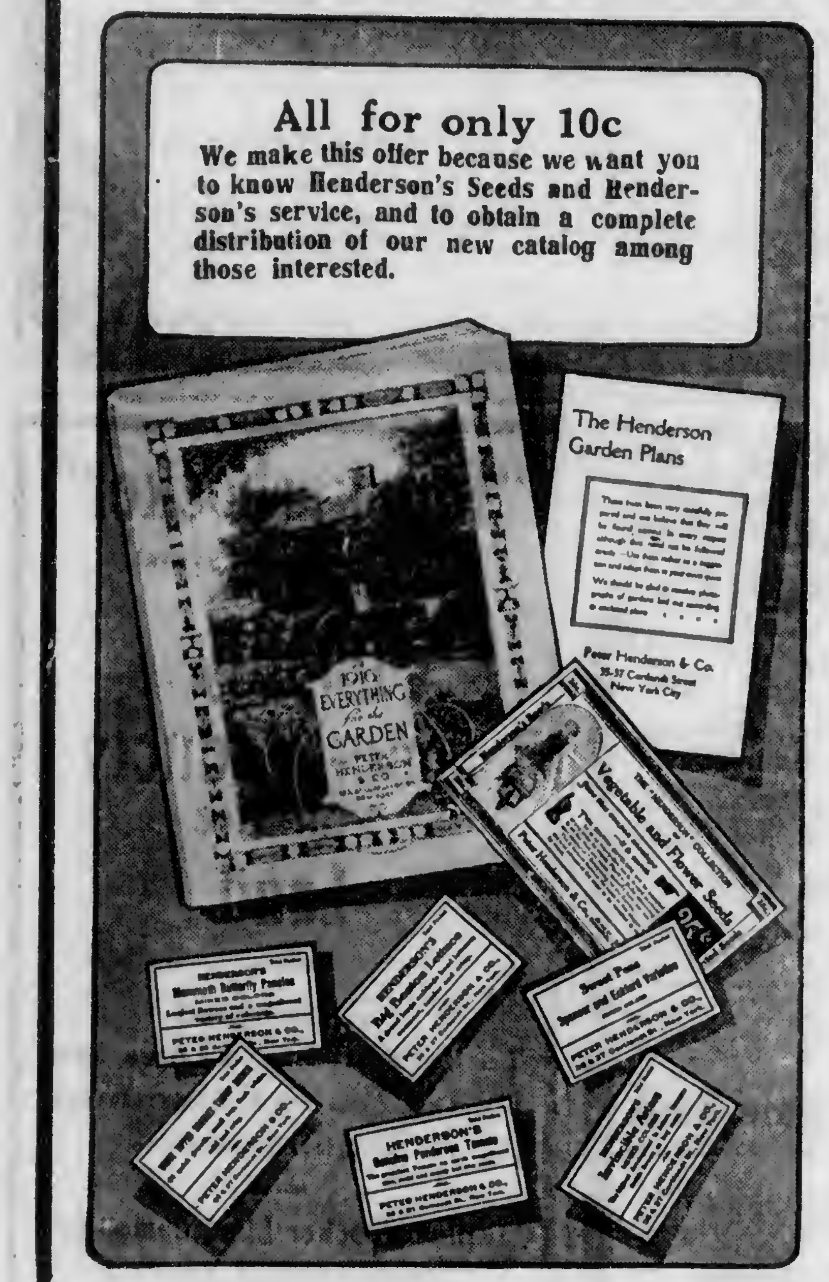

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Vol. 39—No. 9. PHILADELPHIA, PA., SATURDAY, FEBRUARY 26, 1916. 2 Years for $1.00

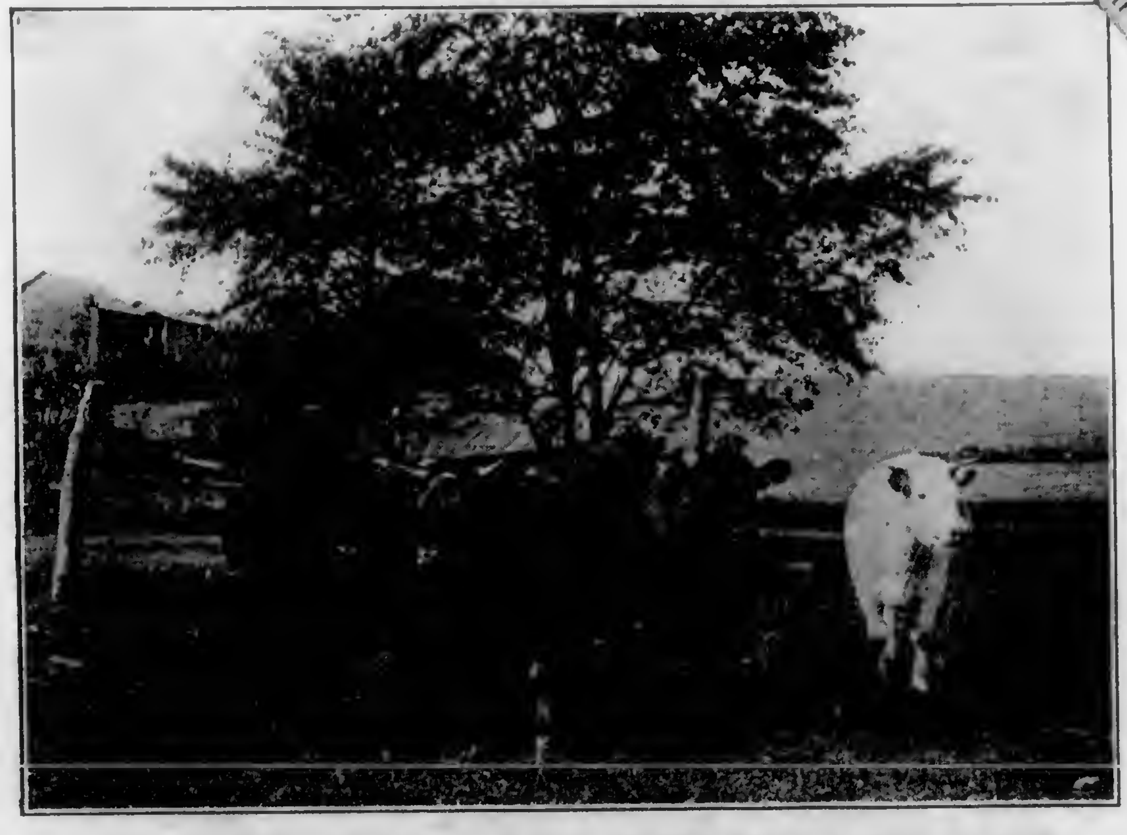
RAISING BEEF CATTLE IN THE EAST

By B. O. SEVERSON
Pennsylvania State College

Headlee Dr T J
Rutgers College
815

An article in a recent issue raises a number of questions on the profits in growing beef in the East. Questions are asked concerning cost of producing feeders as well as fattening steers. The following discussion is based on experiments conducted to determine these points in this state.

The fact that Pennsylvania has over 15,900,000 acres of land that is not considered improved land and, therefore, not under cultivation, should make one consider how this vast area should be utilized. The area of the state is 28,500,000 acres of land and 12,600,000 acres are improved farm lands. According to the census of 1910 there were 1,586,519 cattle in Pennsylvania of which 933,640 were milk cows and 652,879 other cattle and there are also 883,000 sheep and these with the cattle constitute the main grazing animals. This relatively small number of animals indicates that there is room for a great many more. The number of beef cattle in the United States between 1900 and 1910 decreased 15.58 percent and the population increased 22.47 percent. This relationship explains why prices of cattle increased.



THE FINISHED PRODUCT. THESE STEERS WERE RAISED IN THE EXPERIMENT DISCUSSED.

On good authority, every year 120,000 head of steers are sold on the Lancaster market to supply the demand for feeders in that section. These cattle come from western states, Canada and some of the southern states. Why should not Pennsylvania consider the production of "feeders" to meet this demand?

Pennsylvania can raise corn for silage purposes in every county within its borders. It is one of the leading forage producing states in the Union, as indicated by an out-put of 3,677,307 tons in 1910. Any section that can furnish grass for grazing and corn silage with some legume hay for winter feeding can raise beef cattle.

There are many reasons why grazing should be encouraged in the state. Much land is being cultivated that would be far better off if allowed to grow grass in order to protect it from erosion. Live stock farming is a means of keeping the greater share of the fertility value of crops on the farm in the shape of barnyard manure. The value of the manure produced by one cow annually is worth $12 to $15 if market prices were paid for the fertilizer ingredients contained in it. By grazing land unsuited for cultivation it can be utilized. Beef cattle need only a small out-lay for equipment, because an open shed furnishes the best shelter for them. The labor problem is much simplified because it distributes work thruout the year. Practically no labor is involved during the summer when the crops need attention and most of the work comes in the winter when labor is cheap.

AN EXAMPLE OF SOIL EROSION. THIS FIELD WAS SOWN TO OATS IN SPRING OF 1912.

Experiments on Raising Beef Cattle

Recognizing the possibilities of beef production in Pennsylvania the Department of Animal Husbandry at the Pennsylvania State College began an experiment on Dec. 1st, 1911 to determine the cost of [illegible]ning beef breeding cows and the cost of prod[illegible]eef for market purposes. Twenty purebred b[illegible] were used, 10 were Shorthorns com[illegible]sing Lot I, and 10 were Aberdeen An- [illegible] composing Lot II. The Shorthorn [illegible]ows were unbred when the experiment began and no authentic records were available concerning their behavior as breeders. The Aberdeen Angus were, with the exception of one, known to be regular breeders on the initial day of the experiment. These facts should be held in mind when considering the breeding results of this test.

Open Sheds

Experiments at the College had previously shown that open sheds were not only more economical but also more desirable for fattening steers than the basement of a barn. With these facts in mind, a shed open to the south, enclosed on three sides, providing a dry bed and shelter from rain, wind and snow and having an exercise lot attached, furnished the shelter for the breeding herd during the first two winters. During the third winter a barn basement with the south side open furnished the shelter.

The feed given the cows consisted of corn silage limited to the appetite and supplemented with one pound of cottonseed meal per head daily; this constituted the sole feed fed to all cows during the three winters, with one exception. This was an Angus cow that was fed some alfalfa hay in order to stimulate a greater milk flow and to keep her in proper physical condition. Corn silage was selected as the sole roughage to begin with, because it furnished the greatest amount and the cheapest source of food nutrients per acre of land of any crop suited for cattle feeding in the state. Cottonseed meal was used as a supplement in order to supply the deficiency of protein that corn silage has and also to correct the too laxative tendency of a ration composed solely of corn silage.

During the summer the cows were on pasture without grain. Calves were allowed to nurse their dams until 7 to 10 months of age, at which age they were weaned. All the males were castrated at about four months and when weaned were placed into quarters for fattening. The heifers of merit for breeding stock were kept separate and fed a ration composed of corn silage in

(Continued on page 16.)

Cross Roads Farmers' Club

Plows and Plowing

Before the regular session of the Club began on the night of its meeting, the subject of clover seed supply was mentioned, together with the fact that the price was gradually advancing. One of the members had prices and samples of seed from one of the advertised firms and an order for twenty bushels soon made out. They wisely decided to order the best grade, that, altho it cost a little more, it was much the cheaper in the end. As Farmer Cleaver said, “you are actually paying for poor seed and weed seed when you buy the cheaper grades.” The Secretary was instructed to send the order at once.

Co-operative buying of clover seed aroused further interest in this direction and some one mentioned the spring supply of fertilizers. Few had given the question much thought and it was decided to postpone action until the members had informed themselves on the subject before next meeing and, if possible to club their orders in this also.

The meeting was called to order by the chairman who called for an informal discussion of plows. Upon inquiry it was found that there were but two different makes of plows among the 14 farmers present, altho there were many different soil conditions represented. Some had level, clayey soil; others had shaley, gravelly ground, and some had stony hillsides. The more they discussed the matter, the more they realized the futility of trying to do equally good plowing on all kinds and locations of soil with one type of plow, and that every man should find out by trying them the kind and style that suits his conditions. A farmer having a variety of conditions should have more than one type of plow.

TURNING UNDER CORN STALKS--DOING A GOOD JOB.

Farmer William Emerson was called upon to discuss “Plowing”, and he began by saying that in looking over his files of Pennsylvania Farmer he found an article on this subject published some time ago which he felt discussed the subject fully and proceeded to read the following:

“Plowing is the first step in the cultivation of the soil, and should be rightly done, since a poor job can not be entirely corrected by any kind of after cultivation. The objects of plowing are to loosen, sub-divide and aerate the soil particles; turn under sod or other organic material that would interfer with cultivation and to turn to the surface plant food that has leached downward. The more nearly the plow performs the operation of turning the soil as it is turned by the spade in the hands of a good old German gardener, the better. In fact, spading seems to be the ideal way of performing this operation. A good plow cuts loose its furrow, lifts up the slice, breaks apart the particles, causing them to move upon each other, then rolls them off against the preceeding furrow slice, a well pulverized strip of soil.

“What the plowman looks back upon with pride, and considers a beautiful job, is very often the poorest kind of plowing. This is the case when the furrow slice is turned completely over and remains intact, as you would turn over a board. The shape of the moldboard, the width and depth of the furrow, must be right in order to do good plowing. Instead of turning the slice over flat, it should be turned against the preceeding slice. If a jointer is used, it should not be set so deep as to roll the sod into the bottom of the furrow, but only deep enough to leave a completely “raw” edge to the furrow slice when turned over against the other.

“Gradually increasing the depth of plowing is one way of increasing the productiveness of the soil. There is no question but that the majority of farmers plow too shallow a furrow. Where plowing has been the practice for years, and always at the same depth, an artificial hard-pan, almost impervious to water, is often found. This is especially true in soils having clay sub-soil. The tramping of the horses, the dragging of the plow sole, and the walking of the man on the moist furrow-bottom year after year has so packed the clay as to produce the hard-pan effect. Heavy rains will wash the soil that is in this condition, and on the other hand, it will dry out much more quickly because the water can not sink into the sub-soil.

“Deeper plowing will also bring to the surface plant food that has leached beyond the reach of most plant roots. With the exception of humus and nitrogen, the elements of plant food increase in quantities as we go downward for a few feet. True, they are usually in a more or less insoluble condition but when turned and exposed to freezing, and to the influence of the sun and air, they become available. Soil should not be plowed at the same depth two years in succession. It should vary with each crop in the rotation. If potatoes is one of the crops, let the depth be the greatest for this crop.

“Generally speaking, fall plowing should be deep. This gives time for the soil to settle before planting, and also turns up the sub-soil where the freezing and thawing can pulverize it. Whether fall-plowing is a good practice or not is a never-ending question for debate. While there are some disadvantages and some loss, the advantages and gains in sod land usually outweigh the losses, so that it may be set down as an economical thing to do in many places. This applies especially to sod land. There is little nitrogen converted into a leachable form after cold weather begins. It is work that can often be done when there is nothing else to do and the time gained is valuable when the rush of spring work begins.

In some places, it is customary to plow corn stubbles in the fall in order to sow oats early. Of course, the ideal way is to sow a cover crop in corn and plow in spring. This saves much loss, but where cover crops are not used there is probably not much more loss in plowing stubbles than in leaving the field without a cover crop.”

In the general talk that followed it was shown that many had not before realized the importance of good plowing, and that the discussion had lead many to resolve to give the work more intelligent thought and attention. One man made the assertion that he found he could do more and better work with a two-way sulky, riding plow than with a hand plow; that he could turn a furrow up hill better, plow deeper and do it easier on himself and team when he used three horses.

The members were requested to look up and bring the latest information obtainable on the question of fertilizers for next meeting. After the subject is sifted out, showing what is possible and advisable, they will probably club their orders for their spring supply.

The meeting adjourned.

Queries and Comments

Sudan Grass

“Has any reader of your paper had experience with Sudan Grass in Pennsylvania. It would be interesting to see a discussion of its merits from parties who have tried it. If it is good here as in the West I want to try it. Your paper is getting better all the time.” C. D. H., Lancaster Co., Pa.

Let us hear from readers who have had experience with Sudan grass.

Formula for Potato Fertilizer

“I would like to have a good formula for potato fertilizer. As I want to mix the goods, would like as few ingredients as possible. We cannot get any potash so will have to omit it. The ammonia I would prefer getting from tankage if you think it good. If some nitrate of soda or Peruvian Guano should be added for quick action, please name quantities.” A. W. W., Maryland.

In the present situation we would recommend something like the following: 1000 lbs. acid phosphate, 300 lbs. tankage, 700 lbs. agricultural salt. This will make one ton and may be applied 250 to 400 lbs. per acre. The salt is for the purpose of liberating potash in the soil. Some of our best authorities recommend this as a practical measure, providing salt may be bought at a reasonable price, say $4 to $6 per ton.

As the potatoes come thru the ground, it will be well to apply 50 to 100 lbs., per acre, of nitrate of soda and run the harrow over the field after application. We believe this plan will bring as good results for the money as can be recommended at this time.

Form of Will—Compensation

Is the Workman's Compensation Law the same in New Jersey as in Pennsylvania as published in your issue of January 22nd? Will you kindly publish a good form of a will?—N. J. Farmer.

(a) The general policy of the New Jersey Workman's Compensation Law differs from that of Pennsylvania in that it applies to all classes of regular employment, including employment on farms and domestic service. Copy of law and its provisions can be obtained by addressing office of Attorney General, Trenton, N. J.

(b) The following is a good form of a will:

I, (A. B.), of Philadelphia, Pennsylvania, do make, publish, and declare this as and for my last will and testament, hereby revoking all prior wills by me at any time heretofore made:

First. I give and bequeath to my sister, (C. D.,) the sum of one thousand dollars absolutely.

Second. I give, devise and bequeath the rest, residue and remainder of my property, of whatever kind and wherever situated, to my wife, (E.) and my children (F.) and (G.), absolutely, share and share alike.

I nominate, constitute and appoint my wife, (E) as the Executrix of this will, hereby vesting in her full power to sell any part or all of my real estate, for any purpose whatever, at her sole discretion, and to give a good and sufficient deed or deeds of conveyance for the same, without any liability on the part of the purchaser or purchasers to look to the application of the purchase money. And I direct that it shall not be necessary for my Executrix to give bond for any purpose whatever.

In Witness Whereof, I have hereunto attached my hand and seal this first day of February, A. D. 1916.

(Seal)

Signed, sealed, published and declared by A. B. as and for his last will and testament in the presence of us, who, at his request, in his presence and in the presence of each other, have hereunto attached our names as witnesses.

(Note: If real estate is specifically devised, it should be accurately described. There should be at least two witnesses, and if real estate is owned in another state it is advisable to have three witnesses, as some jurisdictions require three witnesses to a will. In most states a seal is not strictly necessary, but it is customary to add one.

Cheapest Form of Lime

“Will you please tell me thru your paper which is the cheapest form of lime to use at the following prices per ton: Burned lime, $3.50; Hydrated, $6.25; ground limestone, $3.50. I have four miles to haul from station.” N. D. I., New York.

If you consider nothing but the first cost of lime, you will get more for your money in the burned form than any other, provided they are all the same degree of purity. The ground limestone would be the most costly. However, there are some other things to consider. First, burned lime as it comes from the kiln usually has more or less impurities in it. Second, the work of slaking it is considerable; or, if left to slake by rains in small piles there is danger of too much water coming and making it into a paste. Again, it is almost impossible to apply evenly over an acre less than 35 bushels—a ton and a quarter.

Hydrated lime is burned lime slaked by water. Since it is all very fine it is known to be pure lime since impurities will not slake. It is nicer to handle and can be applied evenly by a lime spreader or even a grain drill, thus enabling one to use even a small amount per acre. Six hundred to 1,000 pounds per acre is frequently all that is necessary to cause clover to grow.

If one has limestone on his farm, or in the neighborhood it is an economical thing to purchase and operate a lime crusher if much lime is used, either as an individual or co-operatively. Testimonials of men operating them show that it can be quarried and crushed at a cost of from $1 to $1.50 per ton. The lime in this form is as valuable as any other, but it must be applied in double the quantities of burned lime.

Canada Thistle

Several subscribers have inquired about the Canadian thistle recently, wanting to know something of its nature, habits and methods of control. We believe it timely to republish the following, since we have learned from several sources that the spread of this pest last year promises to be a menace in many localities.

The Canada thistle is the most dreaded of all weed pests. Certainly it is the most persistent of all thistles. The Canada thistle is a perennial of European origin. It is a common weed of the Northern half of the United States. It is a weed that propagates by underground root stocks as well as by seed. The stems of Canada thistle grow from one to three feet tall; they are much smaller and smoother than other thistles. The leaves are very spiny and the margin has a ruffled appearance. The upper side of the leaves is smooth and bright green in color, while the lower side is downy or hairy. The flowers are rather small, about one half inch in diameter and of rose-purple color. The Canada thistle flowers from June to September; maturing the first seed by the middle of July. The seed is smooth and light brown in color, measuring one-eighth inch in length. The seed is easily carried by the wind and is most commonly found in medium red and alsike clover seed.

Propagation

The Canada thistle propagates by underground root stocks as well as by seed. The underground root stocks grow rather deeply in the soil, often two or more feet, and running parallel with the surface. The underground root stock is the store house of the plants. The root stocks are capable of sending up young shoots for some time after the parent plant has been destroyed. This fact explains the persistency of the Canada thistle. As long as the plant is permitted to form green leaves, it will manufacture plant food, which is stored in the root stocks. As long as plant food is present in the root stocks they are capable of sending up new plants, and will continue to thrive as long as they grow leaves at surface.

Control

The Canada thistle will be found growing in all crops in the rotation, consequently no one method of control will be effective. In fact the details of control had best be worked out for each particular condition.

It is rather unfortunate that the weed laws of the state of Pennsylvania simply list Canada thistle as a noxious weed and directs its killing or destruction in such a manner as to prevent the maturing and dissemination of the seed.

To thoroly subdue the pest it is necessary to starve out the root stocks by cutting off all green parts above the ground. This requires destroying the plants in some manner every week, at first, and then every two weeks until the rootstocks die of starvation.

In case the thistles are found in a small grain crop, it will be well to go into the grain field and keep them cut down with scythe or hoe, so as not to let them go to seed. After the grain crop is harvested, the land should be plowed rather deeply and then worked down with the drag harrow. All roots harrowed out should be piled, dried and burned. The land should be disked regularly about every ten days, so as to destroy stray plants. In the late fall the land should be replowed, but not worked down, so as to expose the remaining roots to frost action. In the early spring the ground should be worked with a disc and a smother crop sown, such as oats and Canada field peas, or millet.

Where Canada thistles occur in pastures, they must be cut out below ground every ten days until starved out. After cutting the plants, it is well to pour a little kerosene on the stem and roots. Often spraying with strong concentrated salt solution will be effective in pastures and waste places. The spraying should be done thoroly and repeated when the young shoots reappear. Spray materials should be applied under high pressure, and in a vapor spray, to be effective. After all, sprays are used as a substitute for the scythe and mower and will not kill the roots below the ground.

When the thistle occurs in a cultivated crop, knives or sweeps should be used on the cultivator instead of the ordinary shovels. The sweeps will be more effective in cutting off the plants and at the same time stir the surface soil. The thistles that grow within the row should be kept cut out with the hoe.

Small patches of thistle may be smothered out by a covering of tarred or building paper. The paper should be weighted down with earth so as not to blow away, or let light to the plants. It will be necessary to keep the thistles covered for at least two months.

If any of our readers have really solved this problem to their satisfaction, let us hear how you did it.

Where wheat has been seeded, lime may be spread when the ground is frozen and thus save the cutting up of the field incident to the spreading of lime on top during the early spring. Even in the case of lime which is to be spread in the early spring, in case it is gotten early in the winter and stored as I have suggested, there is an opportunity for it to slack properly under cover and be in good condition for spreading in the spring. In fact, in every way which we look at it, the advantage is in favor of purchasing the lime at this time of the year.

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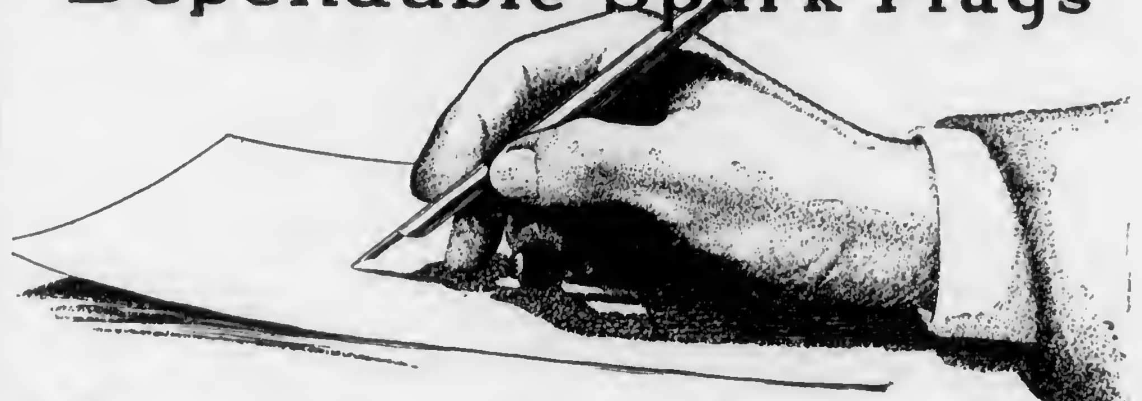

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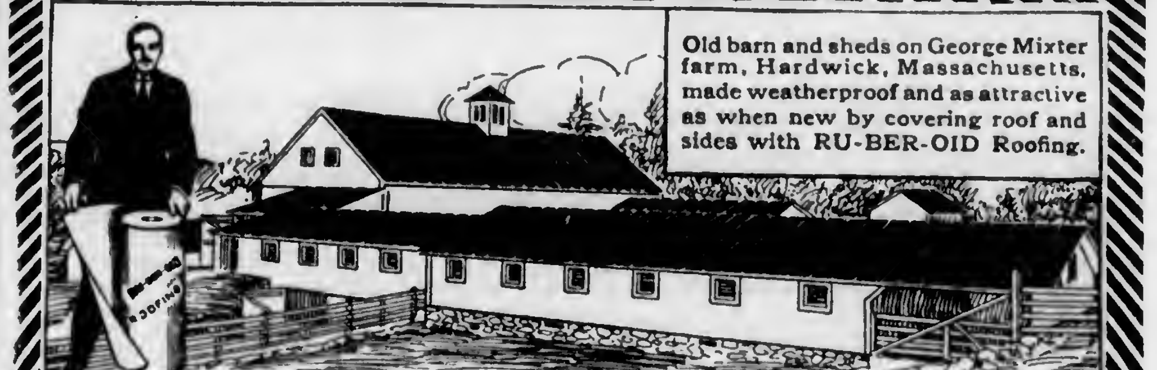

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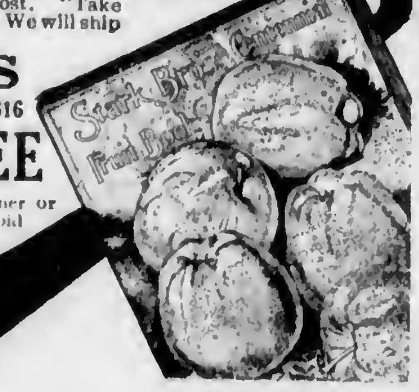

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Growing Early Tomatoes--V
From Seed to Market

By C. C. Hulsart, Monmouth Co., N. J.

Setting the Plants

When the weather appears to be fairly settled, anywhere from May 5 to 12, in this locality, have the tomato ground ready. The plants in the bed should have been well hardened off by leaving the sashes off altogether, and also by withholding water; not enough to stunt growth but sufficient to check growth. In wetting a plant bed for the purpose of taking out the plants, there are a few things to bear in mind: First, remember that it is almost impossible to wet such soil thru at one time. Begin the evening before and give a partial wetting, not too much, because if you do there is danger of having the plant too full of water by the time it gets to the field, in which case it may, under certain climatic conditions, contract blight. I have had this occur more than once, so do the wetting mainly only as fast as plants can be taken to the field.

When the soil is wet thru, and it must be for good results, cut with a long-bladed knife clean thru the soil between every two rows each way, leaving the plants in blocks of 4 plants each. Load these blocks on a platform wagon, being careful not to disturb the soil in the blocks, either loading or unloading. When unloading, set a block between each four hills, and so on until field is completed. If manure has been used in the hills, use a short handled hoe to open the hill and set plant. Set the plant so that the lower side shoots are just level with the ground when completed, being careful not to cover any of them. Press down firmly but do not compact the square of soil that holds the plant. It may cause it to bake hard if dry weather follows. If plants are well grown, from good seed and have not been allowed to stop and have not been forced, are sufficiently hardenened off at time of planting, they should scarcely stop growing. I have set such plants frequently and had them wilted when set, but came up straight altho a bright sun was shining, and in four days showed that they had made new root growth and were ready to go on and do their life work.

TRIMMING AND TYING ONIONS AND BEETS FOR MARKET.

As soon as the plants show that they are growing, sidedress with nitrate of soda, using from 175 to 200 pounds per acre. Scatter the soda on each side of the plant about where the inside cultivator tooth will run and then cultivate at once, mixing the nitrate with the soil. This dressing of soluble nitrate is at a time when available nitrates in the soil are at a minimum. That is the time when the plant needs it to help it grow steadily, but not so fast that it will throw off its blossoms as formed. This will occur whenever growth is too rapid; hence be careful.

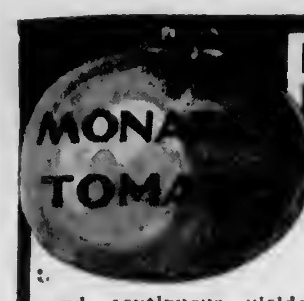
Cultivation—Spraying

Cultivation should begin in a week or there-about; the first one each way being rather deep to loosen up the soil and admit air and sunshine to warm the soil. In all after cultivations make each one a little more shallow so as not to disturb any roots. If no manure is used in the hill, apply a handful of fertilizer half on each side of plant at second cultivation and cultivate in as recommended for the nitrate of soda. Cultivations should continue weekly until fruit begins to ripen or until vines are so large they prevent any further trespassing. One or two hand-hoeings may be necessary to keep the tomato field free from weeds; a clean field is essential.

If a field becomes foul, the fruit spots more or less because of too much dampness. Where the tomato plant blights badly, spraying with bordeaux mixture will control it if used in time and done often enough. Use the 4-4-50 formula for first two sprayings; later it can be made a little stronger. The first application should be shortly after plants are set and can be done with a compressed-air hand sprayer, and done very rapidly. Later ones will require more time and material, hence a larger machine will be more economical. Three sprayings are usually sufficient; sometimes two will do.

Harvesting

In this tomato district we plant in the field in early May and expect to pick ripe fruit before the end of June. We do no always succeed because of backward spring weather, but we do pick in June more often than we fail. This whole discussion has been with the thought of earliness in mind. It is practically impossible to secure extreme earliness combined with large volume of crop; but the practical early tomato grower would far rather have a good half crop and have them come when he wanted them than have a full yield and be late, because 5 crates before the 10th of July will be worth as much as 50 crates on or about August 10. The money in early tomato production is always taken from the first half of the crop; the remainder rarely much more than pays its way. In this section tomatoes are picked as soon as they show color. They are graded, making two sortings, and packed in crates holding three-fourths bushel and sold on commission in the N. Y. City market. Prices received are from $3.00 at the beginning down to 25 cents towards the last. The more fruit we can harvest early, the greater the returns.



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For the planter who wants nothing but the best, we offer, at reasonable prices, stock that will produce exactly what he has a right to expect.
Our leaders are: Peach Trees, (original stock furnished by N. J. Exp. Station) Apples, including "Delicious" and 75 others. Hardy Indiana Budded Pecans and Small Fruits.
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Sweet Clover Seed. White and Large biennial yellow $9.00 bu of 60 lb. R. E. PURDY, Falmouth, Ky.

Timely Fruit Notes

By Dr. J. P. Stewart

Soil Treatment for Young Orchard

"We have an orchard of 108 trees, peach and apple, which in the spring will be 4 years old. We had about 40 bushels of peaches last year. This year we were thinking of planting alfalfa between the rows, just leaving enough room to cultivate. We do not know whether this would be best, or if we should plant potatoes or other small vegetables." T. E. H., Lawrence Co., Pa.

I assume from this letter that the apple and peach trees are interplanted and that they are probably not over 18 or 20 feet apart. In that case they should now be old enough to require practically all the land themselves, especially since the peach trees are already in bearing. For that reason I would not advise the use of any vegetables and would only consider the use of alfalfa in case the soil is inclined to wash. In the latter case, I would try to prevent it by growing a strip of alfalfa or possibly alsike between the rows. You could continue cultivating on each side of this strip, or in case the washing is very severe, you might cover most of the ground with alfalfa and use it to mulch the trees.

Making Lime-Sulphur

"Please let me know the correct amounts of sulphur and lime to use in making stock for spraying. Last year I bought prepared lime-sulphur, but this year I would like to make it myself.

"Last year I sprayed twice—first time before buds opened, using lime and sulphur, second time after buds were opened and petals falling and almost off, using Bordeaux and arsenate of lead, and I am sure it reduced the scale on the trees but the fruit was rough skinned all summer and some of it stayed that way. A sort of rusty russet color and scarred like a burn, what was the cause of it? The Wagener and R. I. Greening were the worst. They were not as smooth as other years. Do you think a hydrometer necessary or a help to get the lime-sulphur the right strength without having to measure the water used to dilute stock solution with?

"Thanking you for reply and any information on spraying will be appreciated." G. A. B., Westmoreland Co., Pa.

The essentials for making concentrated lime-sulphur at home are a well-burnt, high-calcium lime, and a rather finely-powdered sulphur. Lime containing at least 90 percent of calcium oxid is preferable, and it can be readily obtained with higher calcium content than this, in many places in Pennsylvania and adjacent states. The ordinary "powdered commercial" or "commercial flour" sulphur is fully as good as any, and it is much cheaper than either the "flowers" or the so-called flour of sulphur.

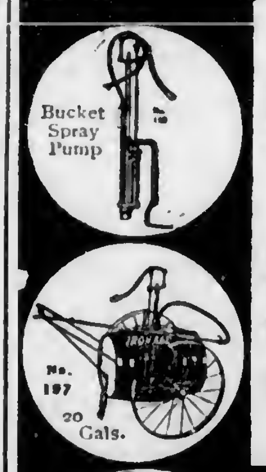
In addition, a reasonably efficient cooker is needed—made of neither copper nor brass—and preferably holding 75 gallons or more. Good wooden barrels are satisfactory, if live steam is available.

The best general formula to follow in making up the material is 1 pound of lime to 2 pounds of sulphur and enough water to make about 1 1-3 gallons of final product. The particular formula of 45 pounds of lime and 70 pounds of sulphur to 60 gallons of total product makes up very well in a 75-gallon cooker. To make either larger or smaller lots, simply multiply each figure in the general formula by the number required to make the desired quantity of final product. Any other details that may be needed can be obtained in bulletins or circulars from the local Experiment Stations.

The russeting that appeared on your fruit last season was due primarily to the bordeaux mixture used, and its ac-

Ain't it Bowker's?

THIS STORY was told one of our travelers by one of his agents.
"A farmer backed his team up to my store one day last spring, and asked me to throw in five bags of Bowker's Fertilizer. As the war shortage of potash was on, and as I wanted him to understand just what he was buying, I started to tell him that the analysis was changed somewhat from the previous year,—that the percentage of potash was lower, etc. He looked up at me sharply and said rather earnestly, "Ain't it Bowker's?" "Oh, yes," I said, "It's Bowker's all right." "For the land's sake — throw it in there, then," said he, and drove away with it, wholly satisfied."
Have you ordered your Bowker's yet?
BOWKER FERTILIZER CO. BOSTON & NEW YORK



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SAVES your crop from loss, helps tree and plant to produce better and larger crops, prevents spread of disease, insures a longer life for trees and a longer growing time for vines each year. Blight hit potatoes in many states in 1915—many million bushels lost. Spraying would have saved them.
IRON AGE Sprayers
Include bucket, barrel, power and potato sprayers in many sizes and variety of equipment to suit each man's needs. We want to show you what each one is, how they are made and what they will do. Ask your dealer to show you these tools and write us for booklet describing all of them fully. We also have a spraying guide which we are glad to send.
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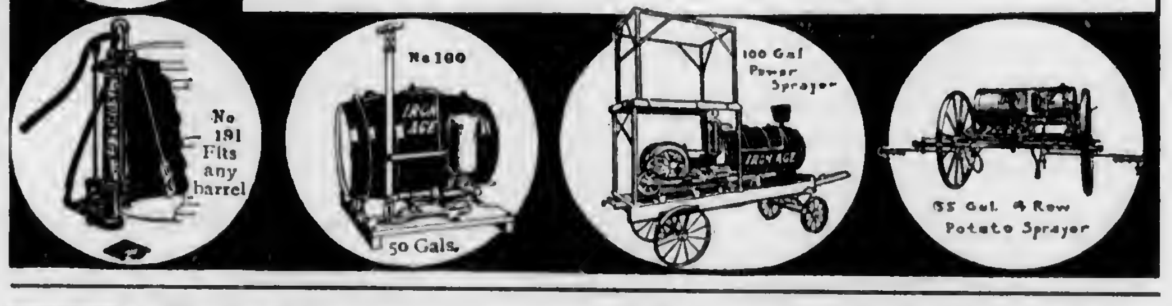

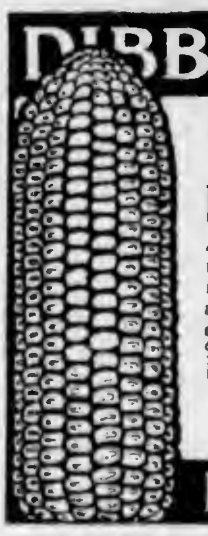

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IN LARGE OR SMALL LOTS AT GROWER'S PRICES, direct from nursery to planter. Safe delivery, personal attention and satisfaction guaranteed. APPLE TREES TOP BUDDED TO FIVE VARIETIES—just what's needed for the home garden. Buy at rock-bottom prices of the grower and save disappointment at fruiting time. Get our illustrated catalog, mailed free upon request.
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Expensive Economy

Last Spring many cotton growers in their efforts to reduce expenses in readjusting themselves to war-time conditions, used less than the usual amount of fertilizer. Last Fall those farmers found that their losses from decreased yields and poorer quality crops were greater than their savings from the use of less fertilizers. It was expensive economy.

Northern farmers should profit by the cotton growers' experience and not make the same mistake in planting their Spring crops.

Send for our free booklets.

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Tells What, How, When to plant Your Vegetable and Flower Garden. *Sent Free on Request.*
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Alsike Clover and Timothy mixed. Fully 1-3 alsike, a big bargain. Greatest hay and pasture combination grown. Write for Free Sample and 100 page catalog and circulars describing this wonderful grass mixture. Beats anything you can sow and ridiculously cheap. We handle only best tested recleaned seed guaranteed. Write before advance.
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FOR BUNCHING ASPARAGUS, CELERY, VEGETABLES, ETC.
Attractively prepared products command top prices and create a demand for your output.
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A pair of mated EVERBEARING STRAWBERRY PLANTS FREE if you will report as to your success with them. Will bear loads of big, red, berries from June to November. We have counted 480 berries, blossoms and buds on a single plant. A postal will bring the plants, also enough seed of the new CEREAL FETERITA to plant a rod square of ground. Also a pkt. of perennial ORIENTAL POPPY seed. Send 10 cts for mailing expense or not, as you please. Write today and get acquainted with
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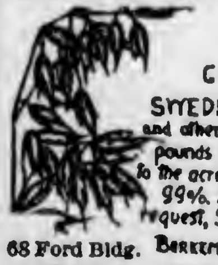
Augusta, - - - Maine.



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Pear, Plum, Cherry, Small Fruits, Strawberry Vines, Nuts, etc. GENUINE HALE BUDDED from Bearing J. H. HALE TREES. Genuine Delicious Apples. Cat. Free.
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Power Sprayer FOR SALE. **$125.00 a Bargain.**
Goulds complete power-sprayer, 3 1-2 H. P. hopper cooled, Gould pump No. 1546, mounted on truck with pole, yoke, and 2 horse evener; 35 ft. 7-ply 3-8 in. hose, 2- 8 ft. 1-4 in. extension rods with stop-cocks, Y's and 4 nozzles, tank filler. Everything in 1st class condition. Reason for selling, too large for our conditions. F.O.B. your station in Penna.
Stony Ridge Fruit Farm, R. D. 2, Mertztown, Pa.

tion was aggravated by the extremely wet weather. This is the usual result of applications of bordeaux during a wet season, and for this reason lime-sulphur has largely displaced it in recent years. You should have much less russeting if you use lime-sulphur at the proper summer dilution, in place of the bordeaux.

In regard to the hydrometer, I would certainly get a satisfactory instrument and use it for testing the stock solutions to determine proper rate of dilution. It is not reliable, however, for use as a float in the dilution vessel to determine when to stop adding water. The rate of diffusion is too slow to enable this to be done successfully.

"IN THE TRENCHES"

I have just taken a peep in the celery trench. It contains about two hundred plants of Winter Queen and Giant Pascal, grown by the mulching system. The trench is 15 inches wide and about the same in depth. The plants were stored October 29, standing as close together as possible and with only the soil which naturally adhered to the roots. Two old doors, each 16 inches wide and 9 feet long, were nailed together in the form of a trough, which was inverted over the trenched celery to form a roof. There is ventilation, of course, at each end of the roof. A few inches of horse manure has been placed on the doors to give additional protection, and the ends of trough are closed when the weather is cold. The crop is keeping in fine condition. New white roots have formed on all the plants, so that blanching is progressing in an entirely satisfactory manner. The very finest product was taken from the trench for our Thanksgiving dinner. The stalks have a rich cream color, are extremely tender and possess no stringiness whatever. The flavor is all that could be desired. It is worth while growing quality celery, and when the mulching system is used the proposition is simple and reasonably certain of success even under conditions which are not the most favorable.—R. L. Watts.

SIX-YEAR CABBAGE TEST

When seed is sown either in drills or broadcast, some of the seedlings will make a more rapid growth than others. Because of the belief that larger plants possess some inherent characteristics which enable them to outdistance their neighbors, thus becoming superior, many cabbage growers discard a large number of plants which are under size.

An experiment, which has been conducted for six years at the Pennsylvania State College School of Agriculture and Experiment Station to determine the variation in yield and productiveness between large and small cabbage plants, showed that there was practically no difference in this respect, regardless of whether the grading was done at the time of the first transplanting or when field planting was made.

There was approximately an inch of difference in the height of the plant at the time of making the field planting, which soon disappeared.

SOLVING A MARKETING PROBLEM

Mr. George Smith, who has fifty acres of apples and peaches at South River, N. J., has solved his marketing problem by establishing his name as a producer of high quality fruit.

His principal varieties of peaches are: Miss Lola, Carman, Belle of Georgia, Elberta, and Iron Mountain. The orchard is located on a soil well adapted to peach trees, and by the use of up-to-date methods of orchard practice, very fine fruit is produced. Mr. Smith is a firm advocate of thinning after the June drop, and is certain that the results justify the outlay. The fruit is packed in Georgia carriers, and is shipped to New York in a large auto truck which leaves about 9 P. M. and gets to the city in time for the early morning market. Most of the peaches are handled by one firm of reliable commission merchants, with whom he has dealt for several years, and who have a trade demanding "Smith peaches." Last summer a considerable advance was secured over the market for Elbertas.

The apples are principally Rome Beauty and Stayman, varieties well adapted to the soil. They receive the same general good care as the peaches, and are likewise thinned. The fruit is barrelled, since the barrel has proved to be the most economical package under his conditions. He disposes of it in three ways: thru his commission men; to buyers who come to his place, and locally to small dealers. There is a 3,000 barrel storage plant on the place, of the Cooper calcium type, so that the apples can be held as long as is desired, and sold when the market is high.

Mr. Smith emphasizes the necessity for honest packing and branding, and for uniform good quality of fruit, as essentials of success in securing and holding a demand for one's product.—R. L. Schorring-Housen, New Jersey.

NEW JERSEY NURSERYMEN MEET

The nurserymen of New Jersey held their annual meeting on Tuesday, Feb. 9, in the Entomology Building of Rutgers College at New Brunswick. Addresses were presented by Mr. C. J. Ottlander, Mr. W. F. Turner, Dr. M. T. Cook, Mr. Harry B. Weiss, and Dr. J. J. Headlee.

Mr. Ottlander described his experience in growing some unusual ornamentals and expressed the opinion that nurserymen would do well to get away from the practice of growing only the common ornamentals. Mr. Turner told of a scheme of advertising which had proven unusually successful. Dr. Cook explained the dangerous character of the white pine blister rust and the purpose of the proposed federal quarantine. Mr. Weiss described the methods of spraying now in use among nurserymen and set forth the general principles of good spraying practice—as good pumps, plenty of power, and a knowledge of the parasites concerned together with methods to be used against them. Dr. Headlee told of the finding of the first established colony of gipsy moth and the methods that were used in stamping it out.

The following officers were elected for the coming year: Mr. J. T. Lovett, Pres. Mr. C. H. Flemmer, Vice-Pres.; Mr. A. F. Meisky, Sec.-Treas.

HORTICULTURAL NOTES

Success in the vegetable garden depends largely upon thoro and frequent tillage. The man and the horse can do most of it, but hand work is also essential.

A really good wheel hoe is a valuable implement. Like all other edged tools, it does its work easiest and best when sharp.

Wood ashes is a splendid material to mix with the garden soil.

When the farmer is sowing his oats is the time when seeds of the early beets and peas, and the carrots, peas and parsnips should be put in the ground.

Lettuce can be successfully grown on poor soil only early in spring or in the late fall.

Plant one row, at least thirty feet long, of early beets for greens. These will need no thinning, and the row may later be put in beans.

SUCCESSFUL AT
Hutchinson, Champaign, Fremont and Bloomington Demonstrations

"ALLWORK" Light Tractor
Pulls Three Plows Easily
A Four-Wheel Tractor Dependable as a Horse
A simple, durable, powerful machine selling at a price you can easily afford. Equipped with four-cylinder vertical engine 5x6, developing 25 h. p. at belt, 12 h. p. at drawbar. Two-speed transmission working in oil, automobile type front axle, roller-bearing rear axle, steel gears thoroughly protected from dust and self-oiling, radiator and fan that cool absolutely, 16-inch face rear wheels, weight 4800 pounds.
A sensible, practical tractor, built by a company with an established reputation and numerous machines at work in fields today. Write for catalog.
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SAVE MONEY UNLOADING. Save the expense of men and teams in unloading hay, grain, pulling timbers, elevating ice, drilling, digging, etc., with an IRELAND HOIST
100 uses on each farm. Guaranteed every way. Free Circulars.
Ireland Machine & Foundry Co.
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Also mfrs. of drag and wood saws, mills, etc.

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HOT BED SASH 80c CYPRESS, well made with cross bar, blind tenons, white leaded in joints, Glass, $1.00 per Box.
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Spray Your Crops
KANT-KLOG SPRAYER
9 sizes of sprays from one nozzle. Starts or stops instantly—saves solution and work. *Send for catalog.* Agents wanted.
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100 Apple Trees $10 2-Year, 4 to 5 ft. high—ideal size for Orchard Planting. Send for Free Catalog Apple, Pear Peach, Cherry, Plum, Small Fruit, Ornamental Trees, Roses & Shrubs. BUY DIRECT OF GROWER—ONE-HALF AGENT'S PRICES. Denton, Williams & Denton, Wholesale Nurseries, G. W. Williams, Mgr., Box 151, Dansville, N.Y.

Fruit Trees Fifty sorts of Apple; all standard varieties of Pears and Peaches. Fraser's Tree Book gives full list: write today for free copy. SAMUEL FRASER NURSERY, Inc, 12 Main Street, Geneseo, N. Y.

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"PROGRESSIVE" Best Fall-bearer, also Std. June sorts, including our New Seedling, "COLLINS." Full Assortment other Fruit Plants. Catalog FREE.
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STRAWBERRY PLANTS
and other small fruit plants.
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Carload Shipments wanted of **POTATOES**, Apples, Onions, Hay, etc.; small commission, no expenses, prompt returns. Also small lots of Produce and Poultry, get our prices and terms before selling.
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Established 1884

Trees—Roses—Vines in small or large lots at wholesale prices. Catalog and Green's Fruit Book—FREE. Green's Nursery Co. 29 Wall St., Rochester, N. Y.

PURE FIELD SEED
Clover, Timothy, Alsike, Alfalfa and all kinds of PURE FIELD SEEDS direct from producer to consumer; free from all noxious weeds. Ask for samples.
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For Sale Cow peas, $1.50 to $2.00 bushel. Cracked beans and peas, 2 cents a lb. Soy beans $1.50 to $2.50 bushel. Crimson clover, red clover, etc.
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Red Cross Farm Powder
will help you clear land quickly, easily and cheaply. Get those unproductive acres in working order now and crop them early this spring. Thousands of farmers everywhere have found Red Cross Farm Powder a wonderful help.

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A mulcher, smoothing harrow, cultivator, weeder and seeder—all in one. Forms dust mulch—a blanket of loose soil—preventing soil hardening and moisture escaping. Increases yield of corn, potatoes, oats, wheat, etc. Kills weeds. *Flat teeth,* especially adapted to form mulch. Lever and pressure spring control depth of teeth. Sold with or without seeding boxes for grass seed, alfalfa, oats, etc. Teeth cover the seed to depth desired. Adapted for a large variety of work. In stock near you. Send for catalog.
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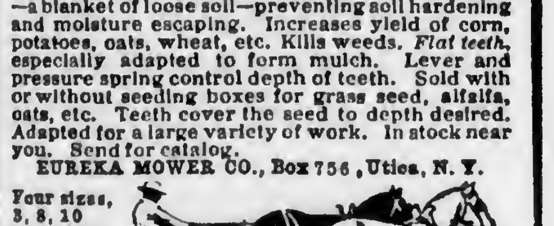

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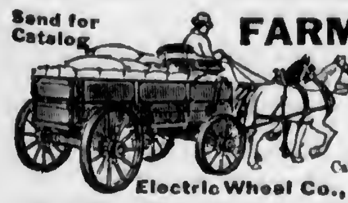

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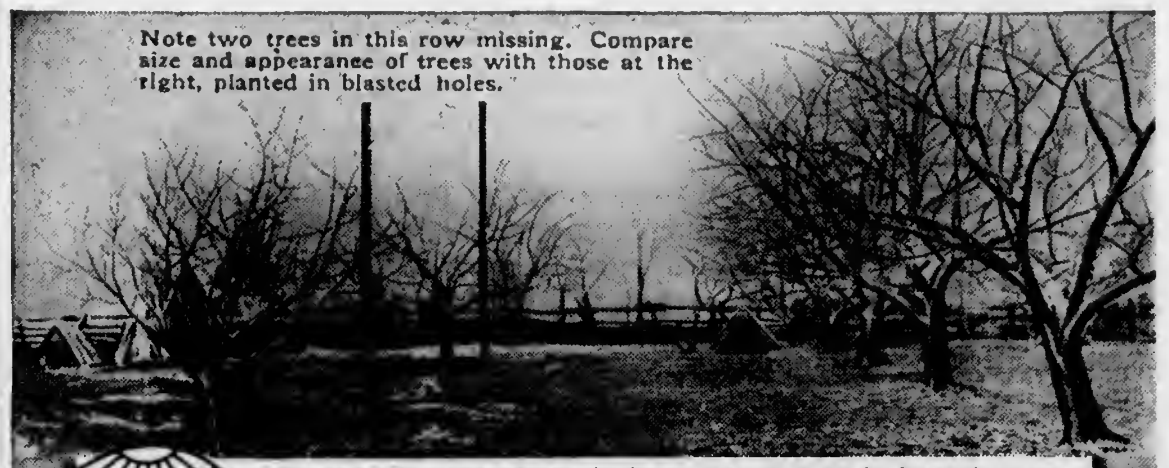

Note two trees in this row missing. Compare size and appearance of trees with those at the right, planted in blasted holes.

Row at left planted in spade-dug holes—at right in blasted holes.

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"Blasting Holes for Planting Makes Stronger, Better Trees"
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Member Standard Farm Paper Association and Audit Bureau of Circulations

Philadelphia, Pa., February 26, 1916

APPLES IN STORAGE

Statistics gathered by the Department of Agriculture concerning the amount of apples in cold storage on February 1, show the number to be about 15 percent greater than at the same date last year. The amount in barrels is over 33 percent greater, while the proportion in boxes is 25 percent less. The amount of fruit in storage is about 27 percent less than on December 1. The market reports indicate that apples are moving fairly well, but the rate of disposal must increase if the stock is out of the way before new fruit enters the market. Greatly increased prices are not expected.

BEWARE HIGGINS AGENTS

Warning is again given against paying subscriptions to Pennsylvania Farmer to agents of the Higgins' Circulation Bureau, of Columbus, O. We are receiving complaints from farmers in Northwestern Pennsylvania and Northern New Jersey reporting that they paid agents of this Bureau for Pennsylvania Farmer, and have not received the paper. Neither have they received the premium offered. As before stated, these subscriptions are not reported to this office by these agents. This Bureau is not authorized to take subscriptions for us, and when its agents take such subscriptions they do so without authority, and apparently with no intention of making good on their sale. Every legitimate agent of Pennsylvania Farmer has a signed letter of credentials and sells the paper only at its full suscription price of 50 cents per year. The Higgins agents are reported as offering four papers for one year together with a standard make of alarm clock, all for $1. The clock offered sells regularly at about $2.50 and every farmer approached with such a proposition should expect to be fleeced. The agent simply wants the money. Make sure that he is a responsible representative of the papers he offers, and do not expect to get something for nothing. We shall be glad to have early reports from farmers wherever an agent of the Higgins' Bureau is offering Pennsylvania Farmer.

MOBILIZING THE LOOSE CHANGE

It is estimated that there is, on an average in the United States, more than one billion dollars idle money; that is, actual cash that is neither deposited in banks nor invested in securities, but is simply held in pockets and chests at home. It has been proposed that the Postal Savings Bank law be so amended as to ''mobilize'' this money, or a great part of it, and use it to meet the alleged need for better and cheaper loans for agricultural improvement. The present Postal Savings Bank law limits the availability of this bank to comparatively few people and provides that the deposits be loaned to banks only. The government pays the depositor only two percent and loans the money to banks at two and a quarter percent. Adopting the slogan, ''Unshackle the Postal Savings Bank,'' some interested people have started a campaign to have the law amended so that every post office and every mail carrier shall be required to accept money for deposit and deliver receipts or government certificates for same. These certificates shall be transferable and the deposits draw interest after three months. Fifty percent, or more, may be loaned on farms or other productive real estate—loans being made to the highest bidder instead of to bankers only, as now. It is argued that the gathering together and offering to the public of so large a sum as is anticipated would be collected by such a safe, universal postal system would tend to make loanable money so much more plentiful that it would break the alleged control which banks have of the credit system.

PROSPECTS FOR THE FUTURE

Because of the discouraging experiences of last year many farmers were for the time being inclined to feel like reducing their acreage and producing less. But the lessons that were learned, the changed economic conditions and the influence of the sober, second thought have developed a more optimistic spirit and the indications are that there will be normal if not increased activity in farming. It is hardly possible to have a repetition of the combination of adverse circumstances of last year. The weather, the business depression, and marketing conditions all conspired to unsatisfactory returns for perishable products. Present conditions indicate that it is wise to bend all energies towards ''making hay while the sun shines.'' However, let it be remembered that one of the three contributing causes of failure mentioned above may be remedied by farmers themselves, even if the others are beyond their control, and that is marketing, or, at least the preparation of products for market. The efforts to produce a maximum out-put should not be so strenuous as to lose sight of this question. The lessons of last season should not be forgotten. The business of conveying the product from the farm to the consumers of large cities is necessarily divided into two parts, (a) the grading, packing and shipping, done at the farm, and (b) the selling and distributing of the products to the final consumer. The latter part of the work will probably never be done by farmers in the big cities. But it is necessary that there be mutual good will and respect, and also an intelligible means of communication between the two agencies—the producers and the city people. At present we have no market language that is universally known. The terms ''Grade A'', ''Good'', ''No. 2'', ''Fresh'', etc., do not mean the same to everyone, or in every locality. The situation is like that of the people who attempted to build the tower of Babel. They failed because they could not understand one another. Before we can go far in the solving of the marketing problem we must standardize the different grades and adopt terms that will mean the same thing to all people as we do now for sugar, kerosene, dynamite, etc. It may require strict federal and state laws to do it, but in the meantime farmers' organizations can do constructive work along this line which will be more effective and profitable than resolutions and speeches condemning someone else for unsatisfactory returns.

COUNTRY IMPROVEMENT

If the people of the farms should hear and believe all that is said about country ''conditions'' — the drudgery of the farm, the lack of conveniences, the narrowness of life, the back-breaking, nerve-racking toil, the long hours, the absence of opportunity for pleasure, the repression that crushes out ambition and hope—we say if the people of the country did not know that much of what is said is simply exaggeration based upon ignorance of conditions, no one would stay in the country longer than it took them to get away. The fact is that a great many who have much to say about these things have only the city dweller's point of view and lack the development that enables them to understand that,

> ''Who lives to nature rarely can be poor;
> Who lives to fancy, never can be rich.''

We know there are those who will say that country people cannot see and feel such sentiments because of the penury of soul and overwork, but they say what is not true. Sometime ago we published a symposium compiled from the personal letters of over a hundred farm women and it is significant that only three of them expressed dissatisfaction with farm life as such. They almost invariably find joy in the work of building and developing the home; in living close to nature and enjoying the contact with, and the association of, the things of home and farm. Almost without exception they voiced sentiments that showed they understood with Street that,

> ''Nature is man's best teacher. She unfolds
> Her treasure to his search, unseals his eye,
> Illumes his mind, and purifies his heart.
> An influence breathes from all the sights and sounds
> Of her existence; she is nature's self.''

These letters bear out our own experiences and observation. Unhappiness is not found in the country as a general thing, or even frequently. Work is not considered drudgery. One of the unfortunate te dencies in much that passes for education today i to leave the impression that physical labor is to b avoided if possible. Contradictory to this, we fi that the healthiest and therefore the happiest peopl are those who work, and work hard. An editori in a daily paper recently referred to modern develop ments as tending to ''relieve farm life of its dead an uneventful routine, and the inaccessible home of a unending drudgery.'' We approve of and welcom everything that tends to make life better and hap pier everywhere, in country as well as in city, but w deny the allegation that country people as a whol ever looked upon farming as a life of ''unendin drudgery,'' or that it has tended to make hi ''brother to the ox.'' Let it be understood tha rural life is developing more and more into a fulle experience, chiefly thru the efforts and purposes o country people themselves. This work will go on an anything that others can do that is really helpful wil be appreciated, but let the harping criticism and th patronizing attitude be dropped.

CONSCRIPTION

The following is given as a suggestion of the extremes to which the preparedness propaganda i reaching in the minds of some of our people. United States Senate Bill No. 1695, introduced by Senato Chamberlain of Oregon, provides ''that all able bodied male inhabitants of the United States between the ages of 12 and 23 years, inclusive,'' shall be liable to training with certain exemptions prescribed, among which members of any well-recognized religious sect or organization whose creed forbids its members to participate in war in any form—whose religious convictions are against war or participation therein, are exempt; said exemption to only apply to the bearing or use of arms. Section 2 of this bill provides that ''all persons trained under the provisions of this act shall be known as follows'': ''between the ages of 12 and 17 years, inclusive, as a citizen cadet corps; between the ages of 18 and 23 years, inclusive, as a citizen army.'' When the boys reach the age of 14 years this training ''shall include military training with the rifle, including gallery practice.'' After these boys reach the age of 16 years their training is to have added to it ''10 whole days in camp each year.'' Section 5 provides for periods in which the citizen cadet corps (12 years and upward) may be given drills, including night drills, thus ''in half-day drills of not less than three hours or in night drills of not less than one and one-half hours.'' Section 11 provides that every person (boy) who fails to register or who evades or ''fails to render the personal service required by this act shall be deemed guilty of a misdemeanor,'' etc. ''and shall be liable to a fine of not to exceed $500, or confined for 20 days, or both.'' Section 14 provides that any ''person'' liable to training under this act ''who fails without lawful excuse to attend a compulsory drill or instruction shall be liable to a penalty not to exceed $25.'' This sum ''may be recovered summarily on the information or complaint of a prescribed officer. Or, the offender may be committed not exceeding 20 days.'' Other sections provide for an enormous staff of military officials of different grades; that ''arms, ammunition, equipment, and that other military and naval supplies shall be issued in such quantities as may be prescribed by the Secretary of War or Secretary of Navy. Sec. 39 provides for the control of the War Department over the boys by dividing the United States into 50 inspection districts each under authority of military officers. We are not opposed to reasonable preparedness, but we want to submit the following figures which it seems to us ought to be kept in mind now as well as all other times. Congressman Kitchin, Chairman of the Ways and Means Committee of the House of Representatives has compiled figures showing the proportion of annual income spent for war ''past and to come'' by various countries. These figures show that at the beginning of the European war Germany was expending for past wars and preparations for war (on its army and navy) 55 percent of the total amount of revenues collected. Japan was spending 45 percent; Great Britain, 37 percent; the United States over 60 percent. With the proposed military and naval program enacted into law, the United States will be spending over 70 percent of its total revenues. That is, out of every $100 collected from the people in direct or indirect taxes, over $70 will go into military and naval activity and in pensions, leaving less than $30 for all other functions of our government for all other benefits, of the people. It may be unpatriotic to count the financial cost in the actual national need, but it is mighty practical in a time of exaggerated military agitation. It would seem that we need to get more for our money rather than spend more money for the little we are getting.

HARRISBURG NOTES

Hunting Appropriation Leaks.—The new State Economy Commission is starting a probe which may have wide-spread consequences in the voting of legislative aid to numerous hospitals, asylums, homes and the like over which the commonwealth has no control. The commission has sent a letter to each state institution asking how it spends its money and what prices are paid and quantities bought of each of a couple hundred supplies. This is the first step toward standardizing supplies for such establishments. If this inquiry is pushed it will result in information of the utmost value to the money-voting power of the state. It will show where the funds go. It will enable the legislature to check up and see if money voted could not be spent to better advantage or whether local communities should not pay the bills for such institutions. The result of the inquiry, notably the manner in which it is received, will be watched with interest here.

Sealing Down Prices.—The example of Highway Commissioner Cunningham in sending his own engineers to examine into value of turnpikes offered to the state at fancy prices has not been lost on Capitol Hill. In several instances, notably one in Chester and another in Centre, the commissioner was offered stretches of toll road at high prices. He had engineers go over roads, estimate construction value, cost of replacement and value to the neighborhood. These reports showed that the prices were high and the Commissioner has made offers which the state will insist be taken or the roads paralleled.

Dairy and Food Work.—Some rather remarkable figures are given in summary of operations of the dairy and food division last year. There were more licenses for sale of oleomargerine issued than ever before. There were 625 instances of failure to have milk up to standards. Number of samples of food analyzed during the year was 8,939, or almost double the number in 1914, leading to over 1,100 arrests. Over half of this number were for violations of the milk law and 101 for sale of vinegar not up to standards. Violations of food regulations led to 175 arrests and of cold storage act to 76. The unusual part of the report is that the revenue received from oleo and other licenses and fines amounted to $279,055.40 or over $50,000 more than in the previous year and almost double what it costs to operate this division. In nine years the division has yielded $1,243,585.26 and cost $711,000, according to Commissioner Foust.

Use of Revenue.—In view of the fact that the Highway department gets the use of the income from automobile licenses and the Game commission of hunters' licenses, this statement of the Dairy and Food division has caused a revival of the question why the Department of Agriculture does not get the income from the licenses of various sorts issued under its direction. Not only does the oleo license money, but the fees for licensing of fertilizers, paints, paris green, feeding stuffs and the like all go into the State Treasury in a general fund and the Department of Agriculture gets what a legislature running without a financial program sees fit to vote it.

No Moths in the State.—State Zoologist Surface announces that as a result of the joint investigation conducted by Federal and state investigators no traces of brown tailed or gypsy moth have been discovered in this state.

Trees for Reforesting.—State Department of forestry has shut down on people who tried to get free trees for ornamental or shade planting, announcing that only applications for reforesting in order to conserve water supply or improve wooded areas would be considered. There will be millions of trees given free for woodlands and the only requirement is that they will be placed where needed and that they receive attention during growth. Some foreign trees which have been found useful on farms are being experimented with.

Black Leg Vaccination.—The State Sanitary Board is about to issue its spring plan for vaccination against hog cholera, black leg and other cattle diseases. Owing to the shortage of funds this work can not be as extensively carried on this spring as in some former years, but an effort to get good results will be made in every county. The Board has also raised the foot and mouth disease quarantine against Chicago, altho retaining it against those counties of Illinois where the disease prevails.

To Discuss Duplication. — Charges that duplication of work marked the activities of the College and the farm bureaus on one hand and the State Department of Agriculture on the other are to be taken up this week by Secretary of Agriculture Charles E. Patton with President Sparks of the College, and means of distributing the work so better results can be obtained will be discussed. The officials of the department will not consent to the concentration of all educational work at the College because that would leave the department with only police and supervisory powers and make it more or less advisory to the legislature. The point of difference to overcome will be how to make a co-operative schedule and obtain the benefit of collegiate and federal government aid for institutes and farm counsellors, while the college expands its field or extension work.

Cheaper Road Repair.—Efforts are being made to secure a basis whereon counties, boroughs and townships may unite with the state in cheaper method of reconstruction and repair of state-aid roads. The heavy cost, which is largely due to foundations, is held to be detering many districts from asking state aid and it is suggested that resurfacing be substituted. The problem is whether it would be cheaper in the end to resurface or reconstruct. — Hamilton, Harrisburg, February 21.

NEW YORK LETTER

Eastern Fruit Growers.—At the meeting of the eastern New York Fruit Growers at Poughkeepsie the subject of greater publicity for merits of New York apples was under discussion. It is regarded as necessary that New York apples should have the publicity given their superior qualities if they are to compete in the markets with western fruit. President Bradley recommended an advertising campaign in magazines and periodicals. The association took very decided action against a proposition before the legislature to repeal the present agricultural law in relation to apple grading and packing, 250 members present rising in their places when called upon to vote upon the resolution. This stated that the repeal of the law would be a calamity and jeopardize interests of farmers thruout the state. Commissioner Wilson said his department was doing what it could to co-operate with the growers in carrying the apple-grading law into effect. He said he considered the law, ''in all of its provisions, to be in the interest of both grower and the public.''

Farmer Bills.—During this week several bills have been introduced in the legislature amending the agricultural law. One would prohibit the manufacture and sale of ''any oleaginous substance in imitation or semblance of butter'' instead of merely ''imitation butter''. Another would include live stock under the term of ''farm produce'' in the agricultural law. Another makes drastic prohibitions against the manufacture and sale of adulterated vinegar and defines the various grades of vinegar. The bill permits the manufacture of vinegar not meeting these requirements but only for sale in other states whose regulations they meet.

Township Schools.—At recent meeting of the state grange it was voted that action by the legislature on township schools be deferred for a year and that granges be asked to study the question and report conclusions not later than December 1 of this year. This report will go to the state grange at its next session and there the final action will be taken. It is believed that this move will defer action by the legislature on the subject until next session.

Farm Bureau Work.—The superintendent of Farm Bureaus of the state announces that the membership in the Farm Bureau associations is now 10,000, having nearly doubled the past year. In 27 out of 33 counties the Farm Bureau managers publish little papers which have proved quite valuable in keeping membership in touch with the work and in disseminating facts and news of interest.—D.

NEW JERSEY FARM NOTES

Farm Census.—A complete agricultural census of Burlington county, made by public school pupils, has been placed at the disposal of state and national authorities. The plan was introduced as an experiment by William R. George, who says that it has the triple value of furnishing the government with important information without cost to taxpayers, making school children feel their importance as useful units in public affairs and interesting them in commercial operations of their community. The Burlington plan worked out so well that it has been advocated for state-wide use by C. S. Wilson, New York commissioner of agriculture. The census covered 1,039 farms, and was taken in 20 townships by 142 boys and 95 girls, representing 50 schools. The census shows that corn is still king, a planting of 11,313 acres, with an average yield per acre of 49.59 bushels being reported. The tabulated report shows that of 1,039 farms reported, 715 were worked by the owners, 269 by tenants, 51 by hired managers and four uncertain. The total acreage of these farms is 87,144, of which 57,519 are under cultivation.

Oppose Road Bill.—Following much dissatisfaction with the present State Road Commissioner, a bill has been introduced in the Senate to greatly change the present system. Committees representative of the State Board of Agriculture, the county engineers, the Associated Automobile Clubs and of the various counties of the state, met with Senator Gaunt, who introduced the bill. The bill provides for an Advisory Board, composed of the Governor, President of the Senate, Speaker of the House, president of the State Board of Agriculture and the State Geologist. This board would appoint the State Road Commission, consisting of three members, which would in turn appoint the State Engineer, his assistant and other officials who would govern the state road affairs. The object of the bill is to place the road department on a business basis rather than that of a political machine. Those advocating the bill claim that the state will save many thousands of dollars if the bill is passed.

Cold Ruins Peaches.—The cold wave of the last week is believed to have ruined the famous Vernon Valley peaches and growers claim the crop will be a failure. The thermometer has registered as low as 18 degrees below, while anywhere from 6 to 8 below has been common in the vicinity of Newton.

Explain Land Purchase.—After several rumors had spread to the effect that the government had purchased several thousand acres along the Great Egg Harbor River for naval purposes, the purchase proves to be a venture on the part of Ocean City speculators, who are planning to get a corner on the best meadowland and go into the salt-hay business on an extensive scale. The salt hay will be used for both feeding and packing.

Farmers Plant Trees.—On a leading road out of Shelbyville, farmers for six miles have agreed to plant shade trees on both sides, 60 feet apart. The same variety of tree will be used the entire distance.—L.

COUNTY NOTES

York Co., Pa., (S.E.) February 14.—Weather in general not very cold and little snow. Beef cattle not very plentiful in this section. Prices ranging from 7½ to 8½c. The wheat so far is wintering fine. Prices are as follows. Wheat, $1.26 bu; corn, 78c; potatoes, $1.20@1.25; apples, 75c@$1.25; butter, 32@36c; eggs, 23@25c. Tobacco selling from 7@10c; is very well done up. Owing to the open winter quite a great deal of plowing is done. Most of the farmers are now busy stripping their tobacco.—Clarence D. Emig.

Steuben Co., N. Y., (W.C.) February 12.—About one foot of snow on ground and much colder. Livestock wintering well. Veal cows selling at 10½ cents a pound. Potatoes less than one dollar. Some logging being done on the good sleighing. Glad we did not have open weather all winter. Wheat a little brown as it is.—C. M. Drake.

Crawford Co., Pa., (N.W.) February 14.—Weather cold with some snow. Quite good sleighing at present. So far the weather has been hard on meadows and wheat. Eggs, 26c; butter, 28c; potatoes, 85 to 90c; apples, 65@75c; pork, dressed, 9c; poultry, live, 11c; hay, $11. Quite a lot of lime shipped in now for use in spring. A few farms changing hands.—J. F. Seavy.

PENNSYLVANIA FARMERS' INSTITUTES

First Section.—Berks County, Jacksonwald, Feb. 28; Geigertown, Feb. 29. Chester Co., Cedarville, March 1, 2; Beyers, March 3, 4; Parkesburg, March 6, 7; Doe Run, March 8, 9. Speakers, Sheldon W. Funk, E. L. Phillips and L. W. Lighty.

Second Section.—Union Co., White Deer Church, Feb. 28, 29. Northumberland Co., Rebuck, March 1, 2; McEwensville, March 3, 4; Elysburg, March 6. Speakers, D. H. Watts, Vern T. Strubble and W. Theo. Wittman.

Third Section.—Erie Co., West Green Grange Hall, Feb. 28, 29; North East, March 1, 2; Girard, March 3, 4. Speakers, E. B. Dorsett, F. H. Fassett, and Fred W. Card.

Fourth Section.—Clinton Co., Logantown, Feb. 28. Lycoming Co., Friedens Church, Feb. 29; Montgomery, March 1, 2; Hughesville, March 3, 4. Speakers, Wm. M. Patton, Dr. Hannah McK. Lyons, C. C. Hulsart and W. H. Stout.

STATE BEEKEEPERS' MEETING

The 12th annual convention of the Pennsylvania State Beekeepers' Association will be held at Lancaster, Pa., March 3 and 4. The program includes following discussions: Constructive Farming and Beekeeping, by L. B. Huber, Lancaster; Beekeeping as a Hobby for Girls, Miss E. S. Brinton, West Chester; Marketing Honey, E. F. Strittmatter, Ebensburg; Queen Raising, J. R. Rambo, Collingdale, and W. S. Sellers, Lancaster; Getting Ready for Honey Flow, L. K. Hostetter, Lititz; Spring Management, John O. Buseman; Wintering, Elmer Weaver, Ronks; Leaks in Bee Business, Rev. J. C. Fossold, New Berlin; Observations Among Beekeepers, S. M. Boshnough, Loudersburg; Box Hive Beekeeping, G. H. Rea, Reynoldsville; Habits of the Honeybee, H. A. Surface. All sessions will be held in the rooms of the Chamber of Commerce.

FARM MEETING CALENDAR

Long Island Cauliflower Association, Riverhead, N. Y.	Feb.26
Mercer Co., Board of Agriculture, Trenton, N. J.	Feb.28
American Road Builders' Association, Pittsburgh, Pa.	Feb.28-Mar.3
Pennsylvania Berkshire Breeders' Association, Reading, Pa.	Mar. 1
N. Y. Holstein-Friesian Club, Syracuse, N. Y.	Mar. 1
Penna. State Beekeepers' Ass'n, Lancaster, Pa.	Mar. 3-4
American Jersey Cattle Club, New York City	May 3
Holstein-Friesian Association of America, Detroit, Mich.	June 6
American Forestry Association Reading, Pa.	June26-27
International Apple Shippers' Association, New York	Aug. 2
National Dairy Show, Springfield, Mass.	Oct.12-21

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Are Guaranteed Correct Capacity!

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"Success Ideal" Tile Silos
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Made of our vitrified hollow Clay Block, moisture-proof, frost-proof, air-tight. Cannot warp or rust; require no painting inside or out; no repairs, and practically last forever. Circulating air space in blocks from bottom of silo to top, make it cooler in summer and warmer in winter, and help

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WADDINGTON FARM, Wheeling, W. Va.

Odd Jobs About the Dairy Farm

Field and Barn Work

Alsike Clover

We have been mixing a small amount of alsike clover seed each year with our timothy and red clover seed, using from four to six pounds and sometimes eight pounds, if the field seeded has not had as much lime as needed or is lacking in drainage. The alsike clover is a sort of insurance for a clover hay crop if for any reason the red clover should fail. In this northern latitude, some years we have considerable daily freezing and thawing weather or as more commonly called ''maple sugar weather'' during March which lifts the red clover roots and kills or damages them badly. Alsike clover does not have a tap root and is not affected by such weather. It will also endure and thrive on soil which is too wet or is in bad physical condition, where red clover would be a failure. Even if the red clover is a good crop, the alsike seems to fill in the vacancies on the ground where there are no other grass plants and helps to make a larger yield of hay without damaging the red clover or timothy. It will, also, grow on soil too sour to grow red clover successfully.

As alsike does not make a second crop, it will not interfere with saving a seed crop from the red clover. Alsike clover has been unjustly criticised by many writers. While it is true that it should not take the place of red clover in the rotation, yet we have found it a great advantage to grow it as a supplement to red clover.

Hauling Manure

We have made a practice of hauling manure directly from the stable to the field for years, but this winter the fields have not been frozen except for short time, and it has been impossible to use the spreader much on account of the soft condition of the fields. But even with this, we have been able to get the manure hauled out about every week or ten days. I like to haul directly from the stable if possible, as the extra handling of the manure is saved and leaching and fermentation in the pile is prevented. We shall make every effort to get the manure out as soon as made, for if not hauled until spring work begins much time is taken from the preparation of the soil for seeding.

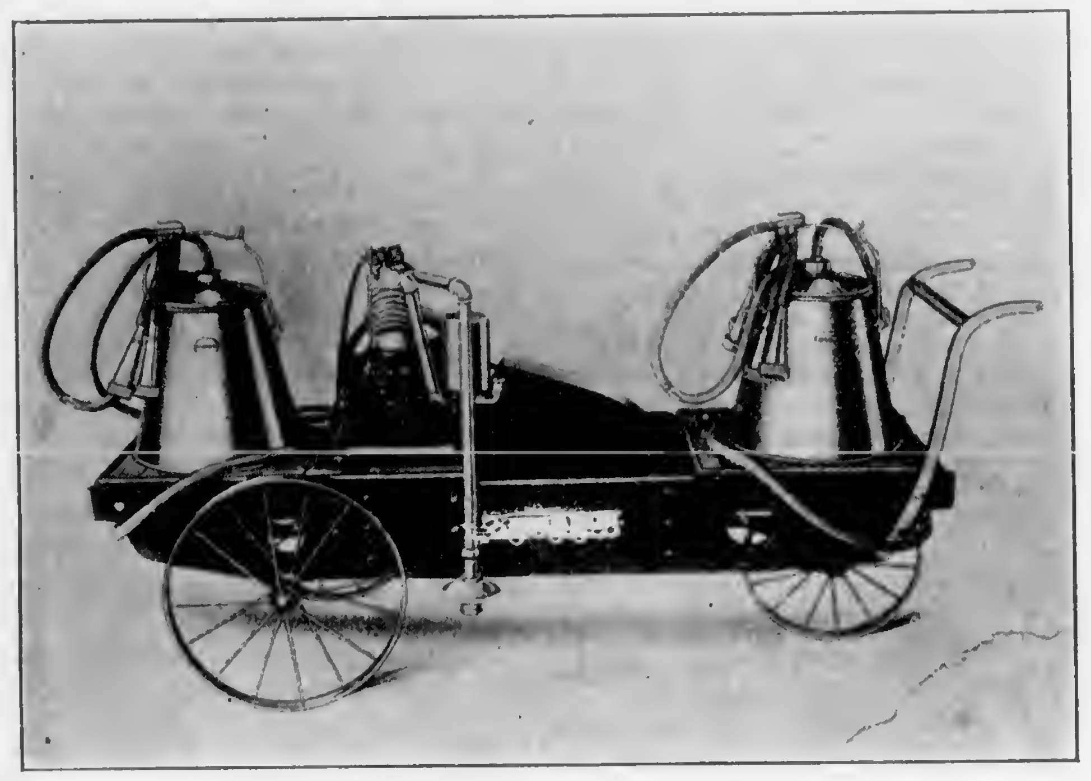
Most of the manure will be spread on the wheat and meadows, as we seem to get the best results from such practice. But some of the manure, where we keep the beef cattle and young stock is too strawy, and will be spread on the corn ground to be plowed under.

Building Wire Fence

We have the problem of the construction of a few hundred rods of farm fence this spring. Part of this is to replace wire fence that has become rusted to such an extent that it will no longer turn stock. This fence has only been up about five years. On another part of the farm, we have a few rods of wire fence that has been in use more than twenty-five years. This shows the difference in the lasting qualities of wire fence.

We shall be more careful in the purchase of fence wire in the future to insist that we are getting a high quality, double galvanized wire. While such wire will cost more, it is by far the cheapest in the end. It is impossible to get a high grade wire at some dealers as the demand from most farmers is for a cheap wire, and a greater profit appears to be realized from the sale of a cheap article. We shall purchase the wire for this fence from the manufacturer who is an advertiser in this paper.

Barbed wire fence is cheaper to construct, but is not as satisfactory for horses, sheep and hogs as woven wire. For a general purpose fence, a woven wire 36 or 42 inches high, with one or two barbed wires on top, to keep stock from reaching over and sagging the woven wire, is much preferable. Posts that have been cut and seasoned for at least a year will last several years longer than green posts.



A NEW TYPE OF AUTO MILKER.

Winter Plowing

The exceptionally mild weather this winter has been very favorable for fall and winter plowing. At this date, February 8, we have all of our oats ground and several acres of corn ground plowed. Usually we do not get much plowing done until after the first of March. We have found by experience that the winter or early spring-plowed ground produces the best crops. Frost is Nature's harrow and does the work better and cheaper than we can. And when we go on with harrows at seeding time, the soil is mellow and loose and can be prepared at less expense. This saves on the cost of producing a crop. Besides, the earlier plowed ground has a better store of moisture, and if this is carefully conserved by proper cultivation, a larger crop can be grown. We have noticed that on corn or potato ground that has been plowed early, that more weed seeds sprout and are killed in harrowing previous to planting.

Removing Rubbish

Some of our cities set a certain day in the spring for ''clean up day''. On such days every one is urged, as a public duty, to clean up and make his premises more presentable. We have been removing some old stumps from one of our cultivated fields, and plowing up an old fence row recently. Nearly every farmer could use several days in early spring, when other work is not pressing, very profitably in cleaning up old fence rows, rubbish of various kinds that accumulates on every farm, stumps, stones, etc. They are usually a harbor for weeds, insects, and worst of all, an eye-sore.—H. E. Moats, Mercer Co., Pa.

A NEW AUTO MILKING MACHINE

An enterprising manufacturer of milking machines has brought out a new device which offers many advantages to practical dairymen. It is known as an auto milker, and consists of engine and milking-machine outfit mounted on a narrow truck which can be moved to any part of the stable or barn. It does away with installation of shafting; can be used in any stable where there are 30 inches of space behind the cow; saves time in milking as there is no attaching or detaching of pumps. All that is required is to wheel the auto milker behind the row of cows and attach the teat cups. It is understood that the milking principle is in no way changed. The outfit is simply put onto wheels where it can be moved where wanted. The engine can be used for other purposes by wheeling to position and attaching to light machinery. The device is a distinct step forward in milking equipment.

SILAGE FROM SHOCK CORN

We have had some discussion of the practicability of ensiloing dry corn fodder. The following is from Prof. C. H. Eckles, of the Mo. Experiment Station, one of the leading dairy instructors of the country:

Dry corn fodder may be put into the silo any time during the fall or winter with good results, altho it is better to put it in at the proper stage, according to the results obtained at the Missouri Station. It is very difficult to make silage in the winter time on farms which do not have water systems which make it easy to add a ton of water for every ton of silage. It will not do to rely upon supplying the water thru the cutter as only about a third enough can be added in this way. No better results are obtained if the water is poured on the top after the fill has been completed. Channels form and drain the upper portion of the silo, leaving most of the fodder dry. There is little danger of adding too much water, but of course it makes unnecessary work.

Of ten or twelve farmers who made silage from shock corn and furnished samples for analysis, one who added apparently too little water says: ''The silage was good at first, but got drier and drier toward the bottom.'' In a number of cases, the silage molded and in every such case it was found that too little water had been added. If the filling is done during wet weather, the fodder may be so damp that less need be added, but the only way to be sure of getting good results is to measure the amount of water sprayed on by the hose per minute and adjust the hose and the cutter in such a way that a ton of water will be evenly distributed over every ton of dry fodder cut into silage.

The conclusions of the College derived from filling three small silos at different dates and with the addition of different amounts of water agree closely with the opinions of the farmers who had used such silage, and may be summarized by saying that (1) the feed was satisfactory and more palatable than the shock corn, (2) such silage is not equal to that made by putting in the corn at the proper stage in the fall, (3) such refilling prevents the loss

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Many cow owners all over the country know what it is to see a cow that they were about ready to sell to the butcher become one of their best producers through a judicious use of the great cow medicine KOW-KURE

There is nothing mysterious about Kow-Kure; it is simply a medicine for cows that stimulates and builds up the vital organs and makes them perform properly. It has been found especially effective for the prevention and cure of such diseases as Abortion, Barrenness, Milk Fever, Scouring, Lost Appetite, Bunches, Retained Afterbirth.

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When a cow is sick, first aid is most valuable, and to know just what to do may save the life of a valuable animal. Our free treatise, "The Home Cow Doctor," has been very carefully prepared and ought to be in every farmer's library. Write us today for your copy.

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Lyndonville, Vt.

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EACH year some 40,000 farmers, who have bought at one time or another, ''cheap'' cream separators, discard the inferior, cream wasting machines and replace them with clean skimming De Lavals.

These men bought the ''cheap'' machines because they thought they were ''good enough'' or ''just as good'' and that by purchasing such machines they could save a little money. They actually would have been better off in most cases had they bought no separators for they lost most of the money they spent for the ''cheap'' machines, besides all the cream these machines have failed to get out of the milk.

No one ever saved money using a ''cheap'' cream wasting separator or an old or half worn-out machine. No one ever got back the money spent for such a machine by continuing to use it. Those who bought ''cheap'' machines and got out of the difficulty best are the ones who quickly discovered their mistake, discarded the inferior machines and put in real cream separators—De Lavals.

There are nearly 2,000,000 farmers who have bought De Lavals, and every one of these had just as many opportunities to buy ''cheap'' separators as any one else. They did not do it and are now money ahead. They have avoided paying the high cost of experience, and their De Lavals have paid for themselves many times over. It always pays to buy a separator of proved, known superiority.

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165 Broadway, New York 29 E. Madison St., Chicago
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

A Great Holstein Sale

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MARCH 9 and 10,
AT THE WM. PENN BAZAAR
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ALLAMUCHY FARMS, Allamuchy, N. J.
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FOR FACTS AND FIGURES WRITE,

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Cleaner Milk---Double Profits

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Thousands are already doing it and they tell us they wish they had realized years before how simple the *Hinman* was to operate and clean.

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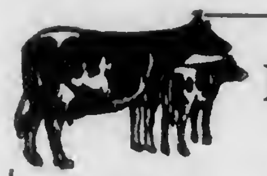

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1.	10,413 lbs.	20.59 lbs.	$75.
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Prices include delivery to any R. R. Station in Pa. Calves are sired by Sir Lyons Hengerveld DeKol whose two nearest Dams average 30.22 lbs. butter in 7 days official. Herd tuberculin tested annually. No abortion. For information and pedigrees write.
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Holstein bull calves for sale; grandsons of the $50,000 bull, King Segis Pontiac Alcartra No. 79602. WILLOWHURST FARMS, R. G. Williams & Sons, Canton, Pa.

Guernseys Special March sale yearling bulls and bull calves, A. R. Breeding.
EDWIN B. MAULE, Parkesburg, Pa

Jersey Calves both sexes. Fine stock, of the most noted pedigrees in the world.
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Registered Holsteins Desirable calves for sale at prices that are right. Satisfaction guar't'd. Ideal Farm, Conyngham, Pa.

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are the two 14x30 Unadilla Silos on this fine New Jersey farm; and you can just believe they wouldn't have been erected had not the owner investigated their merits and verified all claims of quality, durability, greater convenience and ability to cure and keep silage prime. New catalog shows construction in detail. Send for a copy today and learn how a Unadilla will bring greater prosperity to your farm. Discount on early orders. Agents wanted everywhere.
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Perfect-fitting doors make the silo absolutely air-tight. That keeps the ensilage sweet and fresh down to last forkful. Quick, easy adjustment—no hammer or wrench needed. Strong steel hoops form easy ladder. Built to last a lifetime—of White or Yellow Pine, Oregon Fir or Cypress. You can't buy a better silo at any price. Complete anchoring system with every silo. Our motto is Quality. Factories at Frederick, Md., and Roanoke, Va. *Write for free catalog.*
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TRIPLE CRAINE WALL SILO FROST-PROOF
Three walls, instead of the usual one, make this silo air tight, frost and water proof; preserves silage perfectly. Requires no hoops. Costs no more than single wall silos. Most durable. Guaranteed. Many satisfied users. Send postal for catalog.
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⅞ heifer calves $15 each express paid in lots of 5. Reg. heifer $100.; bulls $25 to $100.; 8 reg. 2 year olds due in Sept. $180 each; grade cows $45 up. Carload grade yearlings and 2 year olds $30 each. 40 reg. cows, some with records 20 to 25 lbs. butter in 7 days bred to 31 lb. bull. Also 10 reg. Berkshire sows bred. JOHN C. REAGAN, Tully, N. Y.

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strongest built, simplest to put up and easiest operated on the market. Adjustable automatic take-up hoop—continuous open-door front—air-tight door and permanent ladder are some of the unusual features. The International Silo Co., 118 Main St., Linesville, Pa.

Holstein Herd of 20 head of the highest grade Holsteins. Each cow has a complete cow testing association record. Registered Pure Bred Bull calves for sale at all times. PLUMLYN FARM, Fairview Village, Pa. near Norristown.

Registered Holstein bull calves, by son of a 23 lb. cow, and from dams of good breeding. Price $30.
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Registered Holstein and Guernsey bulls from calves to serviceable age. 250 animals in the herd.
BONNYMEADS FARMS, R. D. 1, Harrisburg, Pa

in feeding value, which occurs when the fodder is left in the shock, (4) silage is more convenient than shock fodder to feed, and (5) the stalk is more completely eaten.

One of the farmers who has had experience says: "I would recommend putting shock corn in the silo any time up to February, believing it to be much more valuable as silage than when fed to cattle from the shocks. I prefer putting in silo at proper stage, however."

EUROPE BUYS AND SELLS CONDENSED MILK

American condensed milk is enjoying a vogue in Europe that it never knew in peaceful times. The exports from this country in 1915 amounted to 76,000,000 pounds valued at $6,000,000, according to figures furnished by the Bureau of Foreign and Domestic Commerce, and the bulk of these exports went to Europe. In normal times the value of condensed milk sold abroad varies between $1,000,000 and $2,000,000, and ordinarily the best customers are Cuba, Panama, China, and Mexico.

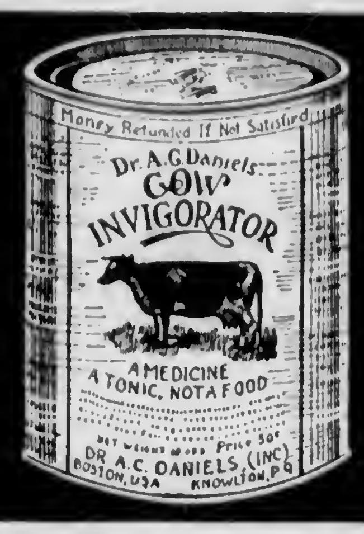
The increased exports of condensed milk to Europe are easy to explain, under the circumstances, but there has been an increase in imports from European countries that is puzzling. Italy's recent participation in the American trade has caused some comment, but the fact that Holland and Switzerland sold much larger quantities of milk in the United States in 1915 than ever before is considered more remarkable, for these two countries have access to practically all markets in Europe. The total imports into the United States from all countries in 1915 were valued at practically $2,000,000, or one-third of the exports, and altho Canada furnished more than half, Holland did a business approximating $800,000 as against less than $300,000 the year previous. Switzerland now is selling to us at a rate of $250,000 a year, where formerly practically no milk came from that country.

STERILIZATION AND PASTEURIZATION OF MILK

Sterilization and pasteurization of milk prevent souring by killing the lactic acid bacteria always present, and destroy disease-producing bacteria which are sometimes found in milk. In Extension Bulletin 7, of the N. J. Agricultural College at New Brunswick, entitled "Milk and Eggs," the following description of sterilization and pasteurization of milk is given:

"Sterilized milk is milk heated to a sufficient temperature to destroy all organisms. A higher temperature than boiling is necessary to destroy all organisms at one application of heat, but heating to the boiling point for three successive days is effective. For many purposes simply raising the milk to the boiling temperature is sufficient.

"Sterilized milk does not nourish or agree with those who take it as does fresh milk; the albumen is made indigestible by the high degree of heat, hence pasteurization is regarded as preferable. Pasteurization consists of destroying as many bacteria as possible without producing any changes in the chemical constituents of the milk. The temperature for pasteurization should not exceed 185 degrees Fahrenheit nor fall below 140 degrees. To pasteurize milk, place in bottles and stop the bottles with sterilized cotton. Immerse to the neck in lukewarm water and heat to 149 degrees for one-half hour or to 167 degrees for fifteen minutes. Cool quickly to 50 degrees or less. The quick cooling lessens the cooking taste. To prevent the rapid multiplication of any bacteria which may be present, milk should be kept at a temperature of 50 degrees or less."



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Poultry

Poultry Queries

Ration for Hens

I have a flock of 350 White Leghorns which started laying in January at the rate of 20 or 30 eggs a day, but they have now stopped completely. I feed them 12 quarts of oats and wheat in the morning and the same amount of cracked corn and buckwheat at night. They have a dry mash before them all the time and a regular supply of green food. Two months ago the flock was attacked by roup and canker. We removed and treated the sick birds of which half died. Those cured were never returned to the flock. What can I do to make them lay? S. W. B., Stockton, N. J.

Your method of feeding is very good. The trouble may be due to an insufficient allowance of grain and lack of richness in the mash. Increase the allowance of grain 4 to 5 quarts at a feeding and gradually increase the amounts of beef scraps and linseed meal in the dry mash. It is often necessary to increase the quantities of beef scraps, linseed meal or other sources of protein used, as much as fifty percent to induce the hens to start laying. After the hens start laying the rich food may then be somewhat reduced as long as it does not affect the production.

Radical changes in weather or in methods of care and feeding are frequently the cause of a sudden decline in egg production. For instance, hens closely confined and then suddenly allowed free range will often stop laying for a time. See that the hens receive sufficient food to make them reasonably fat, as very little production can be obtained from thin hens.

Since the sickness has been overcome there is little likelihood of it having any effect on egg production.—J. R. K.

Description of Poultry House

We have had several inquiries for more detailed information about the poultry house illustrated on page 3 of the Pennsylvania Farmer of January 8. As we had only the detached photograph, we have had considerable trouble to get a description but finally succeeded in locating the owner of the house who sends the following concerning it:

"My large colony house is 20 feet wide and 20 feet deep. Five feet high in front of the low section and 6½ feet high at rear of same. The front section is 8 feet deep. The rear section is 12 feet deep and 9 feet high in front and 6 feet at rear. The house is built on a solid 6-inch concrete wall, and the sills are of 2x4 stuff laid on this wall. The roosts are at the rear, or north side of the house and are 2½ feet from the floor, with dropping board underneath. No other equipment is in the house except nests and a partition running thru the center from north to south and reaching to the ceiling. This house will accommodate 150 hens."

In other words, it is a simple, plain house containing nothing but nests, roosts and a partition.

THE FARM WIFE'S FLOCK

The farm papers are full of what the big folks are doing with chickens, but the small farmer's wife who is struggling along with what feed can be spared from the barn, is seldom heard from. Off of the 15 acres we own a few bushels of wheat are left to feed the chickens, all the corn I want—shelled and cracked—and a few oats. I have a flock of 75 Barred Rocks which are fed two-thirds cracked corn and one-third wheat and oats raked into their litter at night ready for their breakfast and all the cracked corn they will eat at about 3 o'clock so they will have time to scratch it out before going to roost.

To counterbalance so much corn I have a dry mash before them all the time made of bran, ground oats and middlings but no corn meal. They have grit oyster shell and charcoal, clean water and sour milk before them all the time. When there is no snow on the ground, no matter how cold, they are allowed to roam and they will pick their own green food, but when the snow is on the ground they are fed beets and cabbage.

I always have eggs all winter—enough to run the house and pay for some of the feed used. If at any time any of the hens become too fat and I find the old ones will, I kill them off and they always bring a dollar or more. In the spring when the warmer days come they are a fine healthy lot of hens. I never have any sick ones.—E. C. S.

GIVE THE HENS LIBERTY

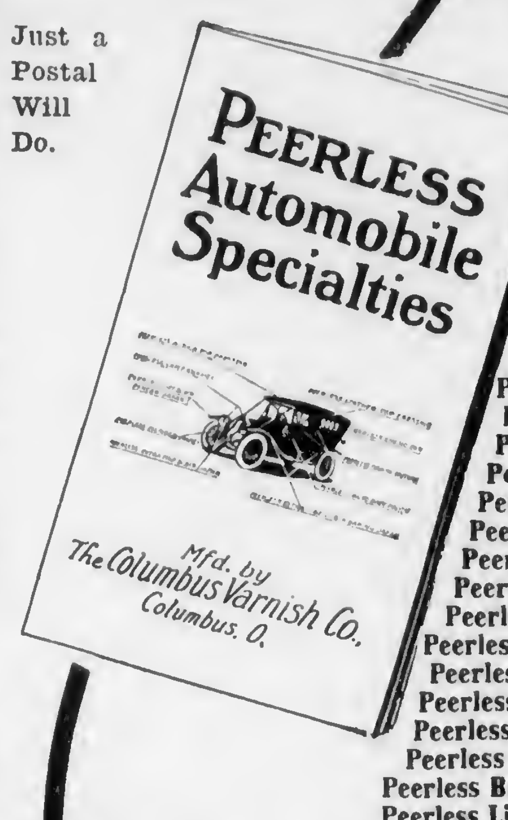
If eggs are expected in winter, there will be disappointment in a great measure, if hens do not have their liberty. Even where fresh air is available, confinement does not seem to tell favorably on laying hens, as shown by a lack of lustrous red in the combs and wattles, also quite a lack in the number of eggs produced. Patrick Henry said "Give me liberty or give me death," and many a hen has not only said this but has acted upon it. Just how the thought that a laying hen must not step out in snow in winter originated is hard to understand. It is certainly one of those old foggy doctrines that has the sanction of time only, but no foundation in fact.

There are days or parts of days when our hen-house door necessarily remains closed, but such times are exceptional. One must use his best judgment in the matter. The building also must be tight, and then if the door is opened, the single opening does not produce a draft. A building so constructed as to allow wind to sift thru anywhere needs no other ventilation. Hens may be confined in such a building, but they are not likely to lay.

Of course, in winter, liberty cannot be perfect. The environment of snow prevents this. So it is well to provide things in a way that will take the place of those obtained on free range on bare ground. Clover chaff is desirable at such times, and hens will eat it in dry form, quite well, but preferably if scalded or steamed. Other succulent food, like cabbage and potatoes, is an important addition to winter feed, taking place to some extent of the grass, etc., obtained in summer.—Clarke M. Drake.

GOOD USE OF LIGHT ENGINE

I have a light-weight gasoline engine that is giving me splendid service. It can be attached to farm machinery such as binder, potato digger, etc., and operates the working parts, leaving merely the traction to the team. I have it hitched to the running gear of an old car and haul farm produce to town and do all the light running about. I also drive it to the barn, belt it to shafting and cut or grind feed, bale hay, etc. Then I drive it to the house where I use it to separate milk, run the churn, washing machine, wood saw and other light machinery. I find this type of engine hard to beat.—Geo. Ferlin Crawford Co., Pa.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Why Don't My Hens Lay?

Some Essential Points Explained

This question is frequently asked by owners of farm flocks who find difficulty in obtaining a reasonable production from their flock, especially during the winter season. The cause in the majority of cases is a combination of conditions any of which are likely to prove detrimental to egg yield. It must be remembered that the ability of the hens as egg producers is dependent, as in other farm animals, upon how well the stock was grown, the ability of the breed as producers, the age of the fowls, feeding, housing conditions and general care.

In the first place little can be expected from stock that has been indifferently reared, no matter how much care is given after maturity. Chicks that have been stunted by sickness, underfeeding and unsanitary conditions can never develop into profitable egg producers. Chicks that develop into big producers are those that have been given reasonably clean surroundings, good dry houses and an abundance of feed, or range upon which it is possible for them to gather an abundance, so as to develop their capacities for food to the greatest point.

No hen with a small crop can be a big producer. The greater her capacity for food the greater are the possibilities of a large yield. As in all animals the needs of the body are first extracted from the food consumed, then all over that goes toward production, thus the advantage of developing chicks with large capacities for food can be readily understood.

The next point to consider in seeking for production is the ability of the particular breed as egg producers. Mongrels can never attain the production that thorobreds can, even tho they have the same feeding and care. A good breed of fowls instead of the usual mixed flock will help wonderfully in obtaining more eggs.

No one breed can be said to be the best, as practically all of the well known breeds will give good results when properly handled. There are, of course, three types—the meat breeds, the egg breeds, and the general purpose breeds. The first two types are best suited only to the one purpose, while the third type is capable of giving good returns in both meat and egg production. The general purpose breeds are in most cases the best for the farm flock, excepting where an especially good market is had for either meat or eggs, in which case one of the breeds best suited to that type of production should be adopted.

One of the greatest causes of low production in farm flocks is immature pullets and exceedingly old hens. Pullets hatched late in the season as in June and July are unlikely to produce anything until the following spring, loafing the entire fall and winter months. Chicks hatched in March and April are best and should begin producing eggs about the latter part of September, and if properly handled, continue to do so thruout the winter. May hatched chicks will do well if given good care so as to have them laying by November.

Exceedingly old hens are usually found in abundance in farm flocks and are one of the greatest causes of low production. Hens over two years old will rarely produce over two or three dozen eggs in a year and those in the spring months. Well matured pullets are the largest producers and are to be preferred for egg production. Hens can be kept with profit for two seasons, but it is the best plan to dispose of them after that time.

The feeding of the flock is perhaps the most important part in obtaining egg production. Farm flocks on range do not need nearly so much feed as flocks in confinement, but they do need something more than they can pick up if a good yield is to be had.

The richness of the feed given has as much to do with production as the quantity allowed. Bulk is needed in all feed, but bulk without richness will give very poor results. A little grain morning and night, preferably composed of a variety of seeds, is a good plan, but no very large production can be obtained with grain alone. A good mash mixture, fed either wet or dry, is very necessary in feeding a flock for eggs.

Such foods as beef scraps, linseed meal, gluten, etc., when combined in proper proportions with other meals such as bran, corn meal, middlings, etc., are the real egg producers. A good mash should contain about 15 percent beef scraps, 10 percent linseed meal, and about 20 percent bran to give bulk to the mixture. Where quantities of rich table scraps are had, the mash may be fed in smaller amounts and contain smaller quantities of the rich feeds.

It should be the plan in feeding a flock to give what they will eat up clean and to see that the hens have full crops when going to roost. Variety is worth a great deal in feeding. Green food and fresh water are as much a part of good feeding as the grain and mash.

Housing conditions can not be overlooked in caring for a flock of layers. Drafty, cold houses and roosting quarters are not conducive to egg production. A good house for the fowls need not be an expensive one. It may be constructed of one thickness of square edge boards covered on the outside with roofing and give fully as good results as the more expensive types of house. The fresh air type of house, having a front composed of about one third each glass sash, muslin screens and lumber, with solid wind proof ends and back, built with a shed roof, is one the most satisfactory and popular types of poultry house construction.

The house should contain a sufficient number of hens to keep it reasonably warm, about a hen to every four or five square feet of floor space. The roosting quarters should be small enough to confine the heat of the fowls in winter so as to avoid frozen toes and combs. A half foot of roost to a bird is usually sufficient for a flock of hens in winter, but more space will be required in summer. The roost should be arranged in a sort of closet so a curtain of muslin can be dropped in front after the hens have gone to roost.

Then the general care of the flock will do as much for production as anything else. Regularity in feeding and clean, wholesome feed, clean quarters, and a reasonable amount of common sense in matters of house ventilation and confinement of the flock will go a great way in obtaining eggs in winter. Absolute confinement is not advisable, but confining the flock to the house during the cold weather will be found to be a paying practice. Fresh air is a necessity in the poultry house, but proper ventilation does not call for a house with a temperature like that of the polar regions. These and many other little matters go a great way in helping production and the best way of doing must necessarily be a matter of using common sense and avoiding extremes.
—J. Raymond Kessler, Chester Co., Pa.

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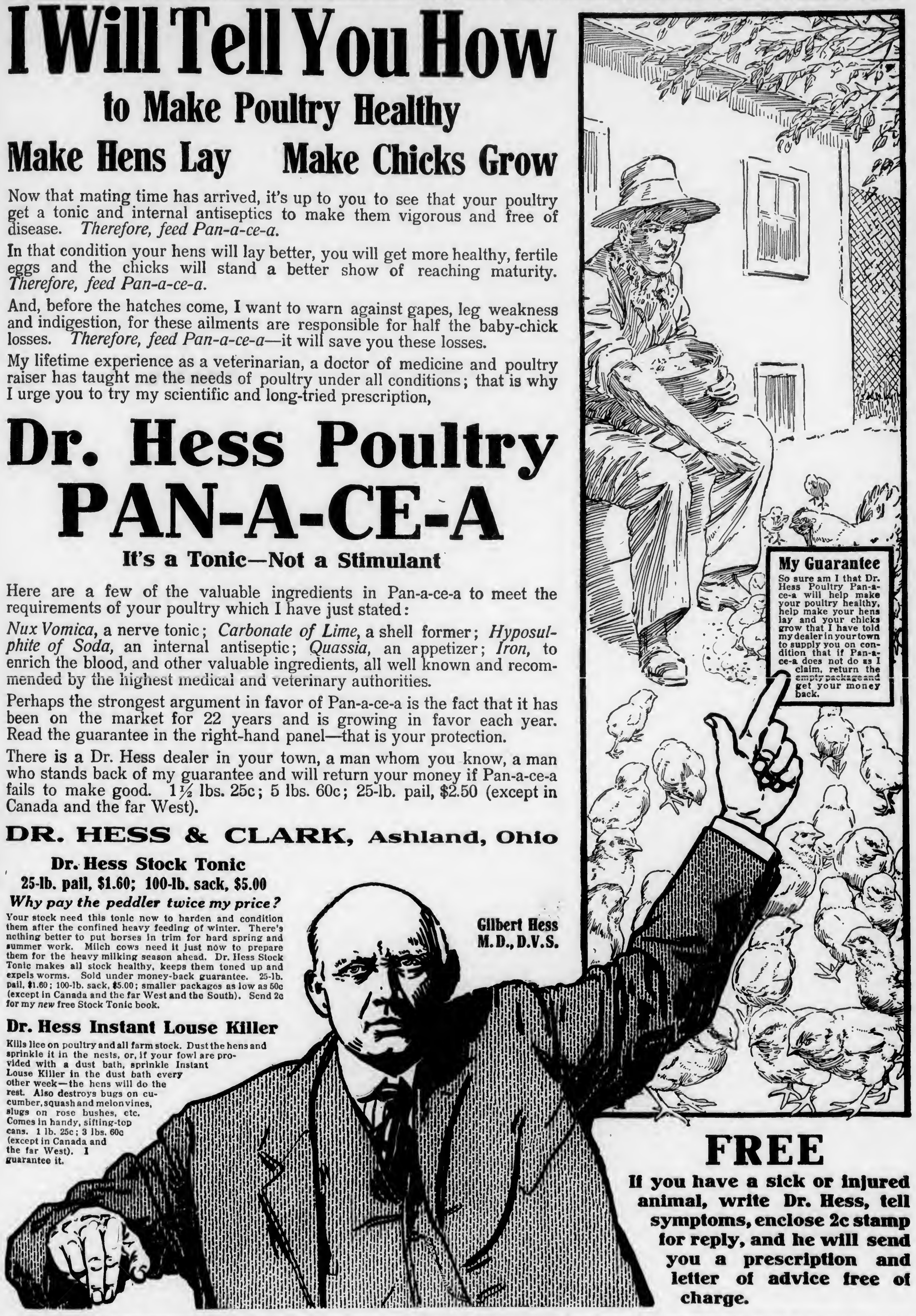

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For Sale in New Castle County, four farms acreage from 100 to 265. For particulars address P. O. Box 36, Selbyville, Del.

Live Stock

RAISING BEEF CATTLE IN THE EAST

(Concluded from page 1.)

amounts to satisfy appetite and cottonseed meal at the rate of three pounds per thousand pounds live weight, daily.

All cows were bred to purebred bulls of their respective breeds. Such cows as proved themselves non-breeders were removed from the experiment and others were substituted during the investigation. Such heifers and steers as were fed with the view of fattening were fed corn silage as a sole roughage to the limit of appetite. Corn meal was fed during the last four months of fattening at the rate of 1½ pounds per 100 pounds live weight, and cottonseed meal at the rate of 3 pounds per thousand pounds live weight daily. This method was practiced for the first year but since that time (winter 1914-15) the fattening lot has been fed some legume, hay and corn meal during a period of six months, to the extent of their appetites. This change was considered desirable in order that the calves would have a sufficiently high condition as yearlings for greatest profit.

TABLE I
Summary of Three Winters' Feeding

	Lot I.	Lot II.
Length of period, days	154.6	154.6
First wt. per cow (lbs.)	1179.54	1142.89
Final wt. per cow (lbs.)	1267.53	1188.18
Gain per cow (lbs.)	87.98	45.27
Average daily feed per cow		
Silage	58.83	57.63
Cottonseed meal	1.00	1.00
! Av. dry matter daily (cow)	21.88	20.95
Av. cost per cow	$18.25	$18.14
Bedding per cow—		
1,090 lbs. @ $8 per ton.	4.35	4.35
Labor, 15c per hr. per cow	$2.33	$2.33
Value of manure—		
975 lbs. @ $1.50 per ton	7.32	7.32
Net cost of wintering cow	$17.61	$17.50

! Does not include 810 pounds of alfalfa and 75.5 of grain fed one cow and calf thru a winter in Lot II (1913-14).

The following set of tables brings out the results of the experiment. Table I indicates that it costs practically the same to maintain a Shorthorn as an Aberdeen Angus beef breeding cow. The cows relished the feed and kept in good physical condition. Each cow required 1,090 pounds of bedding and produced 9,758 pounds of manure in 154.6 days. The cost was $17.66 to winter a Shorthorn cow and $17.50 to winter an Aberdeen Angus cow.

TABLE II
Summary for Three Summers' Keep

	Lot I.	Lot II.
Av length of summer (days)	210.3	210.3
First wt. per cow (lbs.)	1178.43	1204.81
Final wt. per cow (lbs.)	1223.12	1209.68
Gain per cow (lbs.)	44.68	4.87
! Interest on Land	$56.00	$56.00
Interest on land for calves	6.31	13.16
Labor cost (15c per hr.)	8.03	8.03
Net cost of summering cow	7.03	7.71

! Interest on land was charged at the rate of 5 percent on land of which the whole farm was valued at $56 per acre. Two acres were allowed for pasture for each cow during the summer of seven months. In case of the calves, interest was charged on pasture allowed for grazing. A pasture charge at the rate of one acre for a calf after four months of age and still nursing the cow was charged against the cow. The cost of pasturing was $7.03 for one Shorthorn cow and $7.71 for the average Angus cow. The greater cost in case of the Angus cow was due to the higher percentage of calves raised.

TABLE III
Yearly Cost of Maintaining Beef Breeding Cows

	Lot I.	Lot II.
Cost of wintering cow	$17.61	$17.50
Cost of summering cow	7.03	7.71
Interest on value of cow	5.40	5.40
Service of sire	2.00	2.00
Interest on value of equipment and depreciation	1.50	1.50
Total cost per cow	$33.54	$34.11

The cost of wintering in case of the Shorthorn lot is 60 percent greater than summering, and 51 percent in the case of the Angus cows. This difference is true even tho the summer period was two months longer. The cows were valued at $90 per head and interest at the rate of 6 percent was charged for money invested. A service fee of $2 per cow was alloted. This estimate was based on a bull valued at $200 and heading a herd of 30 to 40 breeding cows. The yearly cost of the Shorthorn cows was $33.54 and in case of the Angus lot $34.11.

Summary of Breeding

The calves averaged 10½ months at weaning time and weighed 565 pounds.

TABLE IV
Summary of Breeding (3 yrs.)

	Shorthorn Lot I.	Angus Lot II.
Percent normal calves raised	46.66	70.00
Number of mortalities	1	1
Number of abortions	4	4
Av. period of gestation (days)	285	284.5
Av. wt. normal calves (birth)	75.27	68.36
Av. wt. at 12 months	671.6	588.8
Av. wt. at 24 months	991.6	965.8

Emphasis is called here to the low percent of normal calves raised in the Shorthorn lot. The cows in this lot were not known and were unbred when the experiment began. In the case of the Angus lot only one cow proved to be a non-breeder the first year. All cows that were non-breeders were eliminated as soon as this was determined. Eighty percent calves in case of beef cattle is considered a very good average. It takes a few years to establish a beef herd on a regular breeding basis. The loss of calves that died in the two lots was caused by exposure. The abortions in Angus lot occurred during the first winter. In the Shorthorn lot three of the abortions occurred on pasture and one in winter quarters. No abortions that could be considered as suspicious cases of contagious abortion have occurred for 3 years in the breeding herd. At weaning time the calves in the two lots averaged 565 pounds. At twelve months the Shorthorn calves weighed 671.6 pounds and Angus 588.8 pounds. At 24 months they were practically the same in weight.

To raise a heifer to a breeding age (40 months) it cost $76.68. She weighed 1,050 pounds and if valued at 8 cents a pound for beef she would be worth $84. In other words, breeding females can be raised to a serviceable age at less cost than her market value.

TABLE V
Showing Value of Calves at 12 Months, when Various Percentages are Raised

	Cost of calf	Value of! calf
100 percent calves	$38.36	$50.40
90 percent calves	42.08	50.40
80 percent calves	45.01	50.40
70 percent calves	49.73	50.40
60 percent calves	53.56	50.40
50 percent calves	57.38	50.40

! Based on $8.00 cwt.

This table shows that 70 percent calves return market prices for feeds fed, labor involved, interest on pasture land, and equipment. It also emphasizes the importance of having as high a percentage of calves as possible.

TABLE VI
Summary of Fattening Steers
Five steers — 157 days
Winter 1913-14

		Pounds
Initial weight		3,609.99
Final weight		5,145
Gain		1,535.01
Average daily gain per period		1.95
Initial cost		$220.44
!Cost per cwt.		6.10
!!Final valuation		409.33
Total amount of feed:	Pounds	
Corn meal @ 70c bu.	7370.50	
Cottonseed meal $30 ton	1992.00	
Corn silage $3.50 ton	16490.00	
Total cost of feeds		$150.95
Av. dry matter per hd. daily		17.89
Total profit in feeding		38.94
Average profit per head		7.79

!Based on 80 percent calves raised.
!!Sold for $8.20 with 3 percent shrinkage.

These steers cost the College $6.10 per hundred pounds when placed in the feed lot. On the market they would have been considered "choice feeders" and valued at 8 cents per pound live weight. That year the cattle that the College purchased in West Virginia were only "fair feeders" and cost $7.45 when placed in the feed lot. The profit, $7.79 per head, was very satisfactory considering that 1913-14 was a disastrous year for steer feeding in all sections of the country.

This investigation emphasizes the importance of laying stress on regularity in breeding of cows, early maturing qualities in young stock, and economy in feeding, management and equipment in order to assure success in raising beef cattle under eastern conditions. Where land is worth less than $56 an acre as pasture land and will maintain a breeding cow in good condition for seven months, at the rate of two acres per cow and where corn can be produced for silage, beef cattle can be raised.

In a practical proposition it would be advisable to feed either clover or alfalfa hay at the rate of five pounds per cow daily, instead of cottonseed meal. A purebred bull is essential in order to insure the early maturing qualities in beef cattle that are most profitable on the market. At least 70 percent calves should be raised and the young stock should be kept growing on a cheap ration consisting largely of roughage. Economy in equipment and the utilization of pasture to the greatest degree are the main essentials in making a beef raising farm a success. It is a plant that, like any good business proposition, must be run on a business basis.

SUDAN GRASS AS A FORAGE CROP

Sudan grass was introduced into this country from Khartum, Sudan, in 1909, by the United States Department of Agriculture. It resembles Johnson grass in appearance and is closely related to the sorghums. When seeded broadcast for forage the plant grows from 3 to 5 feet high with stems about as thick as a lead pencil.

This crop is a warm weather annual, and can be seeded at the rate of 20 to 30 pounds of seed to the acre soon after corn planting time. The preparation of the seed bed and fertilization are much the same as for millet. Where the season is long enough, the crop will furnish two or three cuttings. A period of 60 to 90 days is required for maturing the first cutting, and 40 to 60 days for the succeeding cuttings. In New Jersey, from New Brunswick north, but one good cutting can be depended upon safely. South of New Brunswick, a second cutting may be secured under favorable seasonal and soil conditions.

Last year, the New Jersey Agricultural Experiment Station conducted experiments in which Sudan grass was compared with Japanese Millet. From one cutting a yield per acre of 10.2 tons of green forage was obtained from Sudan grass and 8.7 tons of Japanese Millet. A second growth of about 4 tons per acre green weight was made but not cut.

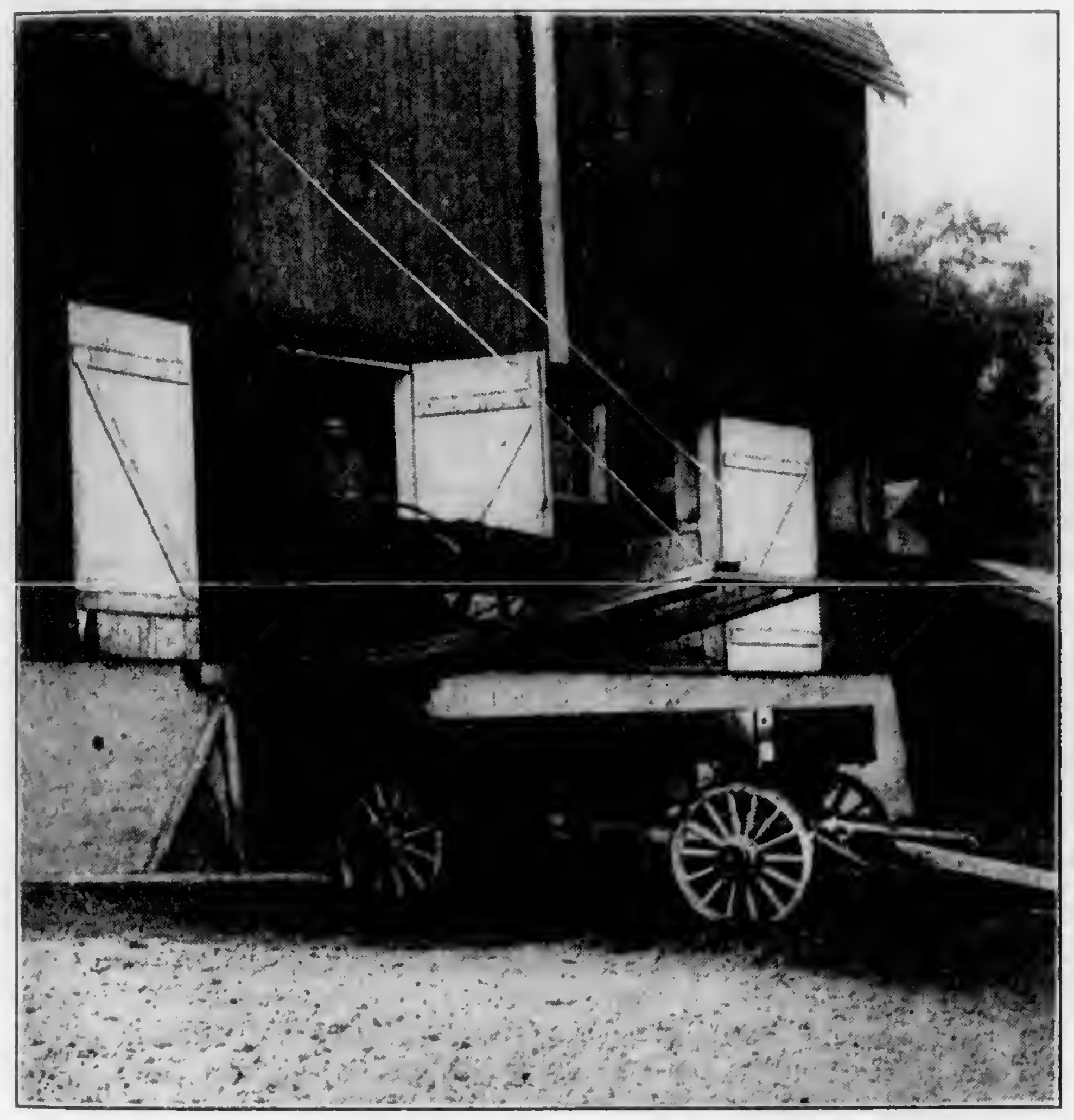
The forage is coarse, much like millet. When the price of seed is not too high, Sudan grass may be used in place of the millets for a warm weather forage crop.—N. J. News Letter.

SUGGESTIONS ON HOG CHOLERA

With the approach of the open spring weather farmers should be on guard against the appearance and spread of hog cholera in their herds. Suggestions for the prevention and treatment of hog cholera as outlined by the Pennsylvania Experiment Station include the following: 1. Feed clean food and properly balanced rations. 2. Keep troughs clean and free from dirt and filth, and disinfect pens with a dip solution once a week. 3. Put all new hogs in quarantine for two weeks before putting them in with the clean herd; never peddle a boar around for service; never breed to a peddled boar, nor allow a boar to serve strange sows. 4. Watch out for birds and dogs as carriers of infection; never allow a neighbor to enter the hog pen if there is a strange disease among his hogs, and keep away from his pen also. 5. Keep a mixture of charcoal, salt and sulphur in a clean, dry place, where it will be accessible to hogs all the time. 6. In an outbreak notify a competent veterinarian or the State Live Stock Sanitary Board. 7. In case of hog cholera remove healthy hogs from infected pens and vaccinate them. 8. Burn dead hogs and refuse, clean up pens and thoroly disinfect premises.

Substitutes for Milk in Rearing Dairy Calves.—Bulletin No. 164 of the Massachusetts Experiment Station reports on results of observations covering a series of years in the raising of calves for dairy purposes. Its summary of results is a valuable contribution on how to feed the young calf. The bulletin also discusses the cost of rearing a dairy cow. It shows the total net cost of raising a heifer to two years to be about $74 under the system used, as compared with $70 reported by the Connecticut station and $60 reported by the Wisconsin station.

Saving Engine Fuel.—Bulletin No. 7 of Pennsylvania State College, on "Substitutes for Gasoline in Engines, including Experiments on Water and Air Injection," by J. A. Moyer and E. N. Bates, deals with economy tests of a gas engine using kerosene, alcohol, motor spirits and mixtures of kerosene and gasoline. It was found that a mixture of one-half kerosene and one half gasoline (by volume) gave the best economy, while the injection of air into the manifold gave considerably better economy.



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Poland China Boar for sale. Sire of fine litters. Bargain to quick purchaser R. C. BROWN, Mann's Choice, Pa.

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Hillcrest O. I. C. Fall Pigs, Service Boars, Bred Sows, Reg. free. Prices low. F. S. MURDOCK, Hartstown, Pa.

O. I. C. A few Ohio Improved Chesters both sexes for sale at farmers' prices. R. A. TAYLOR, Rt. 6 Carlisle, Pa.

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POLAND CHINAS pure bred sows and boars for sale. Inquire of M. F. CRUM, Sand Brook, N. J.

Kentucky Jacks and Saddlers.
75 Big Bone Kentucky Mammoth Jacks. Some splendid Saddle Stallions and mares. Write us fully describing your wants. 300 Bu. home cured Blue Grass seed at 90c per Bu.
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Victor Farms Chester Whites and O. I. C. herds I have purchased them and can ship either sex, any age. Reg. free. Satisfaction and safe delivery guaranteed. ENTERPRISE DAIRY FARM. John L. Van Horn, Prop., TROY, PA.

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Berkshires Sired by Greenwood Artful Premier out of Duke of Sussex sows. This breeding will build your herd. L. T. DAVIS, R. F. D. Dagsboro, Del.

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O. I. C's. Special offer for March. Large type pigs ready to ship. WILL'H. TOPE, R. D. 3, Carrollton, Ohio

Durocs. Choice bred gilts for March and April farrow. Service boars and fall pigs, mated not akin. IRA D. JACKSON, R 10, VAN WERT, O.

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WHEN a housewife has a can or two of Karo, plenty of good cake-batter and the Karo Premium Griddle, she is ready for breakfast no matter how hungry her family is.

She knows how cordial they are to cakes and Karo; so she knows they will be happy when they know what's coming. It's the way with people who like good things from one end of the country to another.

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Save yourself $1.40 and get this wonderful 10½ inch Solid Aluminum Griddle, which sells regularly for $2.25. Send 85c. in stamps or money order and labels from 50c. worth of Karo. Our reason for sending you this griddle with all charges prepaid, for less than what retailers regularly pay for it, is because we want everyone to know delicious Karo on the finest cakes that can be baked.

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This big new book tells how you can do the work yourself, quickly and easily, making the parlor, dining room, bedrooms and hall brighter, cheerier, entirely new. Don't miss these 96 original patterns we want to send you *free*. Write postal now—just say, "Send Wall Paper Book."

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Winter Caught Herring

We will deliver at your door by parcel post 8 *pounds of dressed and scaled herring*, ready for the frying pan for $1.00 or 12 pounds Round herring for $1.00 or 7 pounds smoked herring ready to eat for $1.00 Three boxes for $2.75. Fish Guaranteed to arrive in good condition. Offer good to April 1st. Send cash, money order or check. Do It Now!

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Aluminum Patent
Gem Steam Cooker
Cooks entire meal over one burner. Will not burn or scorch food. Guaranteed 15 years. Thousands will be sold—low price—big profit. Write quick for exclusive territory and large free catalogue of 400 specialties.
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Eliminates the open vault and cesspool, breeding places for germs. Have a warm, sanitary, odorless toilet right in your house. No going out in cold weather. A boon to invalids. Endorsed by State Boards of Health.

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The germs are killed by a chemical process in water in the container, which you empty once a month. Absolutely no odor. No more trouble to empty than dishwater. Closet absolutely guaranteed. Write for full description and price.

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Five for 10cts.
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A coffee with the full flavor of fresh roasting that costs less than inferior brands because you're buying direct from the roaster.

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Parcel Post prepaid within 150 miles. Guaranteed to satisfy or money cheerfully refunded. Our tea at 30c lb. is exceptional value. Sample free. State if black, mixed or assam is desired.

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FOUR TO SIX TONS OF ALFALFA, 50 to 100 bushels of corn to the acre, $100 to $500 an acre from fruit or truck, opportunities for the stock raiser and dairyman, a climate which means two to four crops a year, pleasant home locations, attractive land prices, are things the South offers homeseekers. Our publications and special information on request.

M. V. RICHARDS
Ind. and Agr. Com'r, Southern Ry.
Room 74 Washington, D.C.

Making and Baking Bread

Character of Flour

Excellent authorities say that the best bread is obtained by a careful blending of flours from spring and winter wheat. Wiley speaks of a "patent and family flour that will combine the strength and the quality of retaining moisture of spring wheat flour and the sweetness and tenderness of the winter wheat". Many bakers consider that winter wheat flour makes more tender biscuits and other forms of quick breads.

Process for Use of Flour from Winter Wheat

Miss Jensen of the Department of Household Science, Illinois State University, has worked both with the problem of blending flours and with developing a satisfactory process for making bread from winter wheat flour. The process used in the experiments with spring wheat flour yielded very unsatisfactory results when tried with winter wheat flour. She summarizes her results as follows: "It appears that the process of bread making from winter wheat flour differs from that of spring wheat flour in the following particulars:

(1). Liquid.—For a given weight of flour, winter wheat requires more liquid per loaf than spring wheat flour. A dough from winter wheat flour should be made just stiff enough to hold its shape—just stiff enough to spring back with the touch of the finger.

(2). Manipulation.—A winter wheat flour dough requires three risings; it should never get over-light; it should rise to a little less than 1¾ times its original volume in the last rising.

(3). Baking. — Winter wheat flour dough should be started to bake at about 356 degrees F., allowed to rise in 10 minutes to 428 degrees, then allowed to finish baking on a decreasing heat during the rest of the time. The dough can, with profit, go to the limit of fermentation in the oven.

(4). Shape of loaf.—The best shaped loaf from winter wheat flour is produced by allowing the dough to double its bulk, then baking at 356 degrees F., but such bread is not of good quality.

(5). Flavor.—Winter wheat bread is more nutty in flavor than that from spring wheat.

(6). Baking Time.—The total time required to make a loaf of winter wheat bread in these experiments was less than that necessary to make a loaf of bread from spring wheat flour."

Summary

Bread-making is an important industry for women because one-half of the bread used is made at home. In this fact lies the opportunity and responsibility to influence the standard.

Difference in bread-making qualities of flour from spring and winter wheat is distinguished by color, feel, quality and quantity of gluten. Chemical composition of wheat, flour and bread shows that there is a steady gain in the proportion of water, and a loss in the proportion of protein and starch.

Characteristics of good bread are symmetry of size and shape, brown of crust as well as crispness, and a tender, elastic crumb of fine grain.

Recipes differ widely as regards non-essentials—sugar, salt, shortening, but agree as to proportion of one cup of liquid to three of flour. Yeast is a plant, and therefore subject to laws of plant growth as regards food and moisture. If in good condition, yeast probably does not influence the flavor of bread.

Water is the best liquid as regards flavor. Because of the small proportion used and the fact that milk is largely water, little effect is produced by the use of skim-milk or butter-milk. Both seem to contribute to tenderness of crumb.

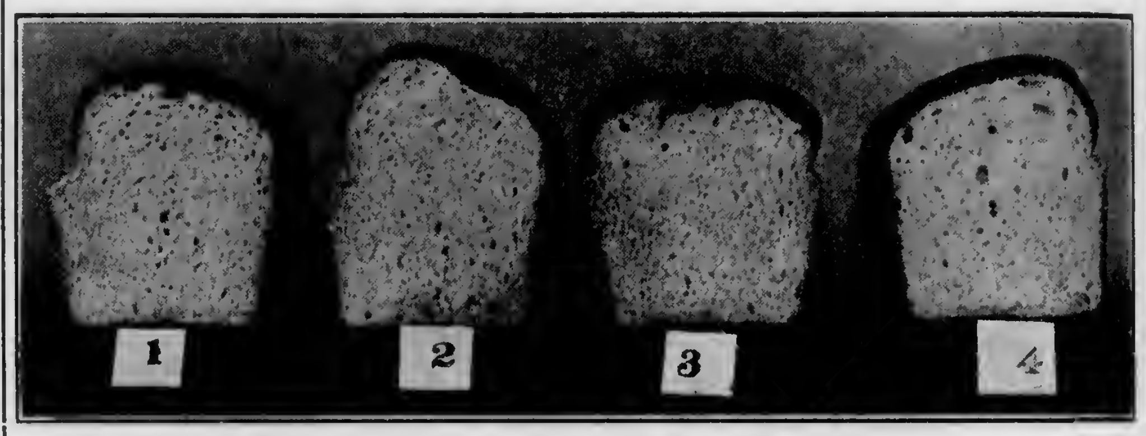
Salt prevents flat tastes, retards fermentation, and, used to excess, causes loss of color in crust and of tenderness in crumb.

Sugar darkens color of crust. Within limits, it increases the volume of loaf.

Salt and sugar combined in proportion of one to two respectively improve flavor and volume.

Bread making is an art that demands careful attention to certain essential details such as character, temperature and amount of yeast, condition and amount of flour, time and temperature of fermentation and baking.

Material of pans is a question of choice. Tin seems to yield best results in common practice. Covered and uncovered pans have not been tried enough for definite conclusions. A standard size loaf and pan is 3½x4x9 inches. Such a loaf will bake evenly thruout in 45 minutes. Large loaves do not bake evenly.—Isabel Bevier, University of Illinois, Home Economics Dept.



NO. 3. REPRESENTS BEST SHAPE AND TEXTURE.

APPLE COOKERY

Waste in Cooking Reduced by Using High-Grade Apples

Many reasons have been advanced for proper care in the growing and handling of apples to insure freedom from blemishes caused by insects, diseases and bruises, so that the fruit will be sound and of good quality when it comes on the market. Another argument in favor of such methods is herewith presented:

In connection with a lecture and demonstration in cooking at the recent corn show given by the Blair Co. Farm Bureau, at Altoona, Pa., Miss Pearl McDonald, in charge of the home economics extension at Pennsylvania State College, secured some interesting comparative figures on the waste attendant upon cooking high quality apples and those ordinarily found in our cellars and on the market.

Ten pounds of good quality, box-packed Baldwin apples were purchased for 35 cents a pound. A similar quantity of market-grade fruit of the same variety cost 25 cents a pound. In the good-quality fruit there was a waste of 20 percent in parings and cores, and in the poorer quality a waste of 30 percent.

Taking into consideration the waste in each case, the good fruit cost only a

fraction of a cent more than the poor fruit. On the other hand, the good apples required 10 minutes less time to cook into sauce and one cup less of water to make them juicy, and the sauce made from them was smooth and of delicious flavor. The ordinary apples required more time to cook, and more water to make them juicy, and the sauce was lumpy and more or less bitter in flavor.

The demonstration and its results emphasized the advisability of demanding from dealers a good quality of fruits and vegetables for cooking purposes. Such demands will force dealers to secure better products and growers in turn will be required to produce better quality goods.—Penna. State College.

Cooking Time for Apple Varieties

Another interesting cooking experiment with apples was made by Mrs. C. W. Foulk in the Homemakers' Week course at West Va. State University this year. A panful of different varieties of apples grown in the locality were baked 22 minutes in a glass door oven so that the women could see what was happening to the apples' appearance as they baked. In the pan was a Stark, Talman Sweet, Grimes Golden, Jonathan, York Imperial and Ben Davis. By end of the 22 minutes the Ben Davis was done just right, was of excellent flavor and texture, and made the prettiest appearance. The Stark and York were still quite hard and uncooked in the center, the Baldwin was not quite done, the Talman Sweet and Grimes mushy and attractive looking, while the Jonathan was cooked to mushy apple sauce, which proved that it bakes in much less time than any of the others. The flavor of the Ben Davis was better than that of even the Baldwin at the 22 minute stage. Try this time experiment with the varieties in your cellar, and report results to the Pennsylvania Farmer, won't you please?—Harriet Mason.

USES FOR PAPER BAGS AND USED ENVELOPES

I often use the ordinary paper bag as a mitten in cleaning the stove, etc. It is also used for covering newly cleaned lamp chimneys. It is best to buy such paper bags by the hundred, as they cost but 20 cents per hundred.

In our home we have also found many uses for used envelopes. The rural mail carrier will not pick pennies from the box, so we find the empty envelope a very handy help. Suppose we are sending two letters and have run out of stamps and have not much change in the house; we place a nickel in such envelope and write on it "5 cents enclosed, 2 stamps needed, leave one postal", and we need spend no time watching for the carrier. Such envelopes are very handy to carry salt in the children's lunch boxes, etc. The envelope that contains a circular also has its use, when one desires to send the local paper, etc., to some friend. Cut at both ends and you have a good wrapper with sufficient paste to securely hold the paper. The long envelop is better than the small one for this purpose.—Mrs. P. C. Henry, No. Car.

PRENATAL AND INFANT CARE

These are the titles of two pamphlets issued by the Children's Bureau of the United States Department of Labor for the use of mothers. The first pamphlet considers care of the mother previous to birth of baby, while the second one takes the baby from birth thru its second year, dealing with feeding, clothing, bathing, sleep and exercise. The book is written in simple, non-technical language, easily understood by the average American mother. It contains 84 pages, is illustrated with a number of plates and pictures, and has a useful index, and a list of other government publications regarding matters of domestic economy, such as milk, foods, home sanitation and other subjects of importance in the work of making the home suitable for the rearing of children. The pamphlets will not, of course, take the place o fthe advice of a physician, but they tell how to keep the baby well, describe the minor ailments of babyhood and the symptoms indicating the onset of more serious illness. Special emphasis is placed on the danger to infants of whooping cough and measles.

These pamphlets were prepared under the direction of Miss Julia C. Lathrop, Chief of the Bureau, by Mrs. Max West, and may be obtained free of charge by addressing a postal card request to the Chief of the Children's Bureau, Department of Labor, Washington, D. C.

Just recently we were privileged to hear Miss Lathrop give an excellent report of the Child Bureau's work in ascertaining the chief fundamental cause of infant mortality to lie in bad living conditions due to insufficient income of parents, and to unnecessary heedlessness of municipalities about sanitary home and factory surroundings. Miss Lathrop is a forceful, earnest speaker, fully capable for her work as head of the Child Bureau, for a large part of her preparation was obtained in Social settlement service for many years.—The Editor.

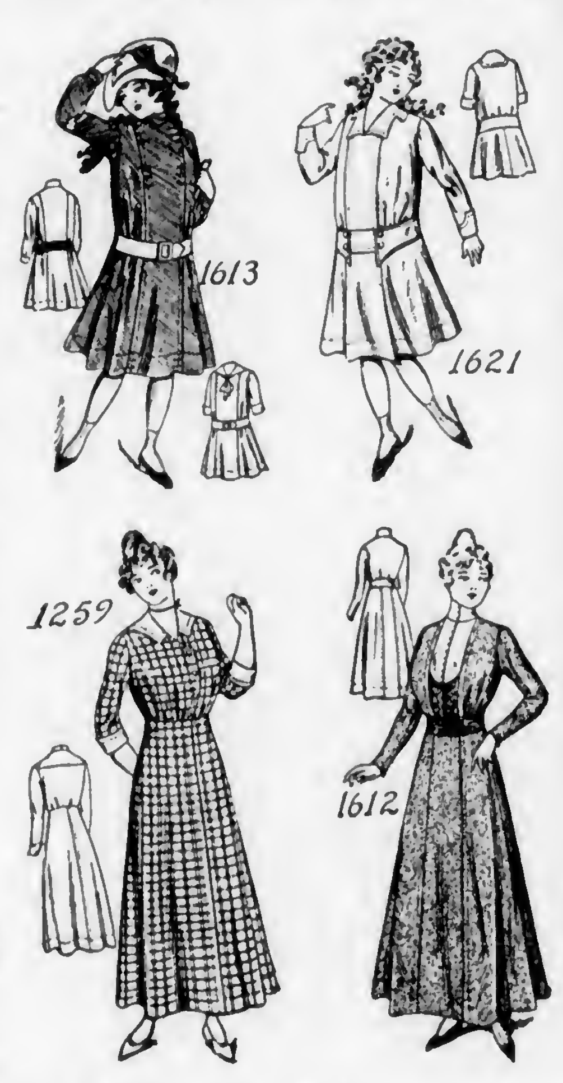
PENNSYLVANIA FARMER PATTERNS

Be sure to give the figures and letters of each pattern exactly as printed at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 214-18 So. 12th St., Philadelphia, Pa.

1613.—Girls' Dress.—Cut in 4 sizes: 6, 8, 10 and 12 years. It requires 3¼ yards of 44-inch material for an 8-year size. Price of pattern, 10 cents.

1621.—Girls' Dress.—Cut in 4 sizes: 6, 8, 10 and 12 years. It requires 3¼ yards of 40-inch material for an 8-year size. Price, 10 cents.

1259. — Ladies' House Dress, with Chemisette.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 6½ yards of 36-inch material for a 36-inch size. The skirt measures about 2⅞ yards at its lower edge. Price, 10 cents.



1612.—Ladies' Dress.—Cut in 6 sizes: 36, 38, 40, 42, 44 and 46 inches, bust measure. It requires 5⅞ yards of 44-inch material for a 36-inch size. The skirt measures about 3 yards at the lower edge. Price, 10 cents.

Does Reading send you to sleep?

If it does, don't blame the story, don't condemn the type or the printing, don't imagine you've weak eyes, for the fault is probably with your lamp. And it's a fault that is easily remedied---all that's needed is a **Rayo Lamp.** By its clear, steady, white light you can read on and on, get the full pleasure out of reading and without a trace of eye strain. But to get the most and best light from a **Rayo Lamp,** use

ATLANTIC Rayolight OIL

Combined they give the finest light money can buy, an economical light, too, ideal for reading, sewing or playing. Your dealer can show you a **Rayo Lamp** specially designed for parlor, sitting room or kitchen, from $1.50 up, and each of these rooms needs one---**Rayo Lamps** are easily cleaned and last a lifetime.

Ask for **Atlantic Rayolight Oil,** it is the one kerosene that burns in lamp, stove or heater without smoke or smell--gives a great volume of clear, white light, and an intense yet cheap heat.

And, do you know, thousands of clever housewives have told us they just can't get along without **Atlantic Rayolight Oil** for polishing furniture, washing windows, keeping lice off chickens, cleaning painted woodwork, etc., but mind you, for these purposes ordinary kerosene won't do them--they must have **Atlantic Rayolight Oil.** Ask for it by name--costs no more than the unknown kind. The dealer who displays this sign

ATLANTIC Rayolight OIL FOR SALE HERE

can always supply you. It's wise to get it by the barrel.

ATLANTIC REFINING COMPANY
Philadelphia Pittsburgh

Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., Feb. 21, 1916.

Arrivals of potatoes in the past week were very light, most of the stock being from near-by Pennsylvania points. The light arrivals proved an advantage to the holders of small lots and considerable stock held by commission merchants was cleaned up. In the opening of this week sales were made as follows: Fancy Pennsylvania potatoes, $1.15 to 1.20; York state, $1.05 to 1.10; Maine Green Mountain, $1.15 to 1.20; Jersey Red Skin, $1.05 to 1.10; Western, $1.00 to 1.10.

It was considerable risk to ship sweet potatoes last week and receipts were light. Fancy Jersey sweets sold from 60 to 70 cents a basket. Delaware sweets in hampers sold at 75 to 85 cents a hamper and Virginia stock at $1.50 to 1.75 per barrel. Sweet potatoes free from frost are in good demand.

Vegetables

Ten cars of onions were unloaded this morning which quantity is a very light supply. One car of Eastern onions (Connecticut stock) sold at $2.75 per 100-lb. bag. Other stock was only of good quality and ranged in sales from $1.75 to 2.25 per 100-lb. bag. Large quantities of fancy onions could be moved around $2.75 per bag but the supply continues to be limited.

At the close of the week the demand for cabbage was active with receipts very light. The market price was nearly doubled over the preceeding week, sales ranging around $10 and 12 per ton. Today the fancy Danish variety is going out at $12 to 15 per ton. Florida cabbage in hampers is more plentiful and is selling at 90 cents to $1.

Pennsylvania celery is in limited supply and selling at 11 and 12 cents per bunch. The quantity in outlying districts from the city is very slight and will possibly not supply the market for more than two weeks. Florida celery is arriving in heavier supply and meeting with favor at $1.50 to 2 per crate.

Southern vegetables have been suffering from the extreme cold weather, large proportions arriving in frozen condition. Three thousand barrels of Norfolk spinach was received today practically all of which was badly frozen. Sales ranged from 50 cents to $1.25 per barrel. Kale sold at 75 to 90 cents per barrel. Ten cars of Florida lettuce arrived this morning and sold at $1 to 1.50 per hamper. Other receipts of Florida vegetables are moving at the following quotations: Beans, $1.50 to 2.25 per basket; peas, $2.50 to 3.50 per basket; peppers, $2 to 2.25 per carrier; eggplants, $2 to 2.25 per crate; tomatoes, fancy, $2.25 to 2.50 per carrier; choice, $1.75 to 2.

Root crops are in good supply and firm demand. Prices on beets and carrots have made advances of from 25 to 75 cents per barrel. Fancy carrots are sold today at $2.50 to 2.75 and beets at $2 to 2.25 per barrel White turnips continue at $1.50 to 1.75; parsnips, $1 to 1.25 per barrel; rutabagas, 60 cents per barrel.

Fruits

Early in the last week the market was hampered by the zero weather but on Wednesday when cars were unloaded there was immediate demand for the best grades. This morning there were 25 cars in, principally from York state, and 15 cars were moved from out of storage. Quotations are but slightly changed from those of last week. York State Kings, $2.50 to 3; Hubbardsons, $2.50 to 2.75; Greenings, $2.50 to 3; Spys, $2.25 to 3; Baldwins, $2.75 to 3.25; Ben Davis, $2 to 2.25. Apples from Pennsylvania, Virginia and West Virginia: Winesap, Stayman and Rome Beauty, $2.50 to 3.25; York Imperial, $2.25 to 2.75; Ben Davis, $2 to 2.25. Second grade apples sold at $1.25 to 1.50 per barrel. Boxed apples from the West are arriving in slight quantities, storage stock being offered principally at $1.25 to 2.25 per box.

Florida strawberries are in abundant supply at 20 to 25 cents per quart.

Poultry

Fresh dressed poultry was in extremely light supply with a demand which readily took all desirable stock at good prices. Extra fancy fowl brought 19 to 20½ cents per pound; smaller sized stock (around 2½ pounds) 15 to 17 cents; old roosters, 15 cents. Fancy Jersey broiling chickens sold at 24@26 cents; other fancy broilers from near-by 22 to 24 cents. Chickens from the middle west were in demand with the supply of near-by stock limited. Western broilers sold at 22 to 24 cents. Near-by fancy turkeys reached a record price of 30 cents; the highest price in the recollection of many in the trade for this season of the year. There is not strong demand at this price but the trade is taking all fancy stock offered. Near-by good to choice turkeys sold at 25 to 28 cents; old toms, 25 cents. Spring ducks sold from 18 to 20 cents; geese, 16 to 18 cents.

The live poultry market is well stocked and prices are unsteady. Much of the stock is being sold on the buyers' offer, with prices ruling about one cent per pound below last week's quotations. Fowl sold, 17 to 17½ cents; roosters, 12@13 cents; fancy spring chickens, 19@20 cents; ducks, 18 to 20 cents; geese, 17 to 19 cetns.

Eggs

The egg market has remained rather steady thru the past week in spite of continually changing weather conditions. Fancy near-by extras sold at 28 cents per dozen; near-by firsts, 26½ cents; current receipts, 24 cents. Western extra firsts sold at 26½ cents; firsts, 24 cents; seconds, 21 to 22 cents. Fancy selected candled fresh eggs were jobbed at 30 to 32 cents per dozen.

—Selmarad.

YORK PRODUCE MARKETS

York, Pa., Feb. 21, 1916.

Market conditions were rather better than normal the past week. Eggs were slow sale at 23@24 cents. Butter is weak. Vegetables are generally weak, with but a small offering. Potatoes are unsettled, ranging from $1 to $1.35 per bushel. Poultry market firm.

Eggs.—23@25c per dozen.

Butter.—28@35c per pound. Milk, 6 cents a quart.

Poultry.—Hens, 13@15c lb; dressed, 50c @$1.00 each.

Vegetables.—Potatoes, 12@18c ½-pk; $1 @1.30 per bushel. Cabbage, 3@7c per head. Lettuce, 5@10c per head. Beets, 4@5c per bunch. Radishes, 5@6c bunch. Onions, 4@5c bunch; 10@12c ½-pk. Lima beans, 25c qt. Soup beans, 14@18c quart. Lard, 12@13c lb. Turnips, 10@12c ½-pk. Sauer kraut, 8c quart. Spinach, 10@12c ½-pk.

Fruit.—Apples, 10@30c ½-pk; $1@1.50 per bushel. Pears, 15c ½-pk. New strawberries, 25c box, very poor stock.

Retail Grain Market.—Wheat, $1.35; corn, 90c; oats, 65c; rye, 92c; bran, $1.40 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.25; corn, 78c; oats, 52c; rye, 82c; bran, $25 per ton; middlings, $31 per ton.

NEW YORK PRODUCE

New York City, Feb. 21, 1916.

The butter market is generally firm on all grades. Very little trading in cheese, altho prices remain firm. Receipts of eggs are weak and trading quiet. Little change in poultry market. Apples are in free supply and the extremely cold weather prevents much trading. Potato market little changed from last week, and the cold weather retards movement.

Butter. — Creamery extra, (92 score) per pound, 34½@35c; higher score, 35½@36c; thirds to firsts, 24@34c; state dairy, 21@34c; packing stock, 18@21c.

Cheese.—Whole milk specials, 18¼c; daisies, 18½c; skims, fresh choice, 15¼c.

Eggs. — Fresh gathered, extra, 25½@26c; firsts, 24@25c; thirds, 20@21c; dirties, 20c; near-by whites, fine to fancy, 29@30c dozen; ordinary to good, 24@28c; browns, 25@27c.

Dressed Poultry.—Fresh soft meated—Barrels, Philadelphia and Long Island, fancy, 3 to 4 pounds to pair, 40@42c; Philadelphia and Long Island, average, 3 to 4 pounds to pair, per pound, 28@30c; fancy roasters, 25@26c. Capons, 24@32c. Fowls, 16@19c; old roosters, 14½c; squabs, $2.25@7.00 doz. Spring ducks, per pound, 19@20c. Turkeys, dry picked, 26@30c.

Apples.—These prices show the range from "B" to "A". Jonathan, bbl., $2@4; York Imperial, barrel, $2.25@3.25; Winesap, barrel, $2.50@4.50; Twenty Ounce, barrel, $2 @2.75; Greening, barrel, $2.00@3.00; King bbl., $2.00@3.50; Northern Spy, $2.25@4; Baldwin, bbl., $2@3; Hubbardson, bbl., $2 @3; Ben Davis and Gano, bbl., $1.75@3; Common, bbl., $1.50@3.

Vegetables.—Beets, per bbl., $1.25@1.75. Carrots, bbl., $1@2. Cabbage, Danish, ton, $7@11. Celery, choice, crate, 50@75c. Turnips, barrel, $1@1.25. Onions yellow, $2@2.50 bag. Squash, Hubbard and Marrow, $1.75 @2 bbl. Potatoes, Jersey, $2.50@3.00 bag. Long Island, $4 bag. Sweets, $1.75@2.50 barrel.

BALTIMORE PRODUCE

Baltimore, Md., Feb. 21, 1916.

Butter.—Creamery fancy, 36c lb.; choice 33@35c; good, 30@31c; prints, 35@37c; ladles, 21@22c; Maryland and Pennsylvania rolls, 22c.

Eggs.—Market firm. Maryland, Pennsylvania and near-by firsts, 21½c; Eastern Shore, 21½c; Western firsts, 21½.

Live Poultry.—Chickens, young average run, 19@20c lb. winter, 2 lbs. and under 22@23c; young, rough, staggy, 11@15c; old hens, heavy, fat, 17c; do., small to medium, 17c; old roosters and stags, 10@11c. Ducks Muscovey and Mongrel, 17@18c; White Pekins, 19@20c; Indian Runners, 17@18c. Pigeons, per pair, old, 20@25c; young, 25c. Guinea Fowl, each, young, 2 lbs. and over, 60@65c; young, 1½ and 1¾ pounds, 50c; old 25@30c.

Dressed Poultry.—Turkeys, fancy, 26@27c mixed hens and gobblers, 24@25c. Chickens, young, 19@20c; mixed 17@18c; old roosters, 11@12c. Ducks, choice, fat, 19@20c.

Vegetables.—Potatoes — White Eastern Shore 90c@$1; do., Maryland and Pennsylvania, $1.10@1.15; do., New York and Maine, $1.10@1.15; Sweets, yellow, Eastern Shore, Md., per barrel, $2@2.25. Apples—Near-by, loose packed, per barrel, $1@1.50; New York State packed, per barrel, $2@3.50; Western Maryland and Pennsylvania packed, per barrel, $1.75@2.50. Beans, green per basket, $1.50@2.25; wax, $1.75@2. Cabbage, New York State, per ton, old $8@10. Onions, Western Maryland and Pennsylvania, per bushel, yellow, 75c@$1.25; Western, per 100-pound sack, $1.50@2.25. Spinach, per barrel, 75c@$1. Strawberries, refrigerator, per quart, 25@30c. Turnips, per bushel box, 25@35c.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., Feb. 21, 1916.

Receipts for the week ending Saturday evening, February 19:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	2,885	5,780	7,662
Previous week	3,198	6,991	7,861

Calves. — Total receipts of calves for this week were 1,087 against 1,394 last week.

Beef Cattle. — Offerings were moderate, trade improved and prices steady; holdings being principally of near-by, Western and Southern cattle.

Best steers	$8.50@8.75
Choice	8.25@8.50
Good	8.00@8.25
Medium	7.50@7.75
Common	7.00@7.25
Bulls	5.50@6.50
Fat cows	5.00@6.50
Thin cows	2.75@4.00

Veal Calves.—

Exceptional lots	$12.00@12.50
Good to choice	11.25@11.50
Medium	9.00@10.50
Common	7.00@ 8.00
Southerns and barnyards	4.00@ 5.00

Sheep and Lambs.—The choicest lambs were a trifle higher, while all other stock closed steady. Arrivals were on the decrease, and there was a normal absorption.

Wethers, extra	$8.50@ 8.75
Choice	8.00@ 8.25
Good	7.25@ 7.50
Medium	6.50@ 7.00
Common	4.50@ 5.00
Ewes, heavy fat	6.50@ 7.25
Lambs, extras	11.75@12.00
Good to choice	11.25@11.50
Medium	10.00@10.25
Common	8.00@ 9.00

Hogs.—A strong condition was noticeable, and shipments were well sold out. Westerns, as to size and quality, $12.

City Dressed Stock.—All varieties of choice and prime meats were held in a steady to firm way, under a fairly seasonable demand.

Steers	10	@14
Heifers	9	@13
Cows	8	@11
Veal calves	14	@16
Extra calves	19	@
Barnyards	10	@13
Country dressed	12	@14
Extra	16	@
Sheep	12	@14
Extra wethers	15	@
Lambs	16	@17
Extra lambs	19	@
Hogs	12¼	@

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., Feb. 21, 1916.

Cattle.—The supply on sale was 85 loads campared with 110 loads the week before. The market ruled fairly active with the choice weighty cattle and tidy grades selling strong to higher while the cattle on the plain order were slow and draggy at fairly steady prices. Heifers sold steady to strong on best grades and steady on others. Cows sold higher on the choice weighty and bologna grades. The medium class was easier. Bulls sold firmer on all grades. Fresh cows lower on all grades. Springers very slow sale. Today's supply was 90 loads, which sold about steady with Saturday.

Good to choice	$8.50@8.60
Good, 1300 to 1400 lb.	8.10@8.50
Medium to good, 1200 to 1300 lb.	7.75@8.10
Tidy, 1050 to 1150 lb.	7.75@8.15
Fair to medium, 1000 to 1100 lb.	7.25@7.65
Fair, 900 to 1000 lb.	6.50@7.00
Common, 700 to 900 lb.	5.50@6.25
Rough, half-fat, 1000 to 1300 lb.	6.25@7.25
Common to good fat oxen	4.00@6.75
Common to good fat bulls	4.25@7.00
Common to good fat cows	4.25@6.50
Heifers, 700 to 1100 lb.	4.75@7.50
Bologna cows	3.50@4.10
Fresh cows and springers	$25@85

Calves.—Veal calves ruled steady all week. Today's receipts were 550 head, which sold steady with Saturday.

Veal calves	$9.00@12.50
Heavy and thin calves	5.00@ 8.50

Hogs.—The supply on sale during the week has been fair, and with a good demand the market has ruled stronger all week, the close for the week being 10 cents per cwt. over Monday's prices. Today's receipts were 45 doubledeck loads, which sold 5 to 10 cents lower than Saturday.

Prime heavy	$8.65@
Heavy mixed	8.65@
Prime medium weights	8.65@
Best heavy Yorkers	8.65@
Light Yorkers	8.35@
Good pigs	7.75@7.90
Common to good roughs	7.25@7.75
Stags	5.75@6.25

Sheep and Lambs.—The supply of sheep and lambs has been fair. Sheep have ruled steady on best while lambs have ruled much lower, the decline on lambs for the week being 30c per cwt. Today's supply was 10 double-deck loads. The market was strong on choice kinds, but other grades of both sheep and lambs went slow at prices steady with Saturday.

Prime wethers	$8.50@ 8.75
Good mixed	7.50@ 8.00
Fair mixed ewes and wethers	6.25@ 7.25
Culls and common	3.50@ 5.00
Spring lambs	7.00@11.75
Heavy lambs	8.50@11.60
Culls and choice yearlings	6.00@ 9.50

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., Feb. 21, 1916.

Hay and Straw.—Hay of fine quality is in light supply and firm at last week's prices. The demand is fair and the market is well cleaned up. Under grades are dull and hard to sell. Straw sells slowly at steady prices.

Grains.—Wheat steadied some during the week under better export outlook. Prices fluctuated from day to day, but marked an advance of about 1 cent per bushel over last week. The corn market is quiet and unchanged with moderate but ample offerings. There is little trading in oats but offerings are moderate and values rule steady.

Hay.—No. 1 timothy, medium bales, $21.50 @22; No. 2 do., $19.50@20; no grade, $10 @14. Light mixed clover, $19@19.50; No. 1 do., $18.50@19; No. 2 do., $15.50@16.50.

Straw.—No. 1 straight rye, $13.50@14; No. 2 do., $12.50@13; No. 1 tangled rye, $11.50@12; do., No. 2 $10.50@11. No. 1 wheat straw, $10@10.50; No. 2 do., $9@9.50. No. 1 oat straw, $9.50@10; No. 2 do., $8.50@9.

Wheat.—No. 2 red, $1.29@1.31; No. 3 red, $1.29@1.31; rejected A, $1.26½@1.28½; rejected B, $1.25@1.27.

Corn.—No. 2 yellow western, 82½@83½c; steamer yellow, 81@82c; western, No. 3, 77 @78c; No. 4 yellow, 75@76c; ear corn, 79 @80c per 70 pounds.

Oats.—No. 2 white, 56½@57c; No. 3 do., 53@54c; No. 4 do., 51@52c; standard white, 54½@55c; sample oats, 48@49c.

Feed.—Winter bran, in 100-pound sacks, $24.50@25 per ton; spring bran, do., $23.50 @24.

Flour.—Car lots, winter clear, $5.65@5.80; straight, $5.90@6.15; patent, $6.25@6.50. City mills, choice to fancy patent, $6.75@7.50; do., regular grades, $5.65@5.80. Rye flour, $5.50@6 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., Feb. 21, 1916.

Hay.—Hay receipts and billings heavy but mostly of inferior quality. This has a tendency to depress the better grades but there is no trouble disposing of No. 1 commodities at prices quoted. No. 2 clover and no grade hay not wanted. No. 1 timothy, $19@19.50; No. 2 timothy, $16.50@18; No. 3 timothy, $14@15; No. 1 light mixed, $16.50@17; No. 1 clover mixed, $15.50@16.50; No. 2 clover mixed, $12.50@13.50; No. 1 clover, $14@14.50; No. 2 clover, $8.50 @11.50; No. 3 prairie, $10.50@11; No. 4 prairie, $8@8.50.

Straw.—Receipts of straw while not heavy are quite sufficient for requirements; market quiet. No. 1 oat, $8.50@8.75; No. 2 oat, $7.75@8; No. 1 wheat, $8.50@8.75; No. 2 wheat, $7.75@8; No. 1 rye, $9.50@10; No. 2 rye, $8.25@8.75.

Ear Corn.—Demand somewhat slothful; this is especially true of the poorer grades. No. 2 yellow ear corn can be disposed of to advantage. New No. 2 yellow, 77@78c; New No. 3 yellow, 71@74c; New No. 2 high mixed, 74½@75½c; New No. 2 mixed, 72 @73c.

Oats.—Demand very slow; receipts equal to same; market dull and draggy. No. 2 white, 53@53½c; standard, 51@51½c; No. 3 white, 50@50½c; No. 4 white, 48½@49c; Rejected, 43@47c.

NEW YORK HAY AND GRAIN

New York City, Feb. 21, 1916.

Hay and Straw.—Hay is firm and slightly higher on best grades. The demand continues active for the better grades of timothy hay at all harbor points but comparatively few cars are coming to hand good enough to grade No. 1. Poor stock is plentiful and weak, with sales at low and irregular prices.

Grains.—Wheat shows daily fluctuations, following closely the export trade conditions. The foreign situation is strong in view of transportation facilities. Argentine, Austria and India have some 240,000,000 bushels of wheat for disposal but freight rates are too high to permit shipment to European ports. Under these conditions American wheat is likely to be favored. There are numerons reports of injury by the green bug and the Hessian fly to the growing crop. Corn holds steady under good export demand for thoroly dry stock. Oats are about steady with little export buying.

Hay.—Large bales—No. 1 timothy, $25.50 @26; No. 2 $23@25; No. 3 $19@21; fancy clover, light mixed, $23@24; No. 1, $19@22; No grade, $13@16.

Straw.—Per ton, No. 1 rye, $14.50@15; do., No. 2, $14; oat straw, $9.

Wheat.—No. 1 Northern, $1.57½; No. 2 $1.55½; No. 2 hard winter, $1.40¾.

Corn.—No. 2 yellow, 87¼@87¾c; No. 3 yellow, 84¼@84¾c.

Oats.—No. 3 white, 52¾@53¾c; No. 4 51¼@51¾c; ordinary to fancy, 52¾@53¾c.

Rye.—$1.06@1.07½c.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $23. Standard middlings, $25; flour, do., $28.50 to arrive. Red dog, to arrive, 140-lb. sacks $33.00. Oil meal, $38@39. City feed, bulk bran, $23. Heavy feed in bulk, $24. Red dog, $33. Flour middlings, $32.00.

PHILADELPHIA BUTTER MARKET

Philadelphia, Pa., Feb. 22, 1916.

Trade in butter is moderately active today, but the market is firm at an advance of 1 cent per pound over last week. Offerings of fancy grades of both solid packed creamery and prints are light and arrivals are easily placed at quotations. The cheese market is firm under light offerings.

Butter. — Fresh, solid-packed creamery, fancy specials, 37½c; extras, 35½c; firsts 30@32c; seconds, 27@28c; near-by prints, fancy, 39c; firsts, 33@35c; seconds, 29@30c; special, fancy prints, 42@45c.

Cheese.—N. Y. full cream fancy, 18½@18¾c; fair to good, 17¾@18¼c; part skims, 11@16c.

ELGIN BUTTER MARKET

Elgin, Ill., Feb. 19, 1916.

Butter sales were made today at 32½ and 33 cents. Majority at 33 cents; 75 tubs sold at 33 cents and 50 tubs at 32½ cents.

NEW YORK MILK MARKET

New York City, Feb. 21, 1916.

Supply and demand are more evenly balanced than they have been in weeks. The supply is increasing. Receipts of cream are improving slightly; at least they more nearly approximate the demand. The market value is approximately 4 cents a quart for Grade B in the so-called 26-cent zone.

The receipts of milk and cream in 40-quart cans for the week ending February 18, were as follows:

Railroad	Milk	Cream
Erie	44,526	2,233
Susquehanna	9,829	105
West Shore	17,981	1,181
Lackawanna	57,495	1,395
N. Y. Central (long haul)	82,383	1,411
N. Y. Central (short haul)	22,110	36
Ontario	37,995	2,641
Lehigh Valley	42,457	678
Homer Ramsdell Line	3,610	33
New Haven	7,513	42
Pennsylvania	7,375	162
Other sources	1,181	23
Totals	334,455	9,943
Same week last year	316,339	9,979

TOBACCO MARKET

It is estimated that three-fourths of the 1915 crop has been delivered and with the general satisfaction of both seller and buyer. About the only imperfection noted is a small amount of pole burn which has not proven an objectionable feature. It is said that early cuttings show more damage from this source than do later cuttings. Buyers are seeking the few remaining crops and these can be sold at prices as high or higher than at any time this season. There is still some unsold Havana tobacco. Local packers are slowly selling their stock of old and as they were unable to procure any considerable amount of the new crop it would seem that their business will be exceedingly light for the next year at least.

The Tobacco Growers' Association held an interesting meeting which was largely attended. The various members reported the crop practically all sold in their respective localities. Illustrating the returns per acre a member reported that a crop sold at $10 and 2 gave $135. In regard to yield per acre, another stated that he had stripped 6,800 pounds of wrappers and 1,440 pounds of fillers from 2,378 laths. Somewhat contrary to expectation it was the concensus of opinion that the acreage of the present year will not be larger than that of 1915 and possibly not as large. While confronting the low prices of recent years many growers have developed other crops which in many instances have proven more satisfactory than tobacco, and now when prices are better they will continue with their new methods. Thus a lasting benefit has come from what seemed an unfortunate situation, another outcome of the old "necessity and invention" axiom. —H. E. Tweed, February 21, 1916.

Grange

WHAT'S THE USE OF THE GRANGE

The following letter, together with remittance for subscription was received the other day and since it contains a very pointed question and some comments that are pertinent, we publish it in full together with an endeavor to answer it.—Editors.

"While I have not heretofore been a subscriber to Pennsylvania Farmer, I have read a neighbor's paper for some time. I note your question in an editorial headed, "Do We Serve You?" and would like to ask you the question, 'Of what use is the grange to the small farmer?' From my observation I have been able to buy as cheaply as my neighbor does, and I do not belong to the grange. Concerning the road question, I would not be in favor of toll roads. Neither am I in favor of the present methods of the state road department. The state gets our auto license money and does not keep up the roads as needed. With best wishes for success, I remain, etc."

This year will complete a half century of grange existence, and it would be a long, if not impossible task, to tell of all the things the grange has been directly and indirectly instrumental in achieving for the farmer. Its work has benefitted the farmers who are not members almost as much as the members. The effect of the work of great institutions is not limited to those who participate. For instance, every person, whether belonging to the church or not, lives in a better community because of the influence and work of the church; the schools have educated and developed a people to a state of intelligence that makes them more helpful and desirable neighbors so that one, even tho he cannot read and write, finds it a better community to live in because of the work of the schools. In the same way the effects of the grange have directly and indirectly benefitted all engaged in agriculture.

In Pennsylvania, it has been the most potent factor in shaping good and defeating bad road legislation. If the road laws as they are now on the statute books were complied with, the money our friend speaks of would go back to the townships. The grange backed those laws, but they are not carried out and the townships suffer the loss. The strenuous efforts of the State Grange officials defeated the unbusiness-like proposition to bond the state for state roads. The grange favors the abolition of the toll-road system, and the making of good, substantial dirt roads.

A persistent fight has been made for years for tax reform and if the farmers of the state were united in organization it would be accomplished much sooner. Without doubt we would not have Rural Delivery or Parcel Post if the grange did not exist.

It is too long a story to tell here how the efforts of the grange brought down the price of many things and thus benefitted all buyers; how its efforts prevented a reissuing of patents to manufacturers of sewing machines, thus lowering the price from $75 and $100 to prices within the reach of all.

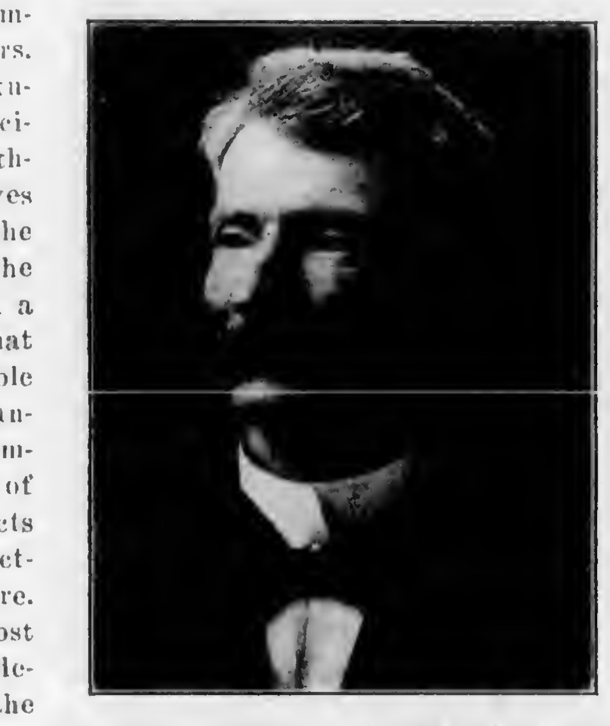
We admit that the greatest development in the financial field has not yet been made, but the platform is broad enough, and the machinery is equipped, so that this work will follow as the next great step. The local grange is the logical unit for the co-operation that must be made in order to successfully buy and sell what the farmer raises and buys. There is no use in a farmer hugging the false hope that he can go it alone in the future. His individual business is not big enough and only by co-operating with his fellow farmers can he buy and sell successfully.

Among the Granges

Centre County, Pa., Pomona. — The first session of the Centre County Pomona Grange in 1916 was held at Centre Hall, in Grange Arcadia, the last Thursday in January. It was a notable session in many respects, the entire time having been given over to the installation of officers, the hearing of reports of the various projects conducted by the Order, and initiation of several members. The road conditions were such that automobiling was not agreeable, and this reduced the attendance, yet every officer except one (Mrs. D. S. Peterson, Ceres, of Pennsylvania Furnace) was present for the installation ceremony, which was the first item on the program after the session had been formally opened.

The installing officer was David K. Keller, cashier of the Penns Valley Banking Company, who has been a member of the order ever since he reached the age entitling him to admission. Hon. Leonard Rhone gave the unwritten work to the officers.

The retiring Master is Austin W. Dale, of Boalsburg, who served in the Order in many capacities prior to having reached the presiding chair. He had been an efficient officer, thoroly in sympathy with the Grange and its movements. The new Master is Prof. C. R. Neff, of Centre Hall, a farmer. Most men of his ability would let it be known and use on all occasions the prefix title of Prof., which in his case would mean that he is a man of superior knowledge. Mr. Neff is a graduate of the Franklin and Marshall College, Lancaster, Pa., and has given almost all of his time to teaching. He is not so much an enthusiast in the great movement "to make two blades of grass grow where one grew before," but is rather giving attention and urging the farmers to adapt better business methods, opening of markets where the present production from the acre may be sold at a reasonable profit, and advocating legislation placing farmers on an equality with others having less claim for State and National consideration. He believes every farmer ought to be educated—have a liberal education, and in a measure is opposed to industrial education because of the growing tendency of the great corporations to induce young men and women to educate the hand only, dwarfing the mind so that the man becomes a mere machine to respond to the touch of the button by the captains of industry. He believes there are greater questions to solve than multiplications of tons and bushels on the farm.



C. R. NEFF, CENTER CO., PA., POMONA MASTER.

The first business project under the management of the Order to report was that of the Centre County Mutual Fire Insurance Company. The quarterly report rendered by the Secretary, D. K. Keller, shows the insurance in force to be $1,276,844, with notes aggregating $66,026 to back up the fire losses. The auditor's report for the year 1915 indicates that the total operating expenses of the company, which includes all salaries, mileage, writing of policies, was but $578. The losses by fire were $6152, and the average total cost of insurance per one hundred dollars for one year, for a period of thirty-nine years, twenty-one cents. This is undoubtedly a fine record.

The Grange Encampment and Fair Association reported its gross receipts for the year to be $2019, and expenditures two hundred dollars less. It will be recalled that in an article printed in these columns last fall it was set forth that this fair and encampment was conducted without charging admission fee, which obliges the revenue to be obtained from three sources—settlers, exhibitors and rents from tents.

The statement rendered by Patrons Co-operative Creamery Company was not complete, but the indications are that the enterprise did a safe business in 1915. The total volume of the second year of business was $15,436. The creamery is located in a section surrounded with similar institutions and canvassed by others at a distance which accounts for the small business done. The thing farmers are interested in most is not the profit from the shares of stock, but to secure the market price for their product, correct weight, and measure, and this the patrons of this concern are getting.

The Patrons Rural Telephone Company did its best year of business since its organization in 1908. The gross receipts were $530, dues and commissions. This, of course, does not include the telephone rentals, aggregating about $3,000, collected for the Bell Telephone Company of Pennsylvania.

An index to the spirit of this meeting is the statement that there was turned over to the treasurer the sum of $5300 from initiation fees and dues.

At noon an elaborate luncheon was served on the first floor of Grange Arcadia. An hour and one-half was devoted to social intercourse, the many members from the various sections of the county coming into closer touch than during the regular sessions.

The initiatory step was taken to light the entire camp grounds with electricity.

Bucks and Philadelphia Counties.—Pomona Grange No. 22, composed of Bucks and Philadelphia counties will meet March 1, 1916. Penns Manor and Delaware Valley Granges entertain at Tullytown Methodist Church.

Program.—Opening Song, "River of Time" 90, Grange Melodies, Audience. "If the Wife is Partner on the Farm, why "Pin Money" for her more than for the husband?", Newtown grange; "Sunday Dinner", Philadelphia grange; Music, Penns Manor grange; "Celebrating our National Holidays in the Home", Carversville grange; Reading from Longfellow, Edgewood grange; Music, Delaware Valley grange; The Value of U. S. and State Bulletins, Pineville grange; What should be done towards solving the problem of farm help, Middletown grange; Music, Childhood's Home, 195, Grange Melodies, Audience; "The Child Welfare Bureau and Baby Week", Tyro Hall grange; Reading, Edmund Vance Cook, Edison grange. State Master John A. McSparran will try to be present at the afternoon session.

. . . . . .

Pineville Grange No. 507 is planning to build themselves a hall in the near future.

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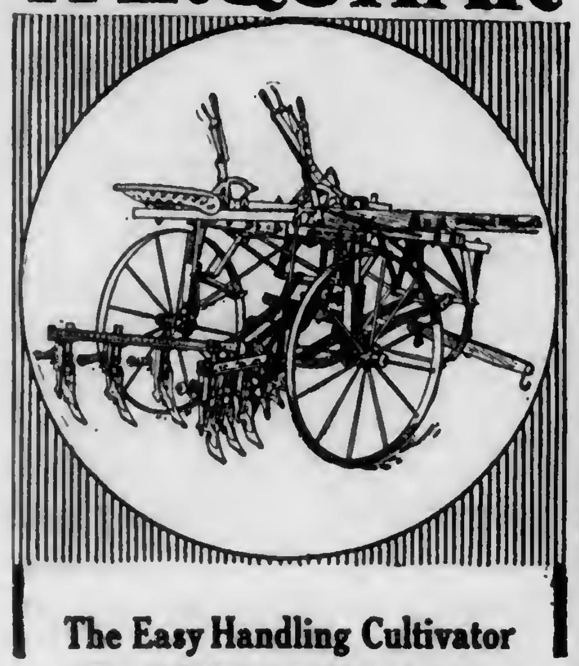

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The Easy Handling Cultivator

The 1916 Farquhar Rider is a real general-purpose Cultivator. Both the wheels and shovels are adjustable as desired, and by loosening a single hook the machine can be guided from the foot stirrups. Our unique manner of attaching the beams gives us absolutely rigid gangs, a feature that insures minute accuracy and adds materially to the life of the cultivator. There are three types of openers to select from: Pin Hoe, Spring Hoe and Single Disc—6, 8 or 10 to the machine. Double-Row Corn Planter and Tobacco Hoer are attachable and can be easily added at any time.

In addition to the regular Farquhar Riding Cultivator, we manufacture the Farquhar High Wheel Rider, the Farquhar Parallel Beam Walker and the Pennsylvania Walker. Our aim is to supply machines suitable for every possible condition of soil. Farquhar Cultivators are all up to the minute in every detail, right both as to quality and price. Send us a postal signifying your interest, and we'll mail instructive new Cultivator Booklet and give you the name and address of the nearest Farquhar dealer.

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We also manufacture Engines and Boilers, Tractors, Saw Mills, Threshers, Potato Diggers, Grain Drills, Hydraulic Presses.

You can't make your farm pay big profits, unless your buildings are properly built. A poorly-built house means illness and discomfort. A poorly-built barn and stables mean unhealthy stock. Poorly-built silos and sheds mean spoiled silage and rusted machinery. All three mean constant repair work—an endless outlay of money which ought to have been clear profit. You save many dollars and much future trouble if you build with

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It is tough, yet easily worked and equally as durable as many mineral substances often advocated for farm buildings. It is one of the most inexpensive woods known for your purposes. Furthermore, you can get it easily and quickly any place east of the Mississippi. Write today for our 160-page book on Farm Buildings. It will not cost you one cent and you will find it crammed with money-saving hints. Sells regularly for one dollar.

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Students have experience of building new cars from start to finish—factory training in block testing, etc.—all the leading types of starting, lighting and ignition systems in operation. New 6-cyl. Losier Touring Car and 8-cyl. King Car used for road instruction. Just purchased—new 8-cylinder Motor for block test dept. solely for students instruction. Just added 1916 Delco System as used in Buick, Hudson and Packard 12.

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Saves Money DAILY

You have use for this Feed Cooker nearly every day in the year. "Farmers' Favorite." Feed Cooker and Boiler. Bigger profits from cattle, hogs and poultry by cooked feed. Heating water-washing, butchering, etc. Sterilizing milk cans, boiling spraying mixtures. Pays for itself one season boiling sap. Little fuel-cobs to chunks. 6 sizes. Many advantages. Guaranteed satisfactory or money back. Write for special price-list and circulars.

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AUTO COMPANY, INC.

Winter time is the time to buy a car if you want to save money. Cars are lower in price during December and January than any other time. 1000 cars, 1916-1915-1914 models — Roadsters, Touring Cars, Limousines, Trucks, Delivery Wagons, etc. A few specials.

Fords, Touring & Roadsters ... $150 up
Cadillacs and Hups .... $200 up
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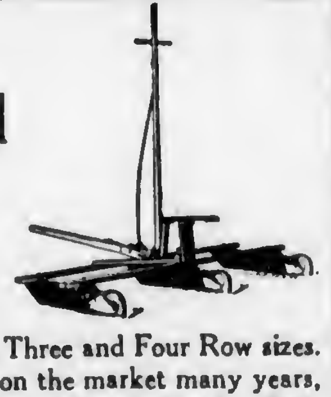


The Improved Riggs Markers

Made in Two, Three and Four Row sizes. They have been on the market many years, and have established themselves for Reliability, Durability and Usefulness. They make any width of rows and depth of furrow. They leave a mellow seed bed. No up-to-date Farmer can get along without one. If you cannot buy our goods of your regular Dealer, write us for free Catalogue and prices.

We also manufacture The Perfection Six-Row Sprayer, and the Improved Riggs Plows.

Thos. Peppler, Son & Co., Box 30, Hightstown, N.J.

Edison Grange No. 1527, held an apple show at an open meeting in Doylestown, Tuesday evening, February 8. There were 28 varieties shown. There were very favorable opinions as to the chance Bucks County has to be an apple-growing county.

. . . . .

The Solebury Farmers Exhibit for 1916 will be held September 8th and 9th at the Solebury Deer Park.

Upper Bucks County.—Pomona No. 50 will meet in the Grange Hall at Chalfont on Saturday, February 19, morning and afternoon sessions beginning at ten o'clock. The new officers will be installed and a good Literary Programme is expected.

. . . . .

The institutes of Upper Bucks County held at Springtown and Sellersville were very interesting and surely beneficial to all those that attended. The first was opened at Springtown on Monday afternoon, Jan. 31, in Franklin Grange Hall and the five sessions were all well attended and great interest shown. Wednesday afternoon the same speakers, J. T. Campbell, John D. Herr and Leon O. Van Noy, were at Sellersville, there the crowd was large too. They were all three practical and pleasant speakers, handling their subjects well and all who were there surely must have had something worth while to take home and think about. There was also a corn show at Sellersville on Thursday afternoon which created a lot of interest, there having been a nice assortment of prizes offered by Sellersville people.

Quite a variety of corn was shown and each one that received a prize was asked how they had raised and cared for the corn.

The best matured was that which had been raised on a farm where the seed had been saved for years and was thoroly naturalized. While the sessions were well attended and quite a number of grangers and farmers' associations of Bucks County represented, it is a pity that more of the farmers do not avail themselves of the opportunity to hear so many good things and ask questions of men who can tell them so ably just what their experience and that of others have been in the various lines.—Mrs. Melvina Johnson.

. . . . .

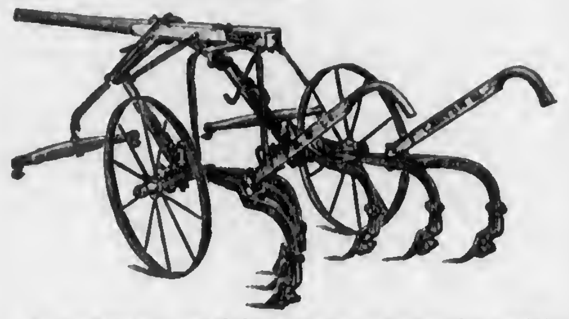
BRADFORD COUNTY, PA.

The farmers of Bradford County and the Towanda Business Men's Association are arranging for a Special Farmers Institute to be held at Towanda March 1, 2 and 3 at the Court House. The program as follows:

C. H. Jennings, chairman. Wednesday morning, 10.30; Plan for development of Bradford County Agriculture, D. K. Sloan, Manager of Farm Bureau. 1.15. Address of Welcome by Benjamin Kingkendall. Secondary Schools of Agriculture, H. E. Cook, Dean of the School of Agriculture, St. Lawrence University, Canton, N. Y. Address by Hon. C. E. Patton, Secretary of Agriculture. "What Pennsylvania will do for Agriculture," by Hon. Martin G. Brumbaugh, Governor of Pennsylvania. Wednesday Evening: "Rural Credits", Hon. L. T. McFadden, M. C.; "The Younger Generation," Miss Jessie Field, Secretary for town and country Y. W. C. A., New York City.

Thursday Morning. 10.30: Result of cow testing association work in Bradford County, D. K. Sloan. Discussion by farmers. 1.15: Dairying, H. E. Cook. Desirable points of a pure bred sire, F. S. Putney, State College.

Friday Morning, 10.30: Fertilizers and their conservation, F. R. Stevens, Agriculturist of L. V. R. R. 1.15 P. M. Feeding hogs for profit, H. H. Harner, State College. 3.00: How to prevent some common diseases of domestic animals,



P&O

Volunteer Balance Frame Cultivator

A high grade Walking Cultivator, capable of results that will satisfy the most particular farmer in any section. "It's the Way We Build Them."

A backward crank in the axles shifts the weight of the machine forward sufficiently to overcome any tendency of the tongue to fly up when gangs are raised. Parallel beams. Cone pivots on the beam couplings for taking up wear. Low hitch with perfect equalizer. Adjustable arch gives 34 to 44 inch wheel track. Heavy springs make it easy to raise gangs, and to handle them while at work. Adjustment provided for working close to or away from corn. Easy to set gangs up or down for different depths of shovels. Dust proof wheel boxes with hard oil screw caps. Staggered spokes. Gangs can be tilted to fit side of row when hilling. Handles adjustable to desired position. Very light of draft and adaptable to all soil conditions and to work in corn or cotton.

Can be furnished with any of the standard P & O Gangs, and can be equipped with a Fertilizer Attachment for distributing any of the commercial fertilizers.

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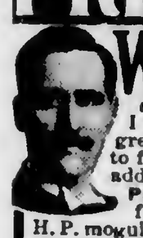
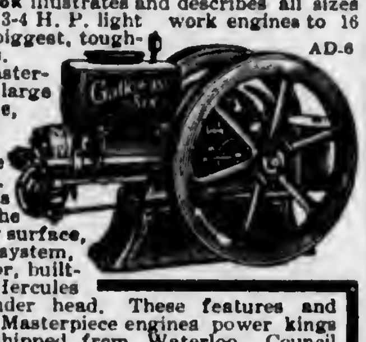
P&O Light Draft Plows Are Backed By An Unqualified Guarantee





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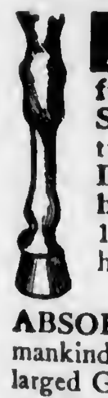

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from a Bone Spavin, Ring Bone, Splint, Curb, Side Bone, or similar trouble and gets horse going sound. Does not blister or remove the hair and horse can be worked. Page 17 in pamphlet with each bottle tells how. $2.00 a bottle delivered. Horse Book 9 K free.

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and *freight prepaid* on the new 1916 "RANGER" bicycle. Write at once for our *big catalog* and *special offer.* Marvelous improvemnets. Extraordinary values in our 1916 price offer. *You cannot afford to buy* without getting our *latest propositions.* Boys, be a "Rider Agent" and make big money taking orders for bicycles and supplies. Get our *liberal terms* on a sample "RANGER" to introduce. Tires, equipment, sundries and everything in the bicycle line half usual prices. A few second-hand bicycles $3.00 to $8.00, to clear.

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trains students in all lines of veterinary work. Facilities unexcelled. For catalog, Address Louis A. Klein, Dean, Dept. D, 39th St. & Wooland Ave., Phila., Pa.

Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the cause in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Chronic Cripple.—I have a mare, fifteen years old, that has been very lame a portion of time for several years. I bred her two years ago and after she had her foal, lameness appeared to leave her. I am inclined to believe it is in her shoulder. Have applied all kinds of liniment, but at the present time she is so badly crippled that she can scarcely walk. She has been standing in stable nearly all winter, fed on corn and different kinds of fodder. My neighbors tell me that she has rheumatism. Would you advise me to treat her for this ailment? C. S., Mercer, Pa.—Your old mare will never get well. Had she been going to recover, she would have done so long before this. The rest that she has had should have made her well. If you care to treat her for rheumatism, give her 1 dr. sodium salicylate and 1 dr. potassium iodide at a dose in feed, 3 times a day. Rub shoulder with 1 part turpentine, 1 part aqua ammonia and 2 parts camphorated oil every day or two.

Infected Teats.—I have a cow whose teats became sore some time ago, a small scab appearing on end which has spread until it now covers about one-third of the teat. When I milk her the teat bleeds and it appears to hurt her most when I first commence to milk. I have applied several commercial remedies without effect. H. C. H., Muncy, Pa.—Paint sore with tincture iodine daily for a few days and milk her thru a milking tube.

Stocking.—Sore Eyes.—I have a 4-year-old horse which has done hard work for some time. When allowed to stand in stable, hind legs stock to twice their normal size. I have thought that perhaps the legs were sprained. One leg is swollen more than the other. I have seven little pigs, 10 weeks old, and two of them have sore eyes. There appears to be a soreness of the lower lid and a black scab has formed on it. They have good appetites. Would you advise me to wean them? H. M. Homesdale, Pa.—Dissolve ¼ lb. acetate of lead and 3 oz. of sulphate of zinc in a gallon of water and wet swollen fetlock, 3 times a day. Give horse a teaspoonful of powdered nitrate of potash at a dose in feed, once a day for 10 days. Apply 1 part oxide of zinc and 19 parts vaseline to sore eyelids every day. Yes, you had better wean the pigs.

Grub in the Head.—I would like to have some advice how to treat sheep for grub in the head. T. U. G., Queenstown, Md.—The grub in head of sheep is the larvae of a small gadfly (oestrus Ovis) which deposits its live embryo on the margin of the nostrils. It passes up the nasal cavity into the sinuses and nests just below the eyes. This occurs during the hot months of July, August and September, or perhaps a little later in the season. These larvae remain in the sinuses all winter and usually come out in the spring and in three or four weeks turn into gadflies. Place your sheep in a warm building. This will perhaps induce the grubs to come out; or, blow some Scotch snuff into the nose, twice a day; or burn some red pepper which will cause sneezing and this may dislodge quite a few. A more heroic treatment consists in trephining thru bones of face between the eye and median line, just in front of the horn. Then the sinuses can be washed out with a weak tepid solution of salt water. Sheep that suffer from grub in the head should be well fed and have good care.

Ovarian Irritation — Constipation.—I have a 3-year-old filly that seems to be in heat almost continually and does considerable switching. Is this case curable? I also have a six-year-old cow that is costive. I have given her several pounds of salts without much effect on her bowels. W. H. N., Townville, Pa.—Either have her spayed or breed her. Give your cow one pint raw linseed oil at dose, twice a day, until her bowels move normally. Give her 1 dr. ground nux vomica at dose in soft bran mash, 3 times daily, and feed her plenty of roots.

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Illustration one-third of actual size

Every smoker appreciates a leather tobacco pouch. This handy, serviceable, Tuxedo Draw-Pouch is made of fine, soft, flexible tan leather, with a draw-string and snap that close pouch tight and keep the tobacco from spilling.

Send us 10c and your tobacco dealer's name, and we will mail you prepaid, anywhere in U. S., a 10c tin of TUXEDO and this handsome Leather Draw-Pouch. We gladly make this offer to get you to try TUXEDO.

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Convenient, glassine wrapped moisture-proof pouch **5c**

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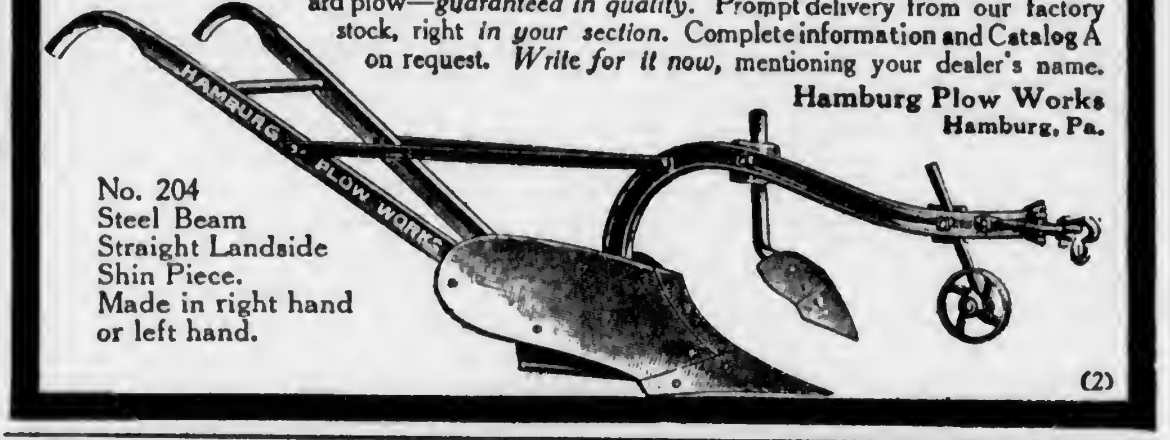

Evenly balanced long-wear Plows

Extra strong and light draft. Very simply made—easily repaired if necessary. Will *not* break on first stump or rock. Good suction, sticks to the ground; suitable for rough work and in any soil.

You can trust Hamburg Plows to turn the furrow all the way—no jumping or running out, but easy, steady operation. Every plow guaranteed absolutely—defective parts replaced or money back.

HAMBURG PLOWS

PARTS FOR REPAIRS—whenever you need parts for repairs to your plow insist on *Hamburg* parts. Guaranteed *to fit* any standard plow—*guaranteed in quality.* Prompt delivery from our factory stock, right *in your section.* Complete information and Catalog A on request. *Write for it now,* mentioning your dealer's name.

Hamburg Plow Works
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No. 204
Steel Beam
Straight Landside
Shin Piece.
Made in right hand or left hand.

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Increases Value of Horses and Mules to Clip

When the heavy coat that holds the wet sweat and dirt is removed they get more good from their feed, are healthier and work better. They are more easily kept clean and their improved appearance greatly adds to their selling price. It also pays to clip the flanks and udders of your cows—you get clean milk. Clip them with the famous

Stewart Ball-Bearing Machine

It turns easier, clips faster and closer and stays sharp longer than any other. Gears are cut from solid steel bar. They are enclosed, protected and run in oil; little friction, little wear. Has six feet of new style easy running flexible shaft and the celebrated Stewart single tension clipping head, highest grade. Price complete, only $7.50.

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Get one from your dealer or send $2 and we will ship C. O. D. for balance. Money and transportation costs back if not satisfied.

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Eight and one-half million men wear "Ball-Band" Rubber Footwear and over 50,000 stores sell it.

"Ball-Band" boots are vacuum cured. During the vulcanizing this process causes a tremendous pressure on the fabric and rubber and makes the boot one solid piece. Look for the Red Ball.

"BALL (Red) BAND"

TRADE MARK

If you figure the cost of your "Ball-Band" Rubber Footwear by the cost per days wear, you will see that it is the lowest-priced rubber footwear you can buy. We want to help you get all the service out of "Ball-Band" that we can build into it.

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Phosphorus at ½ the Cost

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By using it at a cost of $1.00 per acre per year you supply more Phosphorus than the crops use each year and permanently enrich your soil.

Rock Phosphate Pays

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JOHN H. JACKSON TILE CO., Inc., 110 THIRD AVENUE, ALBANY, NEW YORK.

Hepsey Burke

By Frank N. Westcott

Hepsey read the old letter from Mrs. Bascom slowly and deliberately. She made no comment and expected none. She simply wished her listener to know that she was acquainted with the early wishes of her friend.

As Hepsey read, Sylvester Bascom turned, slowly, away from her, his head on his hand, gazing out of the window. When she had finished reading, the letter was folded up and replaced in the bag along with her knitting. Then, laying her hand with a gentle, firm pressure on the old man's shoulder, Mrs. Burke departed.

CHAPTER XXIII

Hepsey Calls a Meeting

For the next few days Hepsey's mind worked in unfamiliar channels, for her nature was that of a benevolent autocrat, and she had found herself led by circumstances into a situation demanding the prowess and elasticity of the diplomat. To begin with, she must risk a gamble at the meeting: if the spiritual yeast did not rise in old Bascom, as she hoped it would, and crown her strategy with success, she would have to fall back on belligerent tactics, and see if it were not possible to get his duty out of him by threatened force of public opinion: and she knew that, with his obstinancy, it would be touch and go on which side of the fence he would fall in a situation of that kind—dependent, in fact, upon the half turn of a screw, more or less, for the result. Furthermore, she concluded that beyond the most vague hint of her call on Bascom and the object of the meeting, she could not show her hand to Maxwell; for he would feel it his duty to step in and prevent the possibility of any such open breach as failure on Hepsey's part would probably make in the parish solidarity. For she must keep her own counsel—except for Jonathan, whose present infatuated condition made him an even safer and more satisfactory source of "advice" than he normally was. But the evening before the meeting, as he sat on Hepsey's porch, he began to experience qualms, perhaps in his capacity as Junior Warden. But Hepsey turned upon him relentlessly:

"Now see here! You know I don't start somethin' unless I can see it thru; and if it means a scrap, so much the better. Next to a good revival, a good hard scrap in a stupid parish has a real spiritual value. It stimulates the circulation, increases the appetite, gives people somethin' to think about, and does a lot of good where peaceful ways would fail. The trouble with us is that we've always been a sight too peaceful. If I've got to do it, I'm goin' to make a row, a real jolly row that'll make some people wish they'd never been born. No-no-no! Don't you try to interfere. We've come to a crisis, and I'm goin' to meet it. Don't you worry until I begin to holler for first aid to the injured. A woman can't vote for a vestryman, tho women form the bulk of the congregation, and do most all of the parish work; and the whole church'd go to smithereens if it weren't for the women. But there's one thing a woman can always do: She can talk. They say that talk is cheap; but sometimes it's a mighty expensive article, if it's the right kind; and maybe the men will have to settle the bills. I'm going to talk; perhaps you think that's nothing new. But you don't know how I can talk when once I get my dander up. Somebody's goin' to sit up and pay attention this time. Bascom'll conclude to preside at the meetin'; whichever way he means to act; and I've fixed it so Maxwell will be engaged on other duties. No; go 'way. I don't want to see you around here again until the whole thing's over."

"All right Hepsey, all right. I guess if it goes thru the way you want you'll be that set up you'll be wantin' to marry old Bascom 'stead of me," chuckled Jonathan, as the lady of his choice turned to enter the house.

She faced round upon him as she reached the door, her features set with grim determination:

"If I get the whole caboodle, bag and baggage, from the meetin' and from Bascom, there's no knowin' but what I'll send for the parson and be married right there and then. There isn't a thing I could think of, in the line of a real expensive sacrifice, that'd measure up as compensation for winnin' out—not even marryin' you, Jonathan Jackson."

So Hepsey laid down lines for control of the meeting, ready with a different variety of expedients, from point to point in its progress, as Sylvester Bascome's attitude at the time might necessitate. For she felt very little anxiety as to her ability to carry the main body of the audience along with her.

The night of the meeting the Sunday School Room, adjacent to the church, was filled to a seat at least a quarter of an hour before the time announced for the meeting. Hepsey had provided herself with a chair in the center of the front row, directly facing the low platform to be occupied by the chairman. Her leather bag hung formidably on one arm, and a long narrow blank book was laid on her lap. She took little notice of her surroundings, and her anxiety was imperceptible, as she thrummed with a pencil upon the book, glancing now and then at the side door, watching for Bascom's entrance. The meeting buzzed light conversation, as a preliminary. Had she miscalculated on the very first move? Was he going to treat the whole affair with lofty disdain? As the hour struck, dead silence reigned in the room, expectant; and Jonathan, who sat next her, fidgeted nervously.

"Five minutes' grace, and that's all; if he's not here by then, it'll be up to you to call the meetin' to order," whispered Hepsey.

"Sakes!" hissed the terrified Junior Warden, "you didn't say nothin' about that, Hepsey," he protested.

She leveled a withering glance at him, and was about to reduce him to utter impotence by some remark, when both were startled by a voice in front of them, issuing from "the chair." Silently the Senior Warden had entered, and had proceeded to open the meeting. His face was set and stern, and his voice hard and toneless. No help from that quarter, Hepsey mentally recorded.

"As the rector of this parish is not able to be present I have been asked to preside at this meeting. I believe that it was instigated—that is suggested, by some of the ladies who believe that there are some matters of importance which need immediate attention, and must be presented to the congregation without delay. I must beg to remind these ladies that the Wardens and Vestrymen are the business officers of the church; and it seems to my poor judgment that if any business is to be transacted, the proper way would be for the Vestry

to take care of it. However, I have complied with the request and have undertaken to preside, in the absence of the rector. The meeting is now open for business."

Bascom sat down and gazed at the audience, but with a stare so expressionless as gave no further index to his mood. For some time there was a rather painful silence; but at last Hepsey Burke arose and faced about to command the audience.

"Brethren and sisters," she began, "a few of us women have made up our minds that it's high time that somethin' was done towards payin' our rector what we owe him, and that we furnish him with a proper house to live in."

At this point, a faint murmur of applause interrupted the speaker, who replied: "There. There. Don't be too quick. You won't feel a bit like applaudin' when I get thru. It's a burnin' shame and disgrace that we owe Mr. Maxwell about two hundred dollars, which means a mighty lot to him, because if he was paid in full every month he would get just about enough to keep his wife and himself from starvin' to death. I wasn't asked to call this meetin'; I asked the rector to, and I asked the Senior Warden to preside. And I told the rector that some of us—both men and women—had business to talk about that wasn't for his ears. For all he knows, we're here to pass a vote of censure on him. The fact is that we have reached the point where somethin' has got to be done right off quick; and if none of the Vestrymen do it, then a poor shrinkin' little woman like myself has got to rise and mount the band wagon. I'm no woman's rights woman, but I have a conscience that'll keep me awake nights until I have freed my mind."

Here Hepsey paused, and twirling her pencil between her lips, gazed around at her auditors who were listening with breathless attention. Then she suddenly exclaimed with suppressed wrath, and in her penetrating tones:

"What is the matter with you men, anyway? You'd have to pay your butcher, or your baker, or your grocer, whether you wanted to or not. Then why in the name of conscience don't you pay your parson? Certainly religion that don't cost nothin' is worse than nothin'. I'll tell you the reason why you don't support your parson: It's because your rector's a gentleman, and can't very will kick over the traces, or balk, or sue you, even if you do starve him. So you, prosperous, big-headed men think that you can sneak out of it. Oh, you needn't shuffle and look mad; you're goin' to get the truth for once, and I had Johnny Mullins lock the front door before I began."

The whole audience responded to this sally with a laugh, but the speaker relented not one iota. "Then when you've smit your rector on one cheek you quote the Bible to make him think he ought to turn his overcoat also." Another roar. "There: you don't need to think I'm havin' a game. I'm not thru yet. Now let's get right down to business. We owe our rector a lot of money, and he is livin' in a tent because we neglected to pay the interest on the rectory mortgage held by the Senior Warden of our church. Talkin' plain business, and nothin' else, turned him out of house and home, and we broke our business contract with him. Yes we did! And now you know it.

"Some of us have been sayin'—and I was one of 'em until Mr. Maxwell corrected me—that it was mean of Mr. Bascom to turn the rector and his wife out of their house. But business is business, and until we've paid the last cent of our contributions, we haven't any right to throw stones at anyone. Wait till we've done our part, for that! We've been the laughing stock of the whole town because of our pesky meanness. That tent of ours has stuck out on the landscape like a horse fly on a pillow sham.

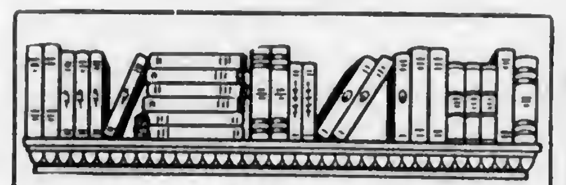
"It's not my business to tell how the rector and his wife have had to economize and suffer to get along at all; or how nice and uncomplainin' they've been thru it all. They wouldn't want me to say anythin' of that; sportsmen they are, both of 'em. The price of food's gone up, and the rector's salary gone down like a teeter on a log.

"Now, as I remarked before, let's get right down to business. The only way to raise that money is to raise it! There's no use larkin' all 'round Robin Hood's barn, or scampering round the mulberry bush any longer. I don't care for fairs myself, where you have to go and buy somethin' you don't want, for five times what it's worth, and call it givin' to the Lord. And I don't care to give a chicken, and then have to pay for eatin' the same old bird afterwards. I won't eat soda biscuit unless I know who made 'em. Church fairs are an invention of the devil to make people think they're religious, when they are only mighty restless and selfish.

"The only thing to do is to put your hands in your trousers pockets and pay, cash down, just as you would in any business transaction. And by cash, I don't mean five cents in the plate Sunday and a dollar for a show on Tuesday. We've none of us any business to pretend to give to the Lord what doesn't cost a red cent, as the Bible says, somewheres. Now don't get nervous. I'm going to start a subscription paper right here and now. It'll save lots of trouble, and you ought to jump at the chance. You'll be votin' me a plated icewater pitcher before we get thru, for bein' so good to you—just as a little souvenir of the evenin'."

A disjointed murmur of disapproval rose from sundry parts of the room at this summary way of meeting the emergency. Nelson, who had tried in vain to catch the eye of the chair, rose at a venture and remarked:

(To be continued.)



PIECES *to* SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

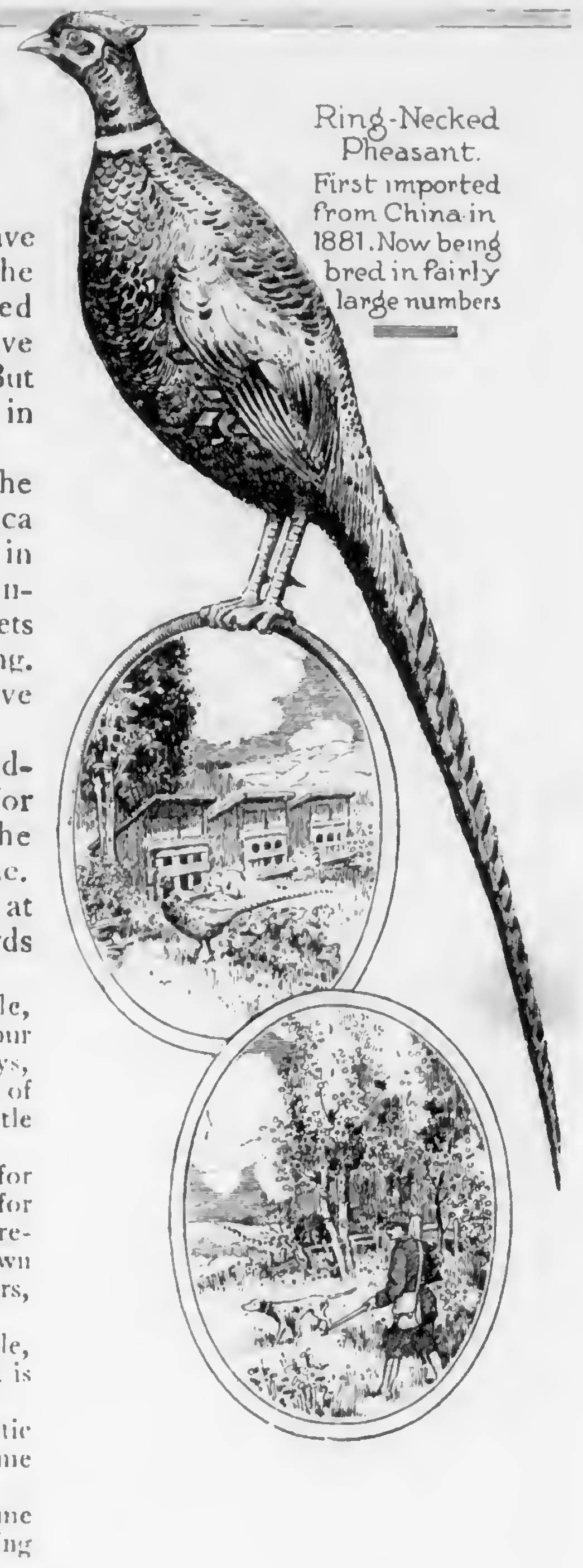
CROSSING THE BAR

Sunset and evening star,
  And one clear call for me!
And may there be no moaning of the
    bar
  When I put out to sea.
But such a tide as moving seems asleep,
  Too full for sound or foam,
When that which drew from out the
    boundless deep
  Turns again home.

Twilight and evening bell,
  And after that the dark!
And may there be no sadness of fare-
    well
  When I embark.
For tho from out the bourne of Time
    and Place
  The flood may bear me far,
I hope to see my Pilot face to face
  When I have crossed the bar.

—Tennyson.

Breed Game Birds on Your Farm



Ring-Necked Pheasant. First imported from China in 1881. Now being bred in fairly large numbers

FOR many years, we in America have spent much time bemoaning the disappearance of our feathered game. It is indeed a fact that we have little game to eat and little to shoot. But we can have an abundance of game in the fields and on the market.

The farmers of this country have the land and the enterprise to make America the greatest game producing country in the world. They can supply the ever increasing demand of American markets and American sportsmen by game farming.

To you, game farming should prove of interest for three reasons:

It is profitable from a marketing standpoint. The demand for eggs and for breeding stock is much greater than the supply, and will be for years to come. Pheasant eggs, for instance, sell today at from $20 to $25 a hundred. Live birds bring from $5 to $7 a pair.

It will, at small expense in time and trouble, supply you with an abundance of food for your own consumption. Pheasants, wild turkeys, quail, grouse, and other birds forage much of their own food, and require comparatively little attention.

It will provide more shooting for you and for everyone, for it is a fact that game raised for sporting purposes can not be confined in any restricted area. At the same time, those who own large acreage, or who pool their land with others, get profit from those who pay for sport.

Game farming can be done on a small scale, and as a side issue to regular farm work, or it is a profitable occupation in itself.

Women on the farm who are raising domestic poultry, will find it worth while to breed game birds as well.

When conducted on a large scale, a game farm produces sufficient income to be a paying business in itself.

But this subject is too big to be properly treated in this space. Every progressive farmer is sure to be interested in it. Write for the book, "Game Farming for Profit and Pleasure," which will be sent to you without cost. It tells of the subject in a most interesting and informative manner. Fill out the coupon below and a copy will be mailed you at once.

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HERCULES POWDER CO.
Wilmington, Delaware
Manufacturers of Explosives; Infallible and "E. C." Smokeless Shotgun Powders; L. & R. Orange Extra Black Sporting Powder; Dynamite for Farming

Game Breeding Department, Room 225
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Size	Price	Size	Price	Size	Price.
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The Wheat Yield Tells the Story of Western Canada's Rapid Progress

160 ACRE FARMS IN WESTERN CANADA FREE

The heavy crops in Western Canada have caused new records to be made in the handling of grains by railroads. For while the movement of these heavy shipments has been wonderfully rapid, the resources of the different roads, despite enlarged equipments and increased facilities, have been strained as never before, and previous records have thus been broken in all directions. The largest Canadian wheat shipments through New York ever known are reported for the period up to October 15th, **upwards of four and a quarter million bushels being exported in less than six weeks,** and this was but the overflow of shipments to Montreal, through which point shipments were much larger than to New York.

Yields as high as 60 bushels of wheat per acre are reported from all parts of the country; while yields of 45 bushels per acre are common.

Thousands of American farmers have taken part in this wonderful production. Land prices are still low and free homestead lands are easily secured in good localities, convenient to churches, schools, markets, railways, etc. There is no war tax on land and no conscription.

Write for illustrated pamphlet, reduced railroad rates and other information to

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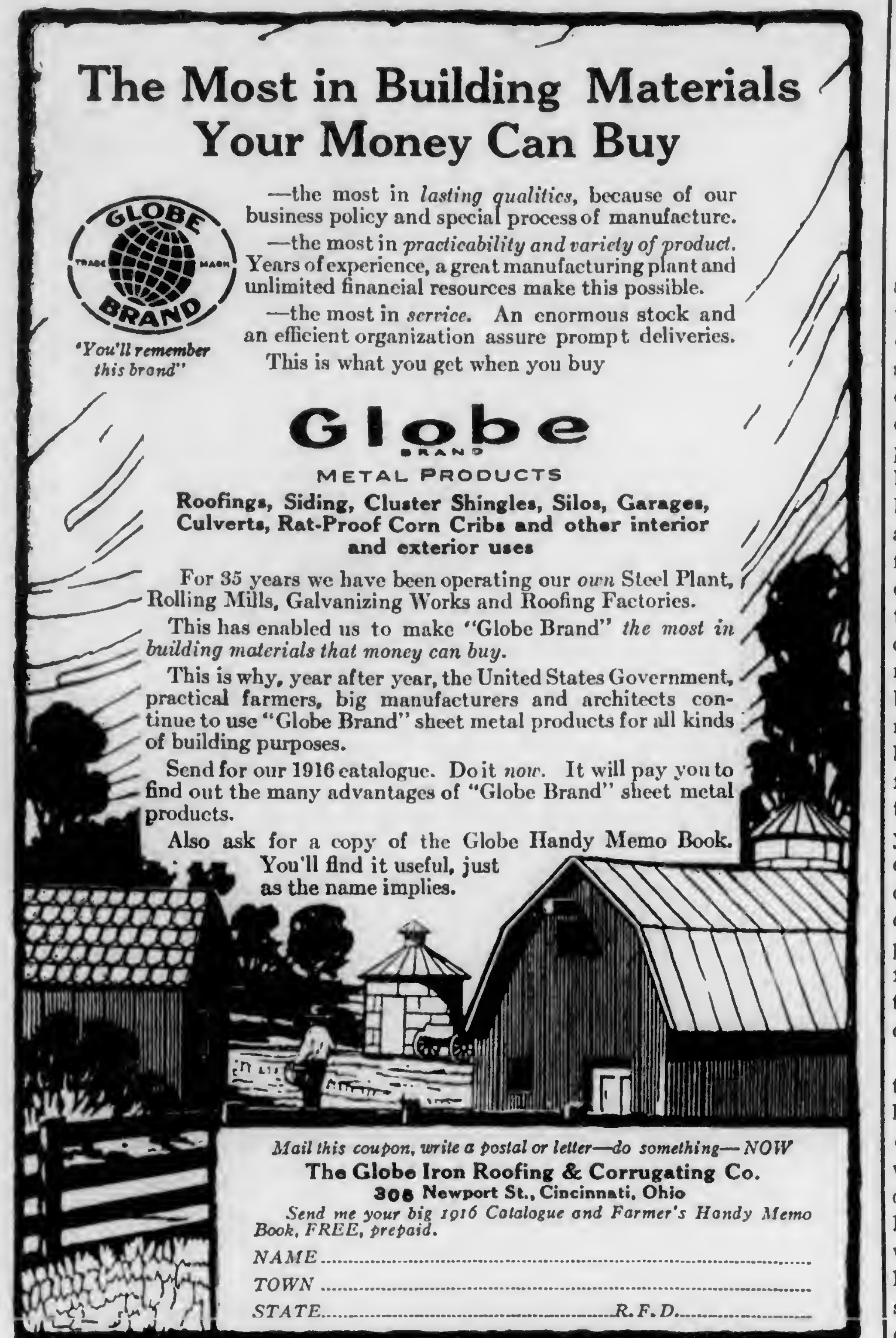
Canadian Government Agent.



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—the most in *lasting qualities*, because of our business policy and special process of manufacture.

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This is why, year after year, the United States Government, practical farmers, big manufacturers and architects continue to use "Globe Brand" sheet metal products for all kinds of building purposes.

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LIGHT
and power from your brook

If it has a few feet fall, your brook can do most of the hard work. It will pump water, light the house, wash the clothes, run the farm machines, thresher, feed mills, separator, etc.

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costs little to install, gets all the power of the stream, runs a lifetime. No freezing up, no care, no cost for operation.

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For Skunk Possum Coon Mink Wood-Chuck 'tc.

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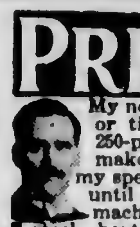

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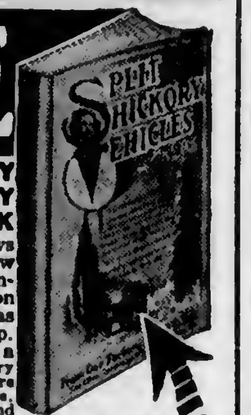

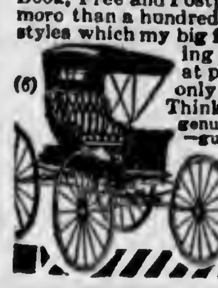

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New Holland **Rock Crusher and Limestone Pulverizer**

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NEW HOLLAND MACHINE CO.
Box 71, New Holland, Pa.

Life Insurance--Man's Guarantee of Financial Independence

II---The Nature of Life Insurance

By Bruce D. Mudgett

The substance of the argument presented in the first article of this series was that during the productive period of a man's life he accepts certain responsibilities: The care of a wife thruout her life, of children until they become self-supporting or until their support devolves upon another, responsibility for the successful operation of a business, or for his own care during old age; that these responsibilities are satisfied by means of the income which he earns thruout a number of years and that the complete satisfaction of his duties may fail in the event of his premature death, and the cutting off, thereby, of his income. For instance, it may be assumed that, once a child is born, its care will fall upon the father for the next twenty years. If this is true the father must live for twenty years after the birth of the child and continue to apply a part of his income during this period to the care and education of the child, or he has not fully provided for it. Premature death of the father, then, is the one great risk taken that the child's education will not be completed.

A solution of this difficulty lies in the fact that not all men die prematurely and that it is possible for them to enter into a co-operative agreement where each helps each. Since early death may equally well be the unlucky lot of any particular individual, but will not occur to all, and since it is not known in advance which particular persons will die, men may agree with each other to make contributions to a fund that will be used to satisfy the unfulfilled obligations of those who die early.

This is the essence of any insurance plan. Its operation is easily understood in fire insurance. No man expects his house to burn but he knows perfectly well that a number of fires occur every year and that his property may at any time be one of the number to burn. He, therefore, pays insurance premiums to a fire insurance company, and his premiums together with those of many other property owners create a fund which is used to pay the losses of those who have fires. He realizes that this premium money is paid for "protection", that the fund so created will be just sufficient to pay losses and the expenses of the fire insurance business if the premium has been correctly determined; and he knows further that the premium once paid is gone forever and he will not expect it to be returned to him. In other words, he has substituted for an uncertain loss—the chance of losing his property—a certain loss—the amount of the premium paid, and he knows that if his property burns it will be replaced by money taken from his premium fund.

Scattering attempts to apply this co-operative principle in the case of premature death and for the purpose of fulfilling the uncompleted obligations of the deceased have been in operation since the beginning of modern times, and many such plans are in existence today. The old craft guilds of the middle ages are said to have provided a burial fund on the death of a member; and this marks the beginning of the modern life insurance company. The New York Stock Exchange today, upon the death of a member, assesses each surviving member $10 and the resulting fund is paid to the widow. Many fraternal societies which are not organized for the distinct purpose of furnishing insurance to members do nevertheless provide funds by assessment and pay them over to the dependents of deceased members.

The maintenance of many such funds in the United States today testifies to the existence of the problem created by premature death. That such haphazard schemes do not constitute a solution of the problem is due first to the fact that they are available to a restricted number of persons only, while premature death with its attendant consequences is a risk which faces every man who earns an income and accepts needs of others with it. The second reason for the failure of these half-way measures is that none of them are scientifically organized. The creation of a fund which will, with approximate exactness, satisfy the unfulfilled obligations created by premature death requires first of all a correct estimate of the number of persons who die early.

The only organizations of today which as a whole have met this problem scientifically and have developed "mortality tables" showing correctly the rate at which human beings die, and have based their premiums for life insurance protection on these tables are the old-line life insurance companies. On the basis of the premium rates which they charge today they can furnish contracts to be paid for by an annual premium which contracts absolutely guarantee the continuation, after his death, of a sufficient portion of a man's income to satisfy his future responsibilities; or which guarantee that at his death a fund will be paid to his dependents or his business which can be used to take the place of his income.

The contracts used by the life insurance companies to supply the different insurance needs of an individual will be taken up in detail in our next article.

HOW YOU CAN AID THE RURAL MAIL SERVICE

Next time you see the carrier ask him for a Postal Money Order Application, and take it home with you. When you want a Postal Money Order fill out the blank application, and take the ready change to the carrier. On the back of the order is the schedule of fees.

The Post Office Department expects every patron to fill in his own applicacation blank, and present the ready change, but the custom is for the carrier do it while the patron stands by. The carrier gladly does this, but while he is using his time doing so, that railroad train is speeding on, and the result is —the carrier's mail does not go out until the next day, and all because the patrons on the Rural Free Delivery Route asked the carrier to perform a service that should have been done by the patrons.

Carriers issue from five to ten and more Postal Money Orders on each trip. It requires from five to eight minutes to get all the forms filled out for each order. Presuming there are but five orders and the time consumed is but five minutes, you will see twenty-five minutes of the carrier's time gone to the bad.

And here you have it again, the patrons on the Rural Free Delivery Mail Routes are too often themselves responsible for tardy mail delivery, and yet the carrier is blamed and Post Office Department cussed.

Spreads a Load in 3 Minutes

Covers 3 Rows of Corn at Once

That means a saving of half your time and a *big saving* on machinery and horseflesh. It means that with the New Idea you can do two days spreading in a single day. Our wide spread saves you half a mile of travel on every acre.

You need a spreader because it's the only method of preventing the loss which comes from improper spreading. Manure has a fertilizing profit of $8 to $10 per acre. You are losing a great part of this when you try to spread by the fork and wagon method. The manure lying piled in the barnyard loses by leaching and firing and you lose in the field because it's not spread right. When too thick the soil is burned and when too thin, or when patches of ground are missed, there is not the proper fertilization.

The only sure way is to use a spreader. Not just any spreader but one that spreads wide and evenly, does not choke and can always be depended on to do its work right. You'll find such a machine in the low down, scientifically built

NEW IDEA
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It spreads 6 inches beyond the wheels and gives a total spreading width of 7 feet, covering 3 corn rows. Can be loaded as high as a wagon box,—the double cylinders insure thorough pulverization and prevent choking. Light draft.

The two cylinders pulverize *all* the manure, and the whirling distributor throws a fine even spray of pulverized manure across three corn rows. It spreads beyond the wagon tracks, and you don't have to drive over the spread manure.

The New Idea has a variable spread of 3, 6, 9, 12, 15, 18 loads per acre. Spread is controlled by convenient levers or can be entirely thrown off by convenient foot latch. The variable feed enables you to give each part of the soil exactly the amount of manure needed.

Wheels track but front wheels turn under for easy turning. Endless chain conveyors with steel bars scrape the spreader bed clean. No manure shreds left to freeze in winter and rot in summer.

The New Idea is built like a wagon box, solid bottom with heavy cross pieces supported by the full width of the side. Rear end properly braced to prevent spreading of the bed and cramping of the bearings.

A Really Successful Chain-Drive Manure Spreader

A simple mechanism that can't strip, break, freeze or get out of order. The New Idea heavy chains will not break even under unusual pressure. Direct axle feed prevents loss of power. Sprocket at one end drives cylinder and cams at other end operate feed. **We guarantee** the New Idea to spread without choking when operated according to directions. We also guarantee it for one year against breakage from **any cause** and guarantee it indefinitely against defective material or workmanship.

We also build the "NISCO"—a special low down type with narrow front truck.

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No matter how much you know about farming the book will present to you some new facts on fertilizing. **Ask the Dealer** for a copy and free demonstration of the New Idea. If there is no New Idea dealer near write us for free copy and illustrated catalog.

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FINDERNE PRIDE JOHANNA RUE
World's Champion Milk and Butter Cow
28403.7 lbs. - - Milk
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In 365 Days.

Read What Her Owner Says:
FINDERNE STOCK FARM
"We have made another world's record with our Holstein cow 'Finderne Pride Johanna Rue, No. 121083.' I am glad to say that during her test she was fed mostly on your SCHUMACHER FEED, which in my estimation is a very valuable feed for dairy purposes."
(Signed) Bernhard Meyer,
Finderne, N. J.

Schumacher Feed has helped make almost every World's Record in recent years. The owners of these valuable cows are naturally very particular about the feed they use, especially when their cows are on tests for World's Records. They don't take chances with ordinary feeds. **They know** that the "right feed" is a most important essential. **They know** that they can rely on **Schumacher Feed** because it has proved its efficiency time and again. **They know** it will supply the needed vitality; keep their cows in the "pink of health"; enable them to withstand the strain of long and forced milk production, and help them to produce record-breaking yields. It will help your cows make BETTER RECORDS for you, which means BIGGER PROFITS.

TRY THIS SCHUMACHER FEEDING PLAN

Feed as the grain part of the ration, three sacks of *Schumacher Feed* to one sack of gluten, oil meal, linseed meal, dried brewer's grains, dried distiller's grains, malt sprouts, Blue Ribbon Dairy Feed or other high protein mixture. When cottonseed meal is used, feed four or five sacks of *Schumacher Feed* to one of cottonseed meal.

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ESTABLISHED 1880
PUBLISHED WEEKLY

Vol. 39—No. 10. PHILADELPHIA, PA., SATURDAY, MARCH 4, 1916. 2 Years for $1.00

FRESH EGGS FOR SALE.

By HOWARD MITMAN,
Northampton Co., Pa.

It is easy enough to produce fresh eggs. In fact, most hens lay no other kind, altho it has been noticed that a few hens lay no fresh eggs on Sundays. Yet, whether the eggs we have to sell are produced to advantage is a very different question, for it has been repeatedly asserted by those in position to know that a large proportion of the eggs produced are marketed at a loss. Hens will produce eggs, few or many, without much coaxing; and, likewise, most hens under ordinary conditions lay good eggs. Perhaps a fraction of one percent suffering from neurasthenia or some other functional ailment lay eggs unfit for use; but it is the after-handling that is responsible for much of the miserable stuff that is on the market.

"Fresh eggs" is a very elastic term. Like "charity," it covers a multitude of sins. In the eyes of the law, I believe, it includes about every thing in the egg line that has not felt the shadow of the cold storage plant. It may be possible, by this rating, to include the china eggs, (or are they glass?) I buy from my friend Woolworth for nest eggs; or the pseudo-chocolate confections concomitant of the Easter Rabbit.

"Fresh eggs" and "cold storage eggs,"—these two, and the poorer of these is often the "fresh egg." The time honored jest: "A fresh egg is so-called because it never was 'fresh'," gains additional point under up-to-date conditions. In these mid-January days we are shipping some of our eggs to the New York district and we are interested in New York prices. These are quotations on "fresh eggs" at this time: 17, 19, 20, 21, 22, 23, 27, 30, 31, 32, 34, 35, 36, 37, 39, 41 cents per dozen. SEVENTEEN CENTS per dozen! No hen of my acquaintance would demean herself by laying a January egg worth only one and one-half cents.

It is interesting and suggestive to go over these quotations and try to determine what causes this extreme range in prices. One of the divisions is called "dirties". We all know what that means. A dirty egg is about as unwholesome-looking an object as may be found. I'll none of it. The market, however, takes "dirties," at a price: "No. 1 dirties, 22@23 cents; No. 2 dirties, and poorer, (save the mark!) 19@20 cents." Number 1 dirties! Number 2 dirties! When I was a lad I was very unusual—I acquired a dirty face with great facility; but my mother in scrubbing me never graded the grime as number one or number anything else. She simply said "You dirty boy!" and scrubbed. But then, nobody wanted to eat me, and the selling of dirty eggs is an effort toward giving every one a chance at that "peck of dirt" every one must eat annually.

Let me quote a few sentences from the market report I am considering. "Qualities are irregular." "The bulk of the business is in range of 32@33½ cents." "There are very few of the qualities necessary to command any higher quotation." "Nearby Hennery Whites, fine to fancy, 39@41 cents." As usual, there is room at the top; between 32 and 41 cents there is a difference of 9 cents per dozen. This in itself would be considerable of a profit. Assuming that a paying hen lays at least 10 dozen eggs per year, the profit accruing thru better handling of the eggs is 90 cents per bird. And the probabilities are that if you have gumption enough to handle the eggs so well as to command that extra 9 cents you will also handle the fowls so well that they will respond more generously. It all resolves itself into "the man behind the gun."

The other day a neighbor remarked that he had several cases of eggs to take to market but did not know when he would find time to do it. In answer to a question he said he had sold the last eggs previously about four weeks ago. Yet he claimed his were strictly fresh eggs and should sell for the best price. There are a number of reasons why this is not a good practice. Eggs absorb odors very readily and unless they are kept in a place absolutely odorless (there are few such places on the farm or elsewhere) they will sooner or later become tainted. The longer the exposure the greater the infection. Then, also, even if kept in a cool place, there will be some evaporation and the egg becomes lighter. These operations going on together give the egg that rusty look which makes one unhesitatingly dub them "old and stale." To this we may add the likelihood that the market will decline at this time of year, and nothing will be gained. On the other hand, those persons who think they gain an advantage by holding eggs when the prices are advancing, are really losing, did they but know it. They cause buyers to look with suspicion on all they may offer and they cannot continuously command the highest prices.

IT IS THE EARLY HATCHED PULLET THAT FILLS THE EGG BASKET WHEN "EGGS IS EGGS"

Many eggs are sent to market just as they come from the nest. There are days in winter as well as in summer when biddy is on her best behavior. She breaks no eggs in the nest or elsewhere; she does not soil her feet or her feathers, or, if unfortunate enough to do so, she undoubtedly uses the doormat and boot-scraper before entering the nest. But these are the red letter days. As a rule many of the eggs need cleansing before they are fit to sell. Those charged with "hunting eggs" do it once a day if convenient, or not so often if other interests press. A good sized nest on a high shelf, wall or ledge, will hold several dozen eggs and not be half filled. It is easier to climb up there once a week or so! Hens, given half a chance, will lay in out-of-the-way places and the eggs may not be found for a week or two. But it takes only twelve of these for a dozen, so in they go.

During the hatching season some thrifty souls sell as "fresh" the eggs they test out of the incubators. They have even been known to include eggs from the second or the third testing. I have no quarrel with those who strive to turn an honest penny by selling eggs from the incubators, provided they sell them exactly for what they are. If the buyer knows he is buying incubator discards, it may be right enough. Tastes differ. But there is always danger that in selling again he will forget to mention that little incubator excursion of the eggs. It reminds me of the story of a dealer who told me that butter he could not otherwise sell, even for axle grease, he took to a baker. "I've carried butter into his place," he said, "so ripe I had to hold it to one side so I could

(Con. on page 14.)

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Cross Roads Farmers' Club

Fertilizers and Soil Amendments

In keeping with the idea that the best help is self help, the people in the vicinity of Cross Roads some time ago conceived the idea of holding weekly meetings for the discussion of questions that would aid in the much-talked-of rural up-lift work. The indications are that it will result in more real accomplishment than the more pretentious meetings held in the cities by city people however earnest they may be in the welfare of rural people. The Club discusses questions of soil, crops, marketing, home improvement, schools—in fact anything that means the betterment of life in the country. They realize that the soil is the basis of prosperity and of life itself, so they are interested in improving it.

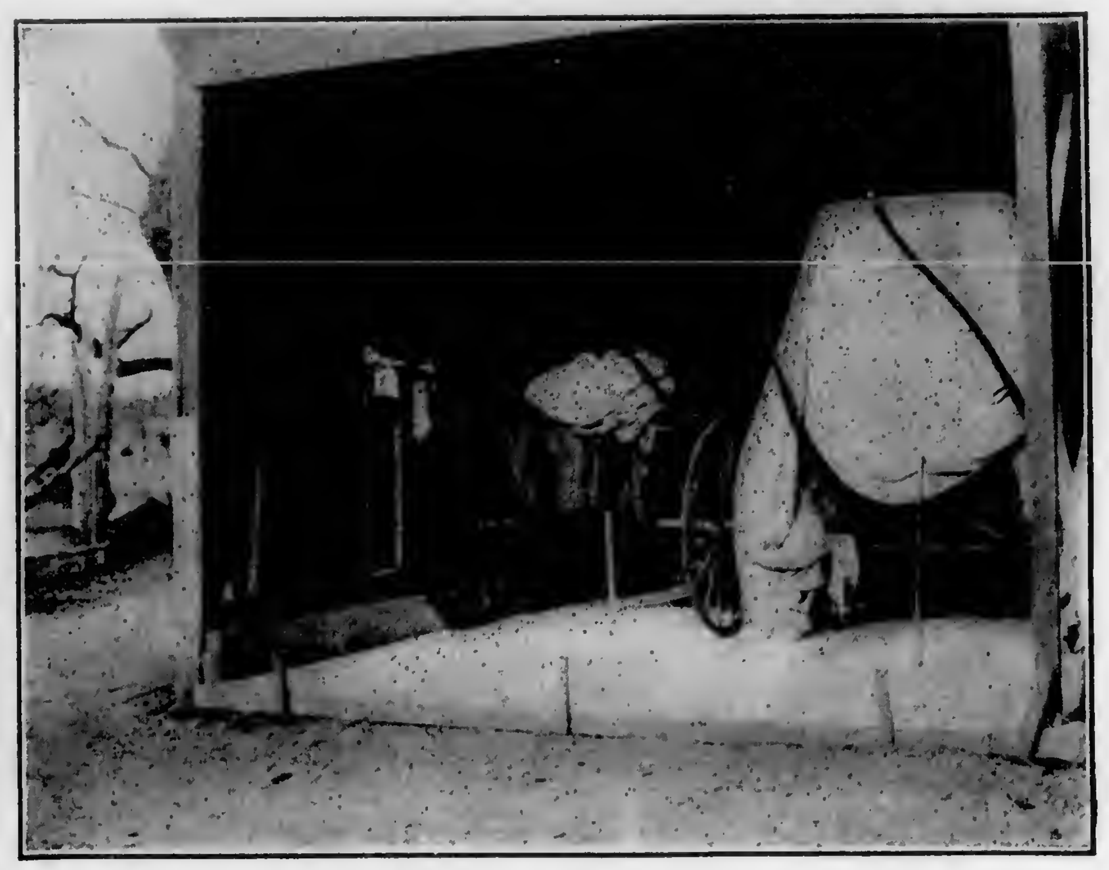
Fertility of the soil means its capacity to produce and whatever is done that tends to increase growth and yield may be said to be increasing fertility. Some of the important factors are: The moisture content, the physical condition, the bacterial life, and the amount of plant food. The farmers who have been working to improve soil conditions in all these lines will be best able to weather the present season of fertilizer scarcity.

The last meeting of the Club had under consideration the present problem of meeting the need for applied plant food during the temporary period when it is impossible to purchase all the usual kinds and amounts of commercial fertilizers and their sentiments are here given as suggestions to others.

Chairman Thorp: "This community has been using considerable commercial fertilizer in past years, and it is found that the present war in Europe has shut off shipments of potash, and the immense quantities of nitrate of soda and sulphuric acid which are being used by manufacturers in making explosives has very much reduced the supply and increased the cost of these for agricultural purposes and the question is, what can we do to tide over? Of course, the man who has not been doing good farming in past years is in the worst fix. The man who has not been adding humus, conserving the manure and using lime judiciously will be handicapped the coming season. It must be remembered that it is possible to purchase in some form or other phosphoric acid and nitrogen, and a little potash salts. It will pay most farmers to use some even tho they cost more than usual. When we figure the increased cost per acre it is not so great. Even tho a fertilizer that cost $22 per ton last year should cost $28 this year, the increased cost per acre, when 200 pounds is applied, is only 60 cents.

"We will now take up the question of home methods in helping out in the present situation. We have Farmer Woods with us this evening and as he keeps posted on practical chemistry we call on him for suggestions."

Farmers Woods: "Some of the old German gardeners have always claimed that it was good practice to apply salt to soil. This practice was laughed at by most people, even scientific men, because the analyses of salt showed that it contained no element of fertility. But it has been found that the old German gardeners had some foundation for claiming benefits from salt because our chemists say that it liberates and makes soluble the potash already in the soil. Even sandy soil contains as much as one percent of potash and some heavy clays as much as five percent, but most of it is very slowly soluble. Prof. Lipman, of the New Jersey Station says that it will pay to use 150 to 300 pounds of salt per acre for this purpose during the present situation. It should be bought for $4.00 to $6.00 per ton. Quick lime and hydrated lime will also assist in liberating potash. Intensive cultivation helps by aerating and exposing the particles to the sun. Gypsum or land plaster which used to be so generally applied was valuable chiefly because it liberated potash and enabled clover to grow where it would not otherwise."



CONCRETE FLOOR IN WAGON SHED.

Farmer V. P. "I have been reading Dr. Thorn's book, "Farm Manures," and I find that one half of the value of manure is in the urine of animals. Most of this is lost on the average farms because it goes thru the floors to the ground beneath. Some of it is taken up by bedding, but unless the bedding is finely cut straw or corn fodder and used liberally, little is absorbed by it, as it runs away before it has time to soak into the material. The only way to save the liquid manure is to have concrete floors in the stables. A load of manure without he liquids which would be worth $2.00, would be worth $4.00 if the liquids were all absorbed. Even those who use bedding liberally on a dirt or wooden floor probably do not save more than one-third or one-half of the liquids. Where one hundred loads of manure are made in a year, a concrete floor would pay for itself in two or three years in fertility saved. Three-fifths of all the potash in the manure of an animal is found in the liquid part and since this is lost on most farms it is no wonder they are deficient in potash. Using Dr. Thorn's figures I find that the urine from each adult animal is worth 10 cents a day for its nitrogen and potash, basing the value on the cost of nitrate of soda and potash salts today. Can we afford to let it go to waste?"

Farmer Wall: "The scientists tell us that phosphoric acid is the limiting factor in production; that is, many soils are naturally deficient in this element. We can add nitrogen by applying manure and growing clover and other legume crops. The soil is rich in potash and we can liberate that as Farmer Woods points out, but when we are short on phosphorus it seems the only way to increase the supply is to buy it. Our crops are not larger than can be supplied by the element that is least sufficient. What shall we purchase to get phosphoric acid?"

Farmer Cleaver: "I have tried different materials and found them all satisfactory: Acid phosphate, bone meal, Thomas slag, bone black, etc. I have usually paid about a dollar a nuit, that is, one dollar for each one percent of phosphoric acid. It will cost more this year."

Farmer Seymour: "I move you that the Secretary be instructed to get prices on the different acid-carrying goods; also, on takage, fish scraps and sulphate of ammonia for nitrogen."

This was agreed and a club order will be made up at next meeting and handed to a dealer; also, sent to wholesale firms.

Farmer Dickey: "What I want to know is, will it pay a man who has no boys of his own to lay out to do much farming this year? Since help is likely to be scarce, what am I to do, having no home help?"

"Peeley" Helper: (The remarks of Farmer Helper were purely personal and we omit them).

The Chairman: "The committee has arranged for a good social time the next meeting. The ladies are invited, and besides a literary program there will be eats." (Loud applause.) "The meeting stands adjourned."

WAGON SHED FLOOR

The spare time of a few warm winter days can be used to much advantage in putting a concrete floor to the wagon house. Two days' work will lay a floor like the above, to which wagon wheels will not freeze, is easily kept clean, and adds 25 percent to the looks of the building.

Having dug up the floor to the depth of seven inches, lay a foundation of rough stone, four inches thick. Three inches of concrete on top of this, mixed in the proportion of one of cement to four of sand makes a firm, even surface. It should be faced with a half inch of cement, thinned with more water, and levelled with a straight-edged board.—Henry Ro[illegible] New Jersey.

Queries and Comments

Bracken

"Can you tell me how to kill brakes ((bracken) out of my pasture, as it is growing up very badly with it? It is the small fuzzy top kind. Nothing will eat it." A. W., Wayne Co., Pa.

Bracken is found in almost every locality from the Atlantic to the Pacific. It is one of the many varieties of fern and varies in height from a few inches to six feet. It grows from a long, underground, creeping rootstock which sends up a shoot every few inches. Plowing and cultivation two or three years in succession, and an application of lime is the best method of eradication. In some situations it is not advisable or possible to plow the ground, and frequent cutting is the only way left. There is a good suggestion in "Five Hundred Points of Good Husbandry," written by Thomas Tusser in 1557:

"In June and in August, as well doth
appear,
Is best to mow Brakes of all times of
the year."

Sweet Clover

"I am a subscriber to your paper and look anxiously for it every week. Will you kindly tell me thru your columns how to prepare corn stubble for sweet clover, and how to inoculate for it? Tow much hydrated lime per acre should I use? It is light sandy loam. Which is the better variety, the write or the yellow? What time should I sow?" O. B. R. C., New Jersey.

Since sweet clover grows and spreads so readily in places on waste land many people have the idea that it is very easy to secure a stand. But numerous failures, however, show that it is not the case. It is thought that a very important requirement is a thoroly firmed seed bed. Also, the right bacteria must be present in the soil. On soil where it has not previously grown it is necessary to inoculate by spreading soil taken from land that is growing it, 200 or 300 pounds per acre, or, by procuring and adding commercial culture prepared for sweet clover. Directions are sent with each purchase.

Some farmers prefer to sow it with a light seeding of oats, believing they get as good results, and a crop of oats also. It is probable that 800 or 1000 pounds of hydrated lime per acre would be sufficient on your soil to make it friendly to sweet clover.

The yellow flowered variety is the kind generally grown in New Jersey. While it is not quite so leafy and does not grow as tall as the white it seems better adapted to eastern conditions.

Seed Corn Improvement

Under the ear-to-row test for improving corn, why not the most productive shelled separate and planted likewise as far as each will go and the choicest ear at each ear-to-row test saved to be planted likewise again? Will not this make your whole field a multiplying plot for better yield, and assure you in your ear-to-row test of getting an ear that you know did produce; for greater yield and better uniformity.—J. C. V., Newark, Del.

Division of Property

"A man living in Pennsylvania dies leaving a widow and children, who are of age. He leaves a farm the deed of which is in his and his wife's name. The farm is stocked and has tools; there is also money in the bank and some judgment notes. There was no will. How does the Pennsylvania law divide this estate?" H., Bradford Co., Pa.

The conveyance of the farm to the husband and wife created what is known as an estate by the entireties. One of the features of such an estate is that upon the death of one of the parties the entire estate goes to the survivor, and therefore in this case the widow would have an absolute estate in the entire farm. A tenancy by the entirety may also exist in personal property, and if the stock and the tools on the farm were purchased out of the products of the farm, or were owned by the man and wife jointly, they would be tenants by the entirety of such property, and upon the death of the husband the entire ownership would vest in the wife. If, however, the farmer purchased the stock and tools out of his own money and was the sole owner thereof, the interest of the widow would be the same as in the money in bank and in the judgment notes,—in all of which she would have a one-third interest absolutely. The widow is first entitled to property to the value of $300, known as the widow's exemption; this payment has priority over any debts which the husband's estate may owe. The children divide equally the remaining two-thirds of the personal property.—G. G. and H.

Bridge Contracts

"Does the present Pennsylvania road law allow the township supervisors to make bridge contracts of any size and to build and repair all dirt roads themselves without first offering the work to the lowest bidder?" Farmer, Bradford Co., Pa.

The road law imposes on the township supervisors the duty of maintaining the roads and bridges in proper condition, and for this purpose it empowers them to employ laborers and to fix their wages. They are authorized, if they deem it advisable, to oversee and work on the roads themselves,—their compensation in such case to be fixed by the township auditors, but the rate per day not to be less than $1.50 nor more than $3. The supervisors are also empowered to make contracts of not exceeding four years duration for the maintenance of not more than ten miles of road, the specifications for such contracts to be fixed by them. Contracts for the repair or construction of township bridges must either conform to standard plans prescribed by the State Highway Commissioner, or the plans, specifications or estimates therefor must be approved by him. The law does not require the township supervisors to offer bridge and road work to the lowest bidder.—G. G. and H.

SEEDING TO GRASS

A stand of clover is dependent upon many factors, such as weather conditions, soil, quality of the seed, and weeds. If a nurse crop is used, rye, wheat, and oats are usually ranked for their efficiency as nurse crops in the order given, but farmers reverse this order because they would rather have oats and wheat in their bins. The nurse crop of course, does not directly aid the clover, but is used to keep down the growth of wild grasses and weeds which tend to crowd out and destroy the young plants. In many cases where weeds do not bother, the clover will often make a better growth alone than where it must compete with the grain crop. On thin lands and in dry seasons, a nurse crop is generally a disadvantage, but under favorable conditions a stand can usually be secured with a nurse crop and the use of the land for the season is not entirely lost.

If a nurse crop is sowed in the fall, the clover may be broadcasted on the meadow the following March or April on a frosty morning when the ground is nicely "honey-combed" by frost. With the soil in this condition, the clover seed lodges in small cracks or crevices and is covered when the ground thaws. The usual rate of seeding the clover at this time is about six or eight pounds.

Some prefer to drill the clover seed with a disk drill, crossing the rows of wheat or rye at right angles. The seed should be run into the main hoes of the drill so it will be covered. Run the disks shallow and the wheat or timothy plants will not be disturbed to any great extent.

Another method which is preferred by some is to sow the clover and timothy on the wheat after the ground is dry enough to work and cover by a light harrowing.

Timothy and clover may also be sowed alone in the spring, but if the land is foul with weeds, a light seeding of grain, to be cut for hay when it is in the soft dough or milk stage, will help to keep the weeds under control.

It is wise to order the grass seed early not only to guard against an advance in price but also to have it on hand when the time comes to sow.

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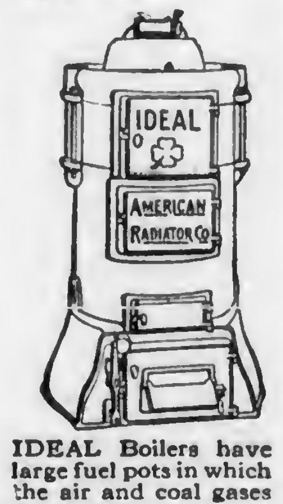

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Pyrox is the one double-purpose spray that has survived the exacting tests of eighteen years by fruit growers all over the United States and in many foreign countries, on practically all kinds of fruit and vegetables. It kills leaf-eating insects. It prevents plant diseases such as rust, rot, blight, wilt, etc. All ready to use by mixing with water. Does not clog the finest nozzles. James J. H. Gregory & Son, of Marblehead, the great seed firm, say: "If it were not for Pyrox, we could not raise a crop of melons or cucumbers." Why not get acquainted with Pyrox this year? You might like it too!

Large catalog free. Order of nearest dealer or send $1 for trial crock big enough to make 35 gallons spray.

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No Stooping An astonishing labor saver.
Actually does three men's work easily. No lame back—walk upright.

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Sets, waters, fertilizes and covers every plant. Transplant tobacco, tomato, cabbage, sweet potatoes, etc.—save tedious labor—get full stand—better quality crop. Saves cost every day used. *Guaranteed.* Write today.

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Book of Berries—Free Send today for our 1916 Book of Berries.

Gives results of our 30 years experience with small fruits, tells how to select, plant, cultivate, etc. Buy the

Plants That Pay

Our true-to-name small fruit plants are hardy and ever-bearing. 200 acres devoted to their culture. Several varieties for your soil and climate. Packed fresh for shipment. Send for the Berry Book *today.*

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W. F. Allen Co.
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A pair of mated EVERBEARING STRAWBERRY PLANTS FREE if you will report as to your success with them. Will bear loads of big, red, berries from June to November. We have counted 480 berries, blossoms and buds on a single plant. A postal will bring the plants, also enough seed of the new CEREAL FETERITA to plant a rod square of ground. Also a pkt. of perennial ORIENTAL POPPY seed. Send 10 cts for mailing expense or not, as you please. Write today and get acquainted with
THE GARDNER NURSERY COMPANY
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VIGOROUS BERRY PLANTS

Millions of the hardiest of all Maryland grown varieties of standard and ever-bearing strawberry plants.

Vigorous plants that are bound to grow and produce big yields.

Send for free copy of catalog. It describes both strawberry and dewberry plants.

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Start right with my hardy Pennsylvania grown grafted trees and avoid disappointment. Handsome catalogue free.

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That secures highest prices for your fruit. Write for 1916 catalog showing our complete line and secure your baskets and crates at WINTER DISCOUNTS.

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These Seven Cows

May all be kept for one year on the product of one acre. Keeping seven cows for a whole year on one acre goes a long way toward reducing the cost of milk. **Ross' Eureka Corn** produced in one year on one acre 70 tons and 800 lbs. of the best quality of ensilage. This enormous crop won our $50.00 gold prize.

We offer $100.00 in gold to the first party breaking this record with Ross' Eureka Corn. Every package of Ross' Eureka Corn bears our trade mark—the man holding the stalk of corn. We do this for your protection, because there has been so much corn sold as Eureka which is not Ross' Eureka and does not produce the same results.

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Grows tallest, has the most leaves, greatest number of ears. The four heaviest acres of this corn in one year gave a total yield of 200 tons and 96 lbs. This is not much above the average yield for Ross' Eureka Corn if it is planted under favorable conditions. Ross' Eureka Corn shelled is always shipped in our trade-marked burlap bags and ear corn is shipped in rat-proof trade-marked crates holding 70 pounds. We sell other varieties of corn—Leaming, Mastodon, White Cap, Yellow Dent, etc.; also Sudan Grass. The new forage crop grows 7 to 8 feet. Grass seeds, our Worcester brand Timothy 99 50/100 pure. Other varieties as pure as men and machinery can make them. Send for our 120-page catalogue. It contains everything you need for farm, garden, dairy, orchard and poultry. It is free. Supply is limited.

ROSS BROS. COMPANY, 41 Front Street, Worcester, Mass.

Asparagus Culture---I

By C. C. Hulsart, Monmouth Co., N. J.

Asparagus grows wild along our tide water shores in the drift sands and among the sages, and many of these plants have been sending up annual crops of shoots for nearly or quite a generation. Insect pests and fungus diseases seem to do but little if any harm. In fact the rust that is now prevalent among all cultivated plants rarely ever attacks it. We often wonder why it is that this wild "grass" lives on and on indefinitely without an apparent struggle, and in a soil quite destitute of plant food elements, while the grower of this most delicious of vegetables has all sorts of troubles and anxieties.

If some one was to visit these wild plants three or four times a week and cut all shoots that appeared above ground and do it for over two months, how long would these wild crowns live? Not forty or fifty years I assure you. The wild asparagus has only to live and produce one crop of shoots while the cultivated plant is taxed to its utmost limit by that continuous cutting. In order to live at all it must do a season's work after the cutting season ends, and it has only half a season to do that work in. Then too it must make a wonderful bud formation during that short season or it becomes exhausted before the next cutting season is over.

From another view point, the cultivated "grass' is expected to cut shoots from half an inch to two inches in diameter while the wild plant produces shoots from half an inch in diameter down to the size of straws. When we stop to reason this out there can be but one logical conclusion; that those varieties which are bred to do the work must be of strong constitutional vigor. This can be had and maintained only by a rigid selection of seed for starting the young bed.

There seems to be one class of farmers who think that so long as a seed will sprout and grow that is all there is to it. There is another class who seek the best and then content themselves, resting assured that because they have secured the best seed nothing else is required to make that crop a success; both men are in error.

Seed

Avoid purchasing asparagus seed from commercial seedsmen. It is too risky. You know not how it was grown, or how gathered and saved. You are not sure as to strain or variety and know nothing of the pedigree of the plants that grew it. All of which should be taken into consideration by the prospective grower. It is the writer's custom to select his seed from a bed set with a good strain of well bred "grass." Go into such a field and select your seed from strong growing plants. Never take seed from those plants that are predisposed to grow seed in over abundance. Like begets like. Such plants rarely ever produce heavy crops of shoots, but do produce numerous shoots of small size. Select from crowns producing only a moderate amount of shoots and they of good size carrying a light crop of berries. On such a plant the seed will have more vigor and vitality. If only a small amount of seed is needed, hand picking is best because when gathering the berries you can avoid picking all those at the tips of the limbs. The late sets are always smaller and weaker than the main set, hence should be avoided.

Wash the berries and add water to the mass and all seeds that float with the skins and pulp let them run off with the water; wash until clean, then dry and store until planting time. Do not use warm water to wash seeds in or allow them to become warm while yet wet. Store in a dry cool place.

Growing the Young Plants

Select a good soil sufficiently near the buildings so that poultry can run thru the bed, they will keep down the asparagus beetle. This will relieve the grower of a considerable work and anxiety. If the bugs and their larvae are not destroyed promptly they will soon destroy all the plants. The ground should be free from weed seeds and in a high state of cultivation. It can not be too good to grow asparagus plants. Prepare as for other crops, marking off rows about two feet 9 inches apart. Apply at the rate of 700 or 800 pounds of fertilizer (high grade, complete) to the acre and mix with the soil; now make a row over this by plowing two light furrows together making a ridge; rake nearly level and sow seeds as near as possible three to the inch, not more, and cover a good inch deep. Sow as early as soil can be worked in good order. It takes asparagus seed a long time to germinate, hence the bed may have to be cleaned of foul growth before plants appear above ground. Absolutely clean cultivation must be practiced if we hope to grow a strong healthy plant in one season, and that we must do, if we hope to be successful.

When the young plants first come thru they are very delicate and need some nursing and coaxing. Remember we are trying to grow a good strong crown in one season and that is the only kind to plant —a one-year plant. Never plant a two-year plant if known. They never make as good a bed, because the root system of a two year old plant is so badly mutilated in digging from the nursery row it rarely ever wholly recovers from the shock.

When the young seedlings are fairly started to grow, side dress them with a light dressing of nitrate of soda, working it into the soil. The young plants will grow rather slowly until late summer when they will make a rapid growth. At this time they should have another side dressing of nitrate, using at the rate of 200 pounds per acre and worked in as before.

Be sure and have a fair amount of soil over the young crowns before winter sets in because they may freeze if the roots are too near the surface.

Timely Fruit Notes

By Dr. J. P. Stewart

"What would be a good commercial fertilizer for promoting growth in a cherry orchard?" H. H. W., Elk Co., Pa.

There are no exact experimental data bearing on this point, but judging from the results on allied fruits, I would say that an application containing about 100 pounds of nitrate of soda, 100 pounds of dried blood, or its equivalent in some other organic carrier of nitrogen, and 350 pounds of acid phosphate, or its equivalent, should be satisfactory for an acre of bearing trees, for the purpose of increasing both growth and bearing.

It is probable that this application should be made somewhat after the fruit has set, and no important effects on the crop should be expected before the year following its application, altho it may improve the growth during the first season.

A light application of stable manure, —at the rate of 6 to 8 tons per acre, for example—will usually accomplish the same results, altho it is generally slower in action. It is probably best applied early in spring. On sweet cherries also, the manure is likely to prolong growth too much and thus increase the danger of bark-bursting and other forms of winter injury. They should therefore be kept in sod, as a rule. Sour cherries however will generally stand both tillage and fertilizer.

Tarred Paper Around Peaches

"I can buy some old tarred roofing paper very cheap, and have been thinking of putting a piece 3 feet square under my peach trees to keep down the growth next to the tree, which is rather difficult to mow by hand. I believe the paper would take care of it to quite an extent, and at the same time would conserve more or less moisture. I can buy this to make the cost about one cent per tree, labor included. Do you think it would pay?

"Also have you any data on the average amount of material required for the different sprayings of mature apple trees, and the number of trees a good power outfit can handle in a day?" S. L. C., Bradford Co., Pa.

The tarred paper suggested here would probably keep down the growth and also conserve moisture, provided the moisture could get in below it. If the paper is still sound and whole it might readily prove to be an effective barrier against the entrance of moisture to the soil below it, instead of acting as a conserver of it. If this difficulty can be overcome, it might well be worth trying at least.

In this connection, it may be well to mention a new kind of mulching material that is now being utilized to some extent in western Pennsylvania. This is the waste from broom factories. It is very cheap, costing about $2.25 per ton baled, at the factory, and it lasts for two years or more. It seems to make an efficient mulch, and is undoubtedly worthy of consideration by those favorably situated with reference to such factories.

In regard to the spraying requirements, mature apple trees can usually be sprayed with from 5 to 10 gallons of spray material, depending somewhat on the outfit used, and also naturally on the size of the tree. The average rate of spraying with a good outfit will run from 6 to 8 gallons per minute.

THE STAYMAN APPLE

In looking thru my paper last night I came across an article in regard to Stayman apples. In 1900 I planted an orchard of eleven acres, buying my trees from my local nurseryman. When I went after my trees I wanted the following varieties: York Imperial, Stark, Black Twig and Langford Seedling. In talking to the nurseryman he told me he had some young trees ready for planting called Stayman. Said he could not tell me how they would do in my locality (Southern York County) but asked me to try at least 25 as an experiment. So I did, and if I had planted three hundred Stayman and twenty-five York Imperial I would be better off today. My Stayman began bearing after five years and have not missed a year since.

I have them planted on a southeastern slope and have always got as fine a color as I ever saw on Stayman. I thing enough of Stayman that four years ago I planted a solid block of 14 acres of them. It has some faults with the rest of them. I have had some trouble from cracking also some falling down of the tissues around the seed cavity but not enough of either to prevent its being one of the best commercial apples I have.

I have more calls for Stayman than any other variety and when I sell a new customer Stayman I never have

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PRODUCE QUICK & POSITIVE RESULTS

The reputation earned by Buist's Seeds in the 88 years that they have been used by American gardeners is of the highest sort. In all parts of the country they are known as the *seeds that produce.*

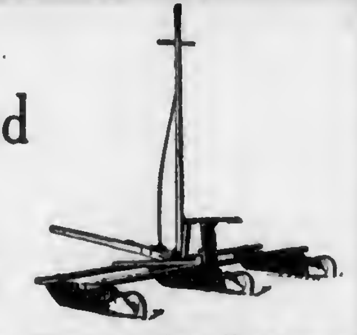
Great care has always been exercised by us, not only in the actual raising of our seeds but in selecting as a basis none but the hardiest, healthiest stock. As a consequence Buist's Seeds possess a stamina that causes them to produce where ordinary seeds would fail.

Buist's Seeds are the favorites of market gardeners throughout the country because they insure quick and big profits.

Send at once for the 1916 Garden Guide and our Market Gardener's Wholesale Price List

The Garden Guide gives *localized* help for each month in the year—it brings valuable hints to even the most experienced of market gardeners—hints that *help to produce profits.* A copy of it will be sent you free, together with our Market Gardener's wholesale price list on request. Write now.

ROBERT BUIST COMPANY
Dept. X. Y. Philadelphia, Pa.



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Made in Two, Three and Four Row sizes. They have been on the market many years, and have established themselves for Reliability, Durability and Usefulness. They make any width of rows and depth of furrow. They leave a mellow seed bed. No up-to-date Farmer can get along without one. If you cannot buy our goods of your regular Dealer, write us for free Catalogue and prices.

We also manufacture The Perfection Six-Row Sprayer, and the Improved Riggs Plows.

Thos. Peppler, Son & Co., Box 16, Hightstown, N. J.

Black's Reliable Trees

For the planter who wants nothing but the best, we offer, at reasonable prices, stock that will produce exactly what he has a right to expect.

Our leaders are: **Peach Trees,** (*original stock furnished by N. J. Exp. Station*) **Apples,** including *"Delicious"* and 75 others. Hardy Indiana **Budded Pecans** and Small Fruits.

CATALOGUE FREE

It describes a full line of fruits and ornamentals, makes no extravagant promises, and the prices are right.

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CATALOGUE

FREE—"Ask Pratt"

Here's a book of daily needs you should keep handy. It lists the best of every thing for the orchardist and truck grower. Standard spray materials, harrows, cultivators, graders, pickers, packing boxes, etc. If there's anything needed, "ask Pratt." You know him—he's the man who makes "Salecide—the tree saver." Everything else he sells is just as good.

Our Service Department

is under his direct supervision and he is always ready to advise, from his long experience, just what implement, spray material, etc., you need. Ask questions. But send for the book today.

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GOOD SEEDS

GOOD AS CAN BE GROWN
Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 Illustrations of vegetables and flowers. Send yours and your neighbors' addresses.

R. H. SHUMWAY, Rockford, Ill

Improved White Russian Oats

A TRUE "HORSE MANE" OR "SIDE" OATS

NOTHING else in the seed line is asked for so often as a "side" or "horse-mane" variety of oats. **A. H. Hoffman, Inc.,** always on the alert for anything rare and valuable, found on the famous Amenia & Sharon Seed Farms in North Dakota the "IMPROVED WHITE RUSSIAN," in a pure state and in qualities to please the most discriminating farmer. We are indebted to Prof. H. L. Bolley of the North Dakota Experiment Station for this rare find in desirable seed oats. Our stocks came from fields that were examined before harvest by Prof. Bolley and certified by him to be true and pure "horse-mane" or "side" oats.

Seed Oats grown in this extreme Northern location does well when taken further South.

This lot of "Improved White Russian" can be depended upon to carry with it the inherited tendencies of Dakota Seed **—earliness—hardiness—productiveness.**

"IMPROVED WHITE RUSSIAN" is medium early—makes great heads, with grains growing on one side of the stem. The straw is stiff, carrying well its weight of grain until fully ripe—even on the level plains of North Dakota where storms have full sway.

Grain of "Improved White Russian" is very plump. The hull is thin—so thin—that the encompassed grain is only slightly larger than the actual kernel within. The weight—44 pounds per measured bushel—recleaned but not clipped. This variety is rust-resistant—not rust proof—but suffers little when other varieties are destroyed by rust.

The yield of "Improved White Russian" is enormous. It has record of 100 bushels per acre on large tracts. Sow 3 bu. per acre by weight.

Price $1.25 per bushel of 32 pounds, cash with order. Not less than one bushel sold. Bags free. Freight prepaid on ten (10) bushel orders to any station in N. Y., Pa., N. J., Conn., Mass., R. I., Dela., Va., W. Va., Md., and Ohio.

If you don't like the oats when received, return them and we'll do the same with your money and pay round trip freight. We are reliable or the "Pennsylvania Farmer" would not accept this ad.

A. H. HOFFMAN, Inc.
Box S
Landisville, Lanc. Co., Penna.

Improved White Russian Oats

OUR SEED CATALOG

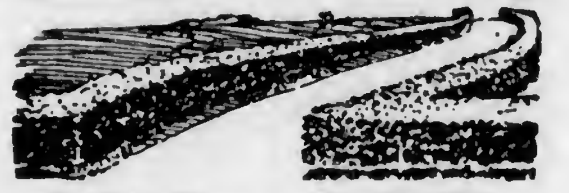
offers everything in the Farm Seed line—Clovers—Alfalfa—Spring Wheat—Barley—Rye—Field Peas and Beans—Seed Potatoes—Seed Corn. It is free. Ask for it, but don't delay ordering "IMPROVED WHITE RUSSIAN" Oats or our stocks may be sold out. That is why full description is given in this ad. Be prompt.

SPRAY and get your price

Do away with blotched, scabby, wormy fruit. Grow better fruit—get bigger profits. Write today for completely illustrated catalog showing more than 20 kinds of sturdy, easy-to-operate spray-pumps — bucket, knapsack, barrel and power-sprayers. 35 years' experience in pump construction is your guarantee of satisfaction. Ask for our new 32-page catalog.

THE DEMING CO.
216 Depot St., - - Salem, Ohio
DEMING SPRAY PUMPS

California Privet Hedge



Two Years Old Height	Branches	Fine, Clean Stock Per 100	Per 1000
18 to 24 in.	3 to 5	$2.50	$20.00
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500 at 1000 rates.

Mention this publication and we will deliver free order of $10.00 and over. We grow our own stock and employ no agents. Write for free price list on Trees Shrubbery, Evergreens, etc.

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STRAWBERRY PLANTS
and other small fruit plants.
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$1.50 per 1000, etc. Best Michigan Stock. 100 varieties including Everbearers, also Grapes, Raspberries and other small fruits. Send today for FREE Catalog.

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FRUIT TREES and FRUIT PLANTS, ORNAMENTAL **TREES** and SHRUBS of all kinds. Send for catalog.
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Buy At One-Half Agent's Prices

Let me send you my catalogue—it's free to everybody—it's different. It tells you facts about my fresh dug trees and how you can save money and receive a guaranteed SQUARE DEAL. Write today and see the difference in buying direct from grower than through agents.

Apple, 4½-6 ft., $14.00 per 100.
Peach, 3½-4½ ft., $9.00 per 100.

SHEERIN'S WHOLESALE NURSERIES, 44 Seward St., Dansville, N. Y.

Planet Jr. Wheel Hoe

gets bigger crops with half the work.

This **No. 16 Planet Jr Single Wheel Hoe, Cultivator, Rake and Plow** is the highest type of single wheel hoe made. Light and durable—can be used by man, woman, or boy. Will do all the cultivation in your garden in the easiest, quickest and best way. Strong indestructible steel frame. High, easy-running steel wheel. Costs little, and lasts a lifetime. 14 other styles of wheel hoes—various prices.

New 72-page Catalog (184 illustrations) **free!**

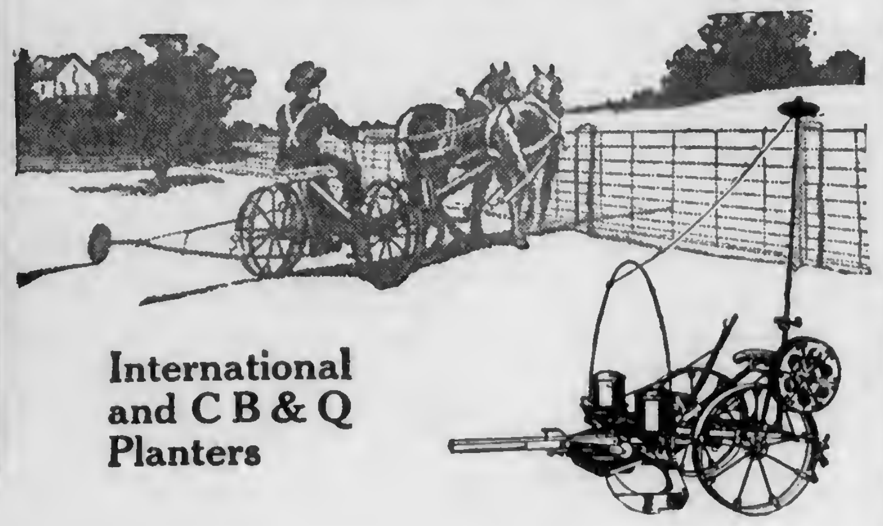
Describes over 70 tools, including 12 entirely new ones, and improvements to our Horse Hoes, Harrows, Orchard- and Beet-Cultivators, Seeders and Wheel Hoes. *Write today!*

S L Allen & Co Box 1202E Philadelphia

If you are a farmer, trucker, orchardist, or suburbanite with a kitchen-garden, there is a Planet Jr made for your special need. You can't afford to work without a Planet Jr.

WON HIGHEST AWARD PANAMA-PACIFIC INTERNATIONAL EXPOSITION SAN FRANCISCO

Profit from Every Hill



International and C B & Q Planters

NEXT in importance to good, tested seed, every authority on corn raising places good planting. Evenly spaced hills; the same number of kernels dropped in each hill; even depth of planting; a reliable foot drop for finishing the field—these are the features demanded of a planter by every careful corn raiser.

This is the standard to which the builders of **International** and **C B & Q** corn planters work, and excellent planting is the result. Note, first, the substantial frame and wheels—the foundation of the machine. Then see how simple are the arrangements that enable you to drop 2, 3, or 4 kernels in every hill, or to drill in your corn with accurate spacing between the kernels. The use of an **International** or **C B & Q** corn planter gives you assurance that every hill of corn on your farm will produce its full share of corn profit.

Try one this year. Ask the local dealers, who handle these machines, to show you their good points in detail, or write to us for complete information about reliable **International** and **C B & Q** corn planters.

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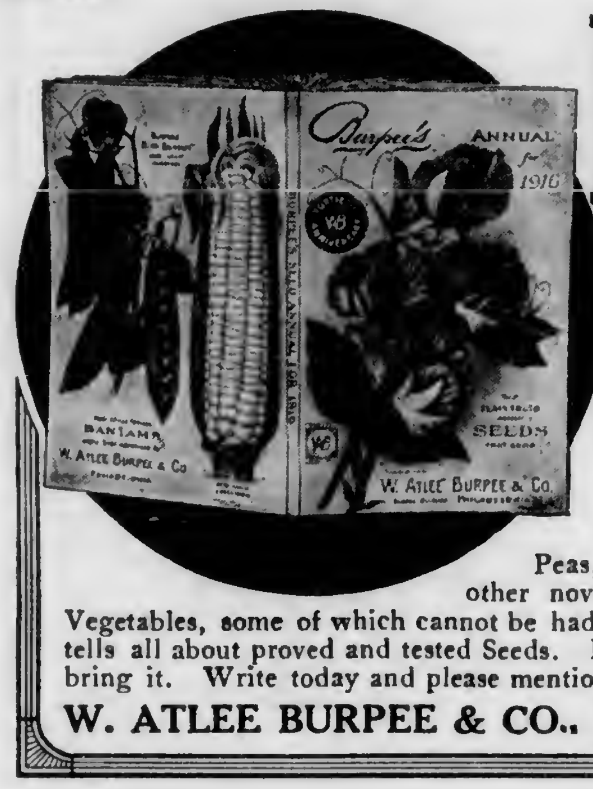

Burpee's Seeds Grow

The Fortieth Anniversary Edition of Burpee's Annual, The Leading American Seed Catalog for 1916, is brighter and better than ever before. It offers the greatest novelty in Sweet Peas, the unique "Fiery Cross", and other novelties in Rare Flowers and Choice Vegetables, some of which cannot be had elsewhere. This book of 182 pages tells all about proved and tested Seeds. It is mailed free. A post card will bring it. Write today and please mention this publication.

W. ATLEE BURPEE & CO., Burpee Buildings, Philadelphia

HOT BED SASH 80c CYPRESS, well made with cross bar, blind tenons, whiteleaded in joints, Glass, $1.50 per Box.
C. N. ROBINSON & BRO. Dept. 17 Baltimore, Md.

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PURE FIELD SEED
Clover, Timothy, Alsike, Alfalfa and all kinds of PURE FIELD SEEDS direct from producer to consumer; free from all noxious weeds. Ask for samples.
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Carload Shipments wanted of **POTATOES.** Apples, Onions, Hay, etc.; small commission, no expenses, prompt returns. Also small lots of Produce and Poultry, get our prices and terms before selling.
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Established 1884

Money Makers

HERE are six special tools, every one of them money makers in the special work for which they are intended. Two-row fertilizer distributors are used to advantage ahead of potato planting—ask us how. The furrow-closing harrow protects the roots. The potato ridger not only does the first ridging but helps at digging time. The other

IRON AGE

Tools shown include a Corn, Bean and Pea Planter that does all the work at once, Four Row Markers for the man with a big job to do in a hurry, and Disk Attachment for Horse Hoes. They will make money for you.

Ask your dealer to show them but write us for descriptive booklets on tools you want and tell us your problem.

Bateman M'f'g Co. Box 763 Grenloch, N. J.

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Potato Planters
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Potato Sprayers
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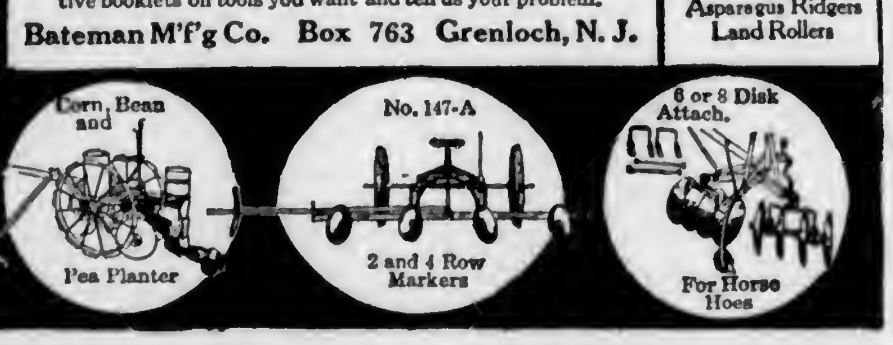
Potato Diggers
Cornstub Cutters
Fertilizer Distributors
Row Makers
Cotton Planters
Corn, Bean and Pea Planters
Asparagus Ridgers
Land Rollers



any trouble to sell to him again.

I never have any trouble in keeping them away up into the summer and they also hold their flavor. I notice quite a great deal being written about the Delicious. They are all right the latter part of November and December but this time of year they have lost quite a good deal of their flavor. On the other hand the Stayman are as fine as ever.

Weather conditions have quite a good deal to do with the cracking of Stayman especially if we have a rainy, wet season just when they are ready to pick. A few days over maturity on the trees with wet weather and then hot sunshine and they will crack very rapidly. I consider them one of my best money makers. — Walter H. Ebaugh, York County, Pa.

. . . . .

We have been fruiting Stayman for five years. It is an annual bearer of large to medium sized fruit, which is, as a rule, well colored. It may not be the best apple, but it is surely hard to beat. The quality is A No. 1. The flesh is crisp, juicy and melting. It is not as solid as its half-brother, the Paragon, and does not keep as long. In a cold, damp cellar it will keep until May, while Paragon can be kept until June and July or even later. The Stayman has this very desirable advantage, you can go to your Stayman bin and find a good mellow apple any time during the winter months, and for culinary purposes it is unsurpassed. During the fall and early winter months the wind falls can be used for sauce, pies and tarts.

You are not compelled to haul them to a cider mill to get rid of them. In my opinion, the Stayman ranks with the Baldwin for dessert or culinary purposes.

It has only one fault and that is a tendency to crack around the stem. After picking, the apples should be sorted and the cracked ones stored by themselves and sold or used first. I do not consider this a very serious fault but it is a fault nevertheless.

The tree is a strong grower, and ideal in its shape. The limbs are strong enough to bear up under a heavy load of fruit, which hangs on well, considering its size. I hope this testimony will help to induce farmers to plant one or two Stayman apple trees, but if I knew it would induce anyone to plant it on a large scale, I would destroy this article before it would get on the printed page. I may be mistaken, but I feel that it is time to call a halt on the question of large planting of apple trees. Let our motto be: "Not More, but Better Apples."—Mahlon Gross, Bucks Co., Pa.

WHEN IS GARDEN SOIL READY?

"When is the proper time for preparing to plant one's garden?" As soon as the soil has dried so that a handful when grasped in the hand and gripped by the fingers will slowly fall apart upon being released, it is in a fit mechanical condition to prepare for planting. Clay or heavy soils should never be worked while wet. More injury may be done by doing this than can be overcome in several years of careful culture.

When the soil is found dry, as described above, the upper three inches should be made fine by the use of the hoe and steel-tooth rake; all rubbish, stones, and clods should be removed and the surface made even, somewhat compact, and as level as the contour of the area will permit. It may then be marked off for planting in conformity to the general plan of the garden.

Much of the soil in the average back yards is not only poor in plant food and deficient in decaying vegetable matter, but it is hard and unyielding. However, such is the basis which many a housewife or child has to use for the making of a garden. Teachers who plan school gardens for their pupils also have similar conditions to meet. Therefore, in order to get good results, careful attention must be given to the preparation of the soil.

Soils which are naturally moist are likely to be sour and so not in the best condition for the crop. Whether sour or not it will be well to have the pupils test them, which can be done as follows: Secure from a drug store a piece of blue litmus paper; then take a handful of the soil slightly moistened and place the paper on it. If sour the paper will turn red. To correct such a condition lime should be used. Cover the ground with a thin coat of air-slaked lime, which can probably be secured near-by at small cost, and work this in well. The use of the lime, while not a plant food, will correct the acidity and will improve the physical condition of the soil.

If the soil is clayey or a stiff clay loam and the location is in a section where severe freezing occurs, it will be found a decided advantage to give the area a heavy dressing of decomposed manure in the autumn, and before freezing weather sets in spade the land so as to turn the manure under and leave the soil in a rough, lump condition so as to secure the benefits of the digestive action of the winter freezes in reducing the soils. This should be repeated annually at the North. If the soil is light and sandy, a mulch of manure may be spread over it in the fall and the spading delayed until spring.

In localities where the soil does not freeze, the manure may be applied in the autumn and the soil repeatedly spaded during the winter whenever it is dry enough to be worked. The value of freezing at the North can to an extent be attained by repeated spadings at the South. The one general precaution which should always be observed is never stir the soil while it is wet.—U. S. Department of Agriculture.

AN EXPERIENCE WITH ONIONS

The best paying crop I ever produced in my garden was one of green bunching onions. Fifteen bushels of seed potato onions were purchased, the cost being one dollar a bushel. The onions were the large bulbs, which divide and make green bunching onions for early spring use. Planting was done in November, in a plot of ground that measured one-sixteenth of an acre. As hand cultivation was to be practiced, the bulbs were set four inches apart in rows fifteen inches apart. As soon as planted, eight loads of manure costing one dollar a load, were spread over the ground. The manure made a heavy mulch for the bulbs, covering the ground two to three inches deep.

Early the following March cultivation began. The first cultivation consisted in working the manure into the soil. This had to be done entirely with a hoe. That first cultivation was a tedious job but thereafter the cultivation was done with a hand-plow. The onions grew rapidly and were ready for bunching by the first of April. The green onions were peeled, a dozen tied in a bunch, and the bunches sold to local dealers for four cents each. One thousands seven hundred seventy-six bunches were so sold, bringing $71.04. I was unable to sell all the onions in a green state, so part of the patch was left to mature bulbs. In July, I dug thirty-six bushels of bulbs, which were worth one dollar a bushel. This brought the gross returns from one-sixteenth of an acre up to $107.04. After deducting the expenses of $15 for seed and $8 for manure, a net return of $84.04 was realized.—T. Z. Richey.

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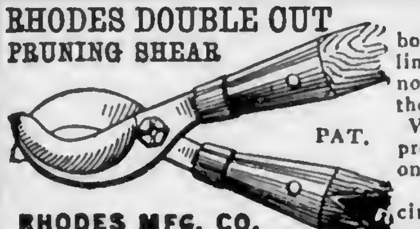

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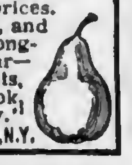

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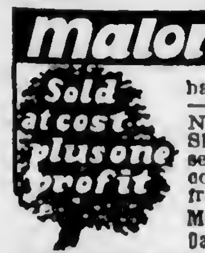
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CLOVER SEEDING

Mr. Moates, of Crawford County, made a good case for alsike clover in his article last week. The practice of mixing a small amount of alsike with timothy and red clover each year is gaining friends. As Mr. Moates says, it is cheap insurance for a clover crop in those sections where red clover is inclined to heave. This is a timely suggestion for those who are preparing to sow. Why not mix in a little alfalfa seed at the same time? No danger of making the meadow look like a crazy quilt with a mixture of clovers. If you do, the quality of hay will not be decreased. And a gradual sprinkling of alfalfa over the farm will take care of the inoculation problem when you get ready to seed to alfalfa alone.

APPLE GRADING

Pennsylvania fruit growers have been watching the operation and effect of the New York Apple Grading law for about two years. Some effort has been made to encourage the enactment of a similar measure in this state, but growers are evidently not united upon the exact form of such a law. The next session of the state legislature should see something done, and our orchardists should have a well defined idea of what they want, and a well-organized plan for securing it. Certain features of the New York law have appeared objectionable, but the majority of York State fruit growers feel that it is bringing the desired results, as evidenced by resolutions of endorsement passed by the several New York horticultural societies during the past two months. One result of the law which fruit growers in this state may well consider is shown in recent market quotations in our largest city markets. Last week Philadelphia markets quoted York State apples at from $2.50 to $3.25 per barrel, according to varieties. Pennsylvania apples were quoted in a group with apples from Virginia and West Virginia at $2 to $3 for general run, and $3.25 for Stayman Winesaps. The significant feature is that York State apples are quoted in a separate class. The Baltimore market makes a greater distinction. Quotations in that market, Feb. 21, read: ''New York State packed, per barrel $2@3.50; Western Maryland and Pennsylvania packed, $1.75 to $2.50 per barrel.'' We are not ready to admit that quality alone is responsible for this premium on New York apples. The fact that they are graded and packed to a standard is having its influence in giving them an advantage over our own apples in our own markets. Isn't it nearly time for Pennsylvania growers to swing into line with a similar law?

LITERACY TEST FOR IMMIGRANTS

About a year ago we called attention to a bill in Congress which proposed to make the ability to read and write a requirement for admission to the United States. The bill was passed by Congress but was properly vetoed by President Wilson. A like bill has been introduced into the present Congress and strenuous efforts are being made by certain people to have it enacted. The same objections that obtained last year are pertinent now. There has never been the necessity for any such law, nor is there now. In fact it would seem a most inopportune time for any such legislation. Past experience has shown that it is not the illiterate class that contributes the undesirables. Some of the most healthy, robust laboring people of the old country have never had the opportunity for education, yet this class has helped to develop America, has given solid citizens and their children are good loyal, intelligent people. This class has always done the heavy, irksome labor of the country, and knowing the temper of native Americans we wonder who would perform some of the work they are doing and have done if they should be excluded. Farmers have special reason, aside from the patriotic principle involved, why such a law should not be passed. ''America for Americans'' is a nice sounding phrase, but if such an immigration law were retroactive the country would be depopulated to a large extent. Congressmen are very sensitive to the opinions of the people and it is the duty of citizens to make their views known by postal or letter. Considerable pressure is being brought to bear in favor of the bill and its opponents should be equally active.

RAISE MORE FOR THE TABLE

As the planning season draws to a close and the planting days approach we would again urge the necessity of carefully considering the needs of the home family for a wider range of fruit and vegetables. From our observation we know that many farm home gardens and fruit lots could and should be made to produce a greater variety of food. In the more primitive days, the woods and waste places produced an abundance of berries and small fruits and it required little time and effort for the family to gather a good supply from these sources, and it was considered unnecessary for farmers to bother raising them. But in most places this source of supply no longer exists to any extent and it is necessary to plant and cultivate such fruit or do without, and too many families do the latter. A sufficient home supply of fruit and vegetables is an economic necessity for farmers, because the first consideration should be to make the farm produce the best living possible. It is a necessity from the standpoint of healthfulness and efficiency, because the regular menu of a family must contain plenty of fruit and vegetables if it is to grow strong men and women and maintain them in health. The amount of work and attention required to grow a generous supply is not great, and it is surprising what a quantity can be produced from a small plot of ground. As far as knowledge is concerned, any one who can grow good crops of corn, wheat and potatoes can easily grow berries and garden truck with little trouble.

SPASMODIC EFFORTS

A certain foreign critic who resided in this country a number of years made the comment that the American people were subject to ''spasms''. Meaning of course that we have sudden and violent ideas concerning a subject, only to have something else enter and take precedence before we arrive at the object sought after. We naturally dislike the term this critic used but when we sit down and examine ourselves honestly we find that we are open to the charge of inconstancy, if that term sounds better than spasm. Any one can recall ''waves,'' sometimes amounting almost to hysteria, that have swept the country. We have ''spasms'' of reform in politics, business, and religion. Propaganda efforts are periodically made to better educational systems. We take up watch words in turn and for the time being we talk, think and read ''efficiency'', ''economy'', ''uplift'', ''democracy'', ''sanitation'', ''preparedness'', etc., only to find that before we have achieved what we sought something else is demanding instant attention. Of course, there are some faithful plodders who are consistently persistent and remain faithful and active all their lives, weathering the discouragements and gibes at low tide of human interest, and thankful for the help and sympathy when the tide runs high again. Even the spasmodic efforts of the public are helpful, but how much faster would we progress if, as a people, we had greater ''staying'' qualities. As individuals men become great, good, educated, expert, strong, or powerful by persistent intelligent effort—not by intermittent spurts. The productive farms are those whose owners have continuously practiced a system that tended to improve its productiveness; ''spasms'' of good farming will not do it. ''Be sure you are right, then go ahead,'' is a popular motto but it needs to have added the words ''until the work is accomplished.'' Whatever training or education is necessary to develop the quality of persistency should be found and applied to the youth of the land that they may be able to accomplish more in the line of desired reforms than have we. Incidentally we may say that the farm boys and girls usually have these staying qualities developed to a greater extent than those who are not required by circumstances to perform certain tasks daily and do them well. It is this quality that so frequently enables them to outstrip those raised in comparative idleness.

STRONG LIVE STOCK ASSOCIATION

The joint meeting of the Pennsylvania Dairy Union and State Breeders' Association, held at Pittsburgh last week, decided upon an amalgamation of these two bodies. This decision and the plans made for the new organization should appeal to every live stock man of the state, whether he breeds and feeds dairy cattle, beef cattle, horses, hogs or sheep. General interests of each class are state wide, and all can be served best by a strong state association. It is planned to take in all local dairy, live stock and breeders' associations as members of the new organization. Fees are fixed at 25 cents per member of local bodies with a minimum assessment of $10 per organization that joins the state society. Dues to the state organization are to be $2 yearly. This provides the ground work of a strong and efficient state body representing all live stock interests of all sections of the state. Local organizations are necessary for the handling of local problems. They are efficient in promoting the interests of members so far as local conditions alone are concerned. But there are many questions of wider interest in which the influence of local bodies is lost without representation in a larger state-wide association. All live stock interests suffered a severe blow in the recent outbreak of foot-and-mouth disease. The state authorities handled the outbreak with rare judgment and held the actual loss to a minimum. But the experience served to emphasize the close relations of all live stock interests and the need of effective organization. Partly as a result of that experience the state laws regulating payment for animals slaughtered to prevent spread of contagious disease is not satisfactory. It will require a strong state association of live stock men to give just representation to the needs of the breeders and feeders on such questions. And these needs are common to feeders of all classes of live stock. The new organization is well officered and is prepared for constructive work.

UNCLE HENRY WALLACE

Word comes of the death of Henry Wallace, editor of Wallaces' Farmer, on February 23. While not as well known among eastern farmers as in the Middle West, where he has been actively identified with agriculture thru a long and active life, this news carries a sense of personal and general loss to all American farmers. American agriculture has produced a number of big influential and beloved men which the industry can claim as its own. The names of Bailey, Hoard, Wallace and Coburn will always be associated with the farm life they have loved and with the business of farming which their wise counsel has helped to develop. Mr. Wallace was the Dean of agricultural editors of this country. He was affectionately known as Uncle Henry, and among his associates in the publishing world, as well as among his farmer readers, there was that affectionate respect and reverence that is accorded only to the big man whose heart and conscience are in his work and the cause he represents. Mr. Wallace was called to big work in the councils of agricultural leaders at various times in his life. He was a member of the Country Life Commission, was associated with the work of the special Tariff Commission under the Taft administration, and was frequently called into conference on federal legislation affecting rural life. In all of these activities his council was respected as coming from a man who was thoroly familiar with farming and farmers and whose sympathies were ever with the people of the farm. He wielded a unique influence thru his farm publication, in that a large part of it was written or re-written by his own hand. It all went thru the Wallace mold, and in that process it took on the Wallace personality. He was one farm writer who could see more in farming than the mere making of money; more in farm life than the mere raising of crops. His standard of farm efficiency demanded character building as well as profit building and put the home life above the farm work. And all of this was given in kindly, sympathetic spirit that betokened the man with a broad vision. And Pennsylvania had a direct claim upon Mr. Wallace. He was born and raised in Washington County, of this state, and for many years made annual visits to renew old acquaintances there. He was educated for the ministry and maintained his active interest in organized church work to the end. He died suddenly while presiding at a Layman's Missionary Conference of his state.

HARRISBURG NOTES

State Aid in Marketing.—Plans are in making for establishment of a State Bureau of Marketing and later a bureau of soil conservation and improvement. Funds available are not such as to warrant a big splurge and perhaps it is just as well, because then the innovations may be tried out. The state has made some spasmodic attempts to encourage co-operative buying, for pooling of sales of products and other matters, but little has come from them in the way of widespread benefit. Perhaps the new bureau may result in something in the way of education which can be pushed and examples given of the way things are done in other states.

Farm Advisor Service.—According to reports the state's farm advisors are to be put on the schedule with more definite arrangement regarding time and visits, and will work in closer co-operation with State College field men and the county bureaus. The Department has asked that all requests for visits be sent to the State Capitol and the farm advisors will work from there instead of on their own lists. The number of requests made is said to be far in excess of what has ever been known before and a closer control is promised. From all accounts the value of these farm advisors to an administration in power is not being overlooked.

Co-operation with College.—Secretary of Agriculture Patton reports arrangements whereby the state will obtain a greater measure of assistance from the agricultural extension activities of the College, the government and the farm bureaus and that duplication will be done away with.

Roads to the Front.—State Highway officials are emphasizing the fact that there is not much money at hand and that building of roads will not be on an extensive scale this spring. They fear they will have just about enough money to keep the main traveled roads in repair and that it will take some careful calculating to spread the money around The discussion emphasizes the need of a definite road improvement and financial program to fit it. It will be necessary to spend half a million dollars this spring and summer to get the state highways in good shape for traveling because of the winter conditions, and local districts will be required to do their share toward maintaining their roads.

Oleo Sales. — Inspections made in the last six weeks have demonstrated that notwithstanding the heavy licensing of oleo merchants there are some illicit sales under way and that hotels and similar establishments have been trying to evade the law. An arrest has also been made for the sale of oleo which had been colored to a rich butter hue. The oleo revenue this year will be the greatest ever known.

Offer Brown Trout.—The State Department of Fisheries has announced that many streams formerly known as fine trout streams have become too warm because of disappearance of woods and brush and are not fitted any longer for the brook trout, but are well adapted for the brown trout. The State has raised large quantities of brown trout which are to be distributed to persons agreeing to look after them.

Streams Full of Acids.—State fish wardens have found fish killed by thousands in some interior counties because of the acids, oil, deleterious matter and other stuff from industrial establishments drained into the brooks and creeks. Industrial activity and prosperity are given as reasons, but it would seem that stuff which kills fish also unfits the water for drinking quite as much as cattle ever do. This will probably be the State Fisheries Department's job to demonstrate.

School Inspection.—State inspection of rural schools has been pushed over a wider area than ever known. There are less than 200 districts without medical inspection and in most cases local reasons rather than objection to the law are to blame. Ninety per cent of the school population will be under medical inspection within a few years

NEW YORK LETTER

Grange Scholarships.—Announcement is made that the examinations for the grange scholarships, value $50 each, will be held in the various counties on June 17. Anyone 18 years of age and under 25 may take the examinations if a member in good standing of a subordinate grange. Prior to this year there has been no age limit but at the last meeting of the state grange it was voted to place the limit at 25 years. These scholarships are for the short course in the state agricultural college.

Label the Bread.—A bill introduced this week in the state Assembly would require every loaf of bread made by bakers to bear a label setting forth the exact materials of which the loaf was made. The measure is aimed at certain bakers of ''accelarators'' containing chemicals supposed to be harmful to humans. It is averred that many of these ''accelarators'' contain calcium sulphate and sodium chloride. It is alleged that calcium sulphate often results in the formation of plaster of paris in the baked loaf. The bill is said to have the endorsement of the association of master bakers.

Dogs vs. Sheep.—It is the opinion of the state department of agriculture that dogs are very largely responsible for the decreased number of sheep now in state as compared with years previous. It is said that the number now is about 500,000 whereas in 1910 it was 606,000 and in 1890 about 1,000,000. A state-wide dog registration law is advocated by the department on the theory that the dog nuisance can be controlled by a nominal tax to weed out mongrels, the half-fed and starving animals that roam the fields and attack sheep. It is proposed to make this tax $2 on each first male dog, $4 on each additional male dog a man may own and $4 on each female. It is provided that each dog must be registered with the town clerk before January 1 of each year and that the dog shall furnish a tag and collar to denote registration.

An Oleo Prohibition.—Not only would a measure recently introduced in both houses of the state legislature prohibit the manufacture and sale of ''any oleaginous substance in imitation or semblance of butter'' but natural butter may be ''of any shade of yellow.'' Then we have this: ''Oleomargarine shall be deemed to be in imitation or semblance of butter of any shade of yellow if the diffuse reflecting power for light of wave length 436 micro-millimeters is less than 70 percent of the diffuse reflecting power for light of wave length 578 micro-millimeters, the temperature of sample being 70 to 80 degrees Fahrenheit.''

Our Costly Highways.—Up to the present time about $7,000,000 have been spent upon the improvement of the state highways. This represents the whole of the first highway bond issue and half of the second approved in 1912, according to the report of the state highway commissioner just sent to the legislature. Of the second bond issue $25,000,000 remains to be expended in the work of connecting up and completing the highway system. He recommends an appropriation of $10,000,000 for the construction work of this year. Last year 1,083 miles of road were completed and there are 4,600 miles yet to be done, and 7,388 have already been completed. Speaking of the famous Storm King route near Peekskill, the commissioner says it will probably be completed next year. It is called the greatest highway engineering feat in the world. He also recommends the submission of a constitutional proposition for a state highway thru the Adirondack state forest preserve.—D.

NEW JERSEY FARM NOTES

Tickets for Hay.—State Superintendent of Weights and Measures, W. L. Waldron, has had a bill introduced in the Legislature providing for a delivery ticket showing the number of pounds of hay contained in a load. In the past it has been impossible to determine what a ''load'' consisted of, and it has been difficult to convict dealers guilty of deception. The Association of State Superintendents is strongly in favor of this statute.

Want Free Bridges.—A hearing before the appropriations committee last week showed a great desire was apparent for free bridges across the Delaware River from New Jersey to Pennsylvania and that influential persons, among which were many farmers in both states were anxious to have a New Jersey bill that would allow an immediate appropriation of $100,000 for the gradual purchasing of the 13 structures that cross the streams between the two commonwealths. It was shown that as a result of New Jersey taking the initiative in 1912 by passing an act for the acquisition and freeing of the bridges, that law authorizing an appropriation of $500,000, Pennsylvania in 1913 appropriated $100,000, and the money is now available. New Jersey, however, has never appropriated a cent of the sum authorized in its act, and this has held up the movement to abolish the toll bridges. It was shown at the meeting that the matter was one of extreme importance to automobilists and to farmers who are forced to cross the bridges. It was shown that of the large number of persons hit by the tolls, farmers came at the top of the list.

Mercer Farmers Meet.—As a result of an address delivered by President William H. Blackwell, at the annual meeting of the Mercer County Board of Agriculture last week, a movement was started for erection of a Community House, the object of which is to provide a meeting place for city and country people. A committee will be appointed at a later date to advance the movement. President Blackwell took occasion to rap the road-building system in the county. He stated that there was too much supervision without satisfactory results. He praised the Mercer County Farm Bureau, claiming that one piece of advice given the farmers by the bureau last year paid its current expenses many times over. He told how the county demonstrator advised the farmers to withold their potato crop, as the crop north was a failure. Those who took the advice received prices that turned their crop from failure to success. Mr. Blackwell was re-elected president of the body. Reports submitted during the meeting showed the association to be in a flourishing condition.

New Experiment Station.—The outlook is promising for the early opening of a branch state agricultural experiment station at Monroeville, according to announcement made by officials of the main experiment station during the week. It is said that efforts are being made to have the title of the land to the state and the prompt payment of the purchase price of $18,000 to the owner of the land so that the state officials may be able to work by spring. Dr. J. G. Lipman announces that among the problems which will receive early consideration at the branch station will be those affecting the fertilizer supply and tests for the same, also for lime, green manures, selection of seed potatoes (both home grown and imported), the control of potato diseases and insects, diseases of sweet potatoes and tomatoes and experiments with different varieties of tomatoes and their fertilization. It is also said that attention will be given to milk and pork production.

Lease Skeeters' Life.—Rather than be stung with a $550,000 appropriation to exterminate mosquitoes, Jerseyites would rather continue to be stung by the skeeters themselves. At least the New Jersey Mosquito Extermination Association thinks so. At the association's convention held in Newark during the past week efforts were made by a number of the members to ask the legislature to appropriate the money. They claimed that the mosquitoes could be driven out of the state if the money was expended correctly. Other more conservative members, however, concluded that the amount was too large and that they didn't care to agitate the legislators with such a request.—L.

INFORMATION WANTED ON HIGGINS AGENT

We have warned readers against giving subscriptions to Pennsylvania Farmer to agents of the Higgins Circulation Bureau. We are still getting reports from farmers who have paid subscriptions to these agents and have not received the paper. The latest report is from southern New York state. An agent is reported as representing that he is working for a college scholarship and offers a number of papers and liberal premium for a small price. We shall be glad to have report by telegraph at our expense of any Higgins agent known to have offered Pennsylvania Farmer within the last few days, not over three days before this paper was received.

HOLSTEIN-FRIESIAN MEETING

The annual meeting of the Pennsylvania Holstein-Friesian Association will be held at Philadelphia, at the Bellevue-Stratford Hotel, on the evening of Mar. 9, 1916. All Pennsylvania breeders are requested to be present. Subject of compensation for cattle slaughtered to prevent spread of contagious disease will be discussed.

A SENSIBLE PROTEST

''One of the most sensible articles that appeared in publications recently is that of John McLennanin ''Is Farming a Gamble'' in Pennsylvania Farmer of Jan. 5. He understands conditions and has the faculty to express his convictions. It seldom happens that those holding the same view have courage to voice their sentiments. The boomers who never performed an honest day's labor with idle time at hand are the ones who are free with advise to farmers pointing the way to increased production, not aware of the fact that many things are produced at a loss.'' — W. H. Stout, Schuylkill County, Pa.

FARM MEETING CALENDAR

Penna. State Beekeepers' Ass'n, Lancaster, Pa.	Mar. 3- 4
Pennsylvania Holstein-Friesian Association, Philadelphia,	Mar. 9
American Jersey Cattle Club, New York City	May 3
Holstein-Friesian Association of America, Detroit, Mich.	June 6
American Forestry Association Reading, Pa.,	June26-27
American Assn. of Nurserymen, Milwaukee, Wis.,	June23-20
International Apple Shippers' Association, New York	Aug. 2
National Dairy Show, Springfield, Mass	Oct.12-21

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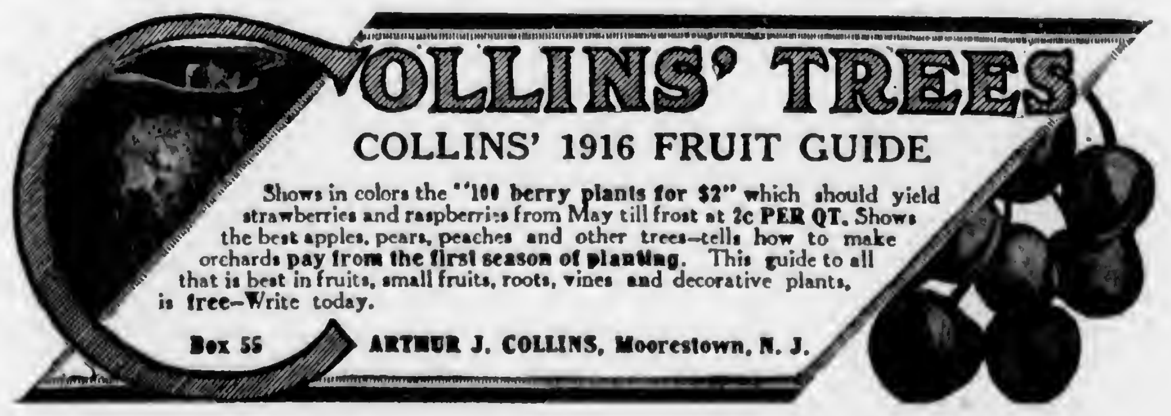

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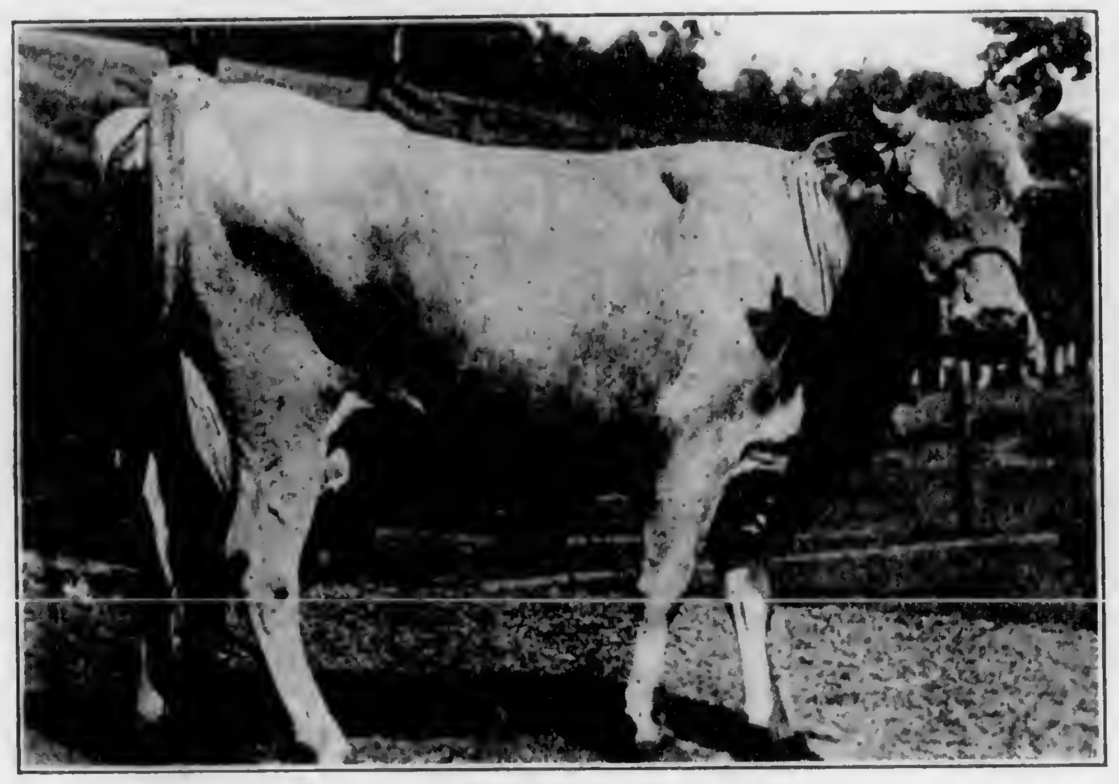


JERSEY COW THAT HAS SET A NEW BREED RECORD WITH 19,694.7 POUNDS MILK IN ONE YEAR. OWNED BY JOSEPH C. SIBLEY, VENANGO COUNTY, PA.

Just now there is a wonderful amount of talk about increased efficiency in the business of dairying, as if this were the one great end to be attained to make the dairy profitable. But, unfortunately, the advice tendered is usually given in glittering generalities, or points as a final to some undertaking of a noted millionaire. Such performances are of little value when not one man in ten thousand, with limited capital, could duplicate the work even if given years in which to do it.

All over the dairy districts there is a general belief that dairymen are not getting what they should for milk and cream. This is true if cost of production on these farms is taken into consideration. And it is doubtful if there is to be a change upward in price very soon that will bring very much greater net returns than now. This statement while true will bring little applause to the writer. Still the fact remains that a greater profit must be attained in some way or many dairymen will have to take to the "trenches" to protect themselves from financial reverses.

Better Cows.—As I see it, there are four ways by which the average dairyman may do better and bring a greater measure of success to himself. First, he must have better cows, yielding more milk for the cost of feed. To get her, he must breed a dairy-bred cow with stronger dairy temperament and better heredity behind her. He must learn how to develop this heifer in the first 24 months of her life.

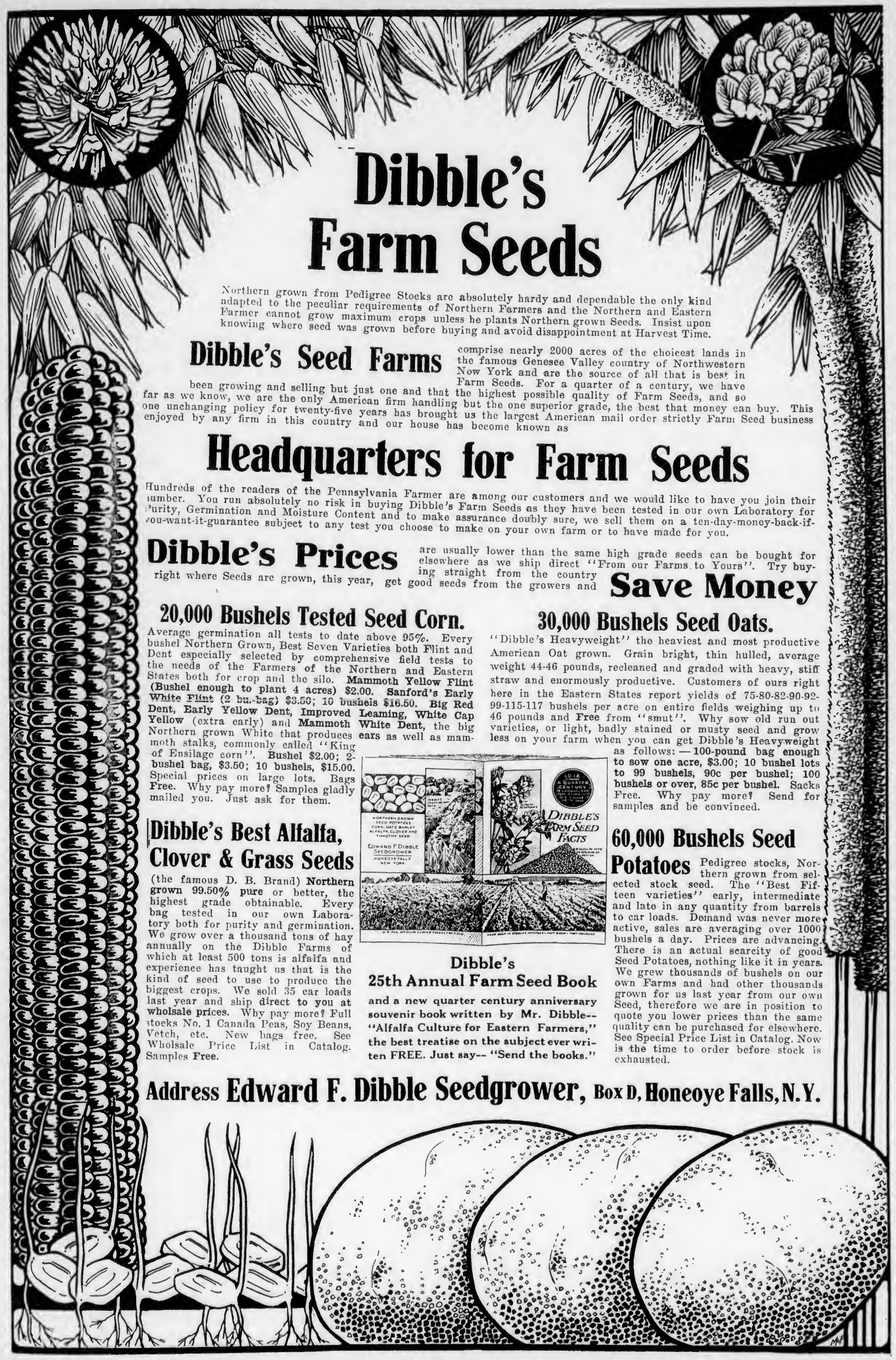
Better Feeding.—That brings in the question of rations for the whole herd, because the growing heifer and the milking cow need to be fed practically alike. This means that the farmer must raise upon his own farm so far as possible the greater bulk of his rations, such as corn, silage and possibly oats in the north and rye hay in the southern sections. He can raise 70 percent of the needed starches and fats and some of the proteins in clover, alfalfa and soy beans or cow peas. This farmer will be compelled to buy some grain, but what must be bought should be in the form of best concentrates. Thousands of farmers are throwing away dollars by buying grains that analyze but little higher than their homegrown feeds and paying $30 per ton for low-grade protein feeds. The cows may give a little more milk for a few days when they are fed these feeds and so they would if you had sprinkled some molasses on an extra amount of the food you already had, and got the cows to eat more. We cannot afford to buy 12 percent protein feeds, when 44 percent cottonseed meal is available at reasonable prices.

Fit Herd to the Farm.—A third saving is effected by making the cow herd fit the farm; not keeping too many acres for a few cows. A big farm and two cans of milk a day is not good dairying. In some way make an adjustment that balances the two factors. No man will ever make money in dairying that has from five to eight acres to each cow. Acres must be made to produce more, and the crops made to cause the cows to yield more. If necessary, sell or rent half of the farm and make your half do three times as much.

Milking Machines.—The fourth factor deals with mechanical aids in the barn, farm and stable. The milking is a serious matter. It drives away hired men and sends the boys to the city to be motormen on street cars. Why not try to get some sort of power trolley on the farm? Why not get one of the several milking machines and install it in the stable and let one of the boys milk the 25 cows in an hour and a half, and let the rest of the "gang" do something more agreeable and thus release all from the bondage of the pail?

I am only giving the condensed experiences of a half hundred or so dairymen about me when I assert that the dairies are being better milked with machines than formerly with hand work, and these new milkers are never "sore" on their jobs and never wish cows and milking were in the bottom of Salt Lake. Cows are giving their milk for as long seasons and as completely as by hand milking. They give it as readily and as completely, and kicking cows and athletic performances are unknown with machine milking. In hand milking there is often injury done to the teats and the udder by violent, jerking methods of "getting the milk" which are unknown to the machine. If the udder and teats are made clean, no man can milk more cleanly than does the machine, and no piece of dairy apparatus can be more quickly cleaned than can the milking parts of the machine.

It is difficult to say that a high-priced machine milks better than one costing half as much, or lasts longer. They all need a "director" who knows when a machine is not running as it should and who can quickly adjust it. They all need to be kept clean, well oiled, with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joints kept snug, and the engine made to run steady and not "jump". In a dairy of 20 to 40 cows the saving of the expense of a hired man at $30 a month or so quickly pays for the milking machine. And, remember, it is always there, every night in the week. It never takes days or Sundays off, or goes on a spree at each of the ten holidays of the year, and usually the day after. Of the great number of machines about our home there are several kinds, but I do not know of a single one that has been discarded or returned. Each dairyman claims that the milker is his greatest convenience.

We believe that if the four points here brought to the attention are put into practice, they will go a long way toward making the dairy more profitable, and its care a pleasure.—Charles Mathew Morgan.

Pennsylvania Dairymen and Live Stock Breeders Meet

Annual Convention

Joint meetings of the Pennsylvania Dairy Union and the Pennsylvania Breeders' Association were held at the Monongahela House in Pittsburgh, on February 23 and 24. The attendance was not large, but those present showed a spirit and determination to go on with the good work being done by the organizations. E. M. Bailey, president of the Dairy Union, said that it is to be regretted that more enthusiasm can not be engendered in the two associations. A general discussion of the problems of reorganization followed. The sentiment seemed to be that the dairymen's and breeders' organizations should be amalgamated, the debts of each paid and a new start made. A committee was appointed to consider these problems.

Dairy Legislation.—Secretary of the National Dairy Union, W. T. Creasy, gave an interesting and instructive talk on "Dairy Legislation." Pennsylvania has been successful in passing and enforcing good dairy laws, especially those relative to oleomargarine. The dairymen and breeders of the state and country need closer organization. Farmers must ally themselves and co-operate as have the labor unions and organizations if they expect to get what they need at Washington and at the sessions of the state legislature. In order to get force and power behind the farmers' state organizations, they should be self-supporting and not dependent upon the state.

Further, Mr. Creasy favors treating tuberculosis, contagious abortion, etc., as public and national affairs. Farmers should be compensated for live stock slaughtered because of tuberculosis. The National Dairy Union wants oleo restricted to its natural color, and in order to get this, has a bill before the present Congress. If the farmers will get together and back this and other needed laws, they can get what is desired.

Sheep Breeding.—In the absence of Mr. George W. Wilber, a general discussion of sheep breeding was held. R. M. Carons, of Washington Co., said that the greatest drawback to the sheep industry in Pennsylvania is dogs. Dogs, as well as other live stock, should be confined to the owner's premises. Many others were of the same opinion. Chas. E. Crothers, the new Deputy Secretary of Agriculture, advanced the idea that the fact that young men do not take hold of the business is one great reason of decline, and that they take no interest because of the constantly shifting values of wool and mutton. D. M. Campray, of Clayville, said that methods of buying wool are partly at fault. Lack of grading works to the injury of the grower, and buyers can not grade on account of objections of producers.

Pennsylvania Sheep Breeders' Association

A short business meeting of the Pennsylvania Sheep Breeders' Association was held on Wednesday afternoon. The general sentiment seemed to be that the mutton end of sheep industry must be combined with wool interests. Officers elected were R. S. Munce, Washington Co., President; B. O. Severson, State College, Sec.-Treas.

Tri-State Dairymen

J. B. Stevenson, of Washington Co., gave a very interesting and timely talk on "The Responsibility of the Dairymen" at the Wednesday afternoon session. "Farmers want to do the right thing in the marketing of milk", said the speaker. "They are willing to study the problems concerned and do what is right." In meeting these responsibilities the farmer must first produce clean, pure, healthy milk; in the second place he should produce a milk that contains a known percent of butterfat; thirdly he should study ways and means of reducing the cost of producing milk thru reducing feed costs and increasing the milk and butterfat production. The cost of producing milk in the United States is about 16 cents per gallon, according to various experimental reports. On the other hand, the average selling price is less than 16 cents per gallon. Such a condition may not be just to producers, but it emphasizes the fact that cows of average production do not pay a profit.

"Needed Legislation" was the subject of a short talk by J. W. Quincy, Washington Co. He advocated a state law requiring licensed milk testers for creameries and milk depots, and the required bonding of milk dealers.

J. M. McKee, County Agent of Washington County, spoke on the problems of milk inspection as related to the farmers. Farmers are heartily in favor of inspection for the protection of the consumer. Dairymen should be rated as to the average of their entire shipment as to butterfat test, instead of by single cars.

The Horse for Pennsylvania.—Dr. C. W. Gay gave a very interesting discussion on "The Horse for Pennsylvania." Men who are in a position to know what future prospects for the market horse hold, are putting more money into the the industry, showing that they have confidence in it. Opinion is becoming more prevalent that both the motor truck and the farm tractor are supplementing the horse in city and on farms and not replacing him. Statistics show that Pennsylvania buys thousands of horses from Ohio, Indiana, Iowa and other western states every year. More of these horses should be produced in this state.

One big reason why so few horses are raised here is that so little care is given to the selection of the mares that are mated. Too often it is the mare that is unsuitable for anything else that is bred. The selection of the mare is just as important as that of the sire. In fact, she is perhaps more important, for she acts as hostess for colt from conception until birth, as well as contributing her share toward the offspring's characteristics.

Dr. Gay emphasized the following factors in selecting the brood mare: Femininity, or what horsemen term "sweetness," for this guarantees perfect development of the reproductive organs; proper type for the production of the kind of offspring desired; roominess and more open than the sire; substance, size and constitution; quality obtained thru sire; and absence of transmissible unsoundnesses, but choose straight, well-formed legs with unsoundness in preference to crooked legs which are sound. Sterility of mares is one of the big problems to be solved. Breeding fillies at three or four years old is one way of averting it; another is by means of artificial impregnation. Thus, while the sire is important in the improvement of horse stock, the wise selection and handling of mares is also important.

County Agent Work

In three and a half years 22 counties have established farm bureaus and hired agents. In addition to this, 18 other counties have formed associations and will get agents after July 1st. J. M. McKee, county agent of Washington Co., said that the cow-testing association is the most practical method of increasing dairy cow production. While we have been used to talking of the value of the testing association as a means of locating the "boarder" cows and getting rid of them, its true and greatest worth is in finding the good cows, and breeding up a herd from them. In Butler County, Mr. Adams the agent said it was learned that pigs farrowed during February are not the most profitable. Pigs farrowed from March 1 to March 20 made the largest gains. Pigs farrowed after April 10 did not make as large gains because of running into hot weather. It was found that corn and milk made about the best gains. Many of the farmers begin feeding corn and fattening hogs at too early an age.

Health of the Herd.—Dr. J. C. Marshall, on Thursday afternoon, considered the subject of "Health of the Herd". He said that the methylene blue and carbolic acid treatments are of no benefit in handling contagious abortion. However, he did not advise selling cows that abort. It is better to keep them than to buy other cows to replace them. Talking about tuberculosis Dr. Marshall emphasized the value of ventilation and light in helping to keep out and eradicate this disease from dairy herds.

A very interesting informal and get-together meeting was held on Wednesday evening. Mr. E. K. Hibsman, state leader of county agents, showed some stereoptican pictures of activities of county agents and the state college of agriculture, and many short, practical talks were made.

Business Meeting

The committee reported in favor of amalgamation of the state breeders' and state dairy union, a subscription for the payment of the old debts, and a committee for the adoption of a constitution and by-laws. The report of the committee was adopted. The name adopted was the Pennsylvania Breeders' and Dairymen's Association. The following officers were elected for the following year: President, E. S. Bayard, Pittsburgh; 1st Vice-president, C. B. Johnson, Warren; 2nd Vice-president, C. W. Gay, Philadelphia; Secretary, E. K. Hibshman, State College; Treasurer, R. L. Munce, Canonsburg. Executive committee: H. M. Stokes, Hanover; George Stevenson, Waverly; George Erk, Seelyville; Dr. J. M. Rosenberger, Wycombe.

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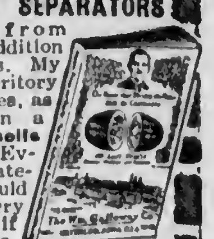

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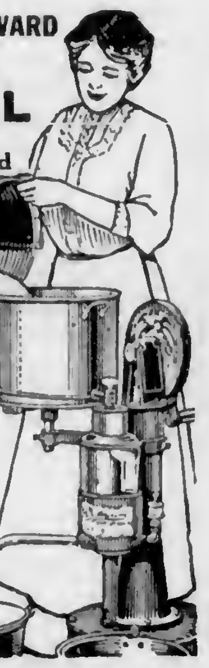

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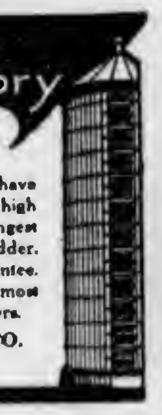

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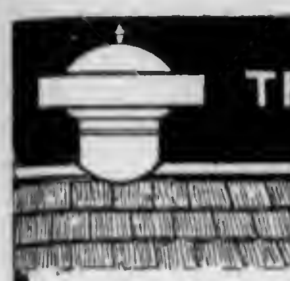

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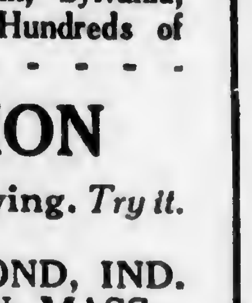

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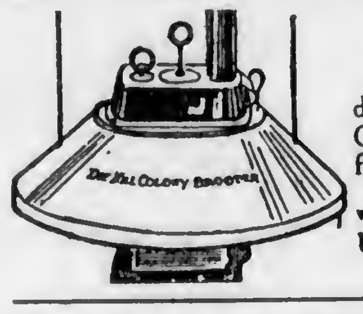

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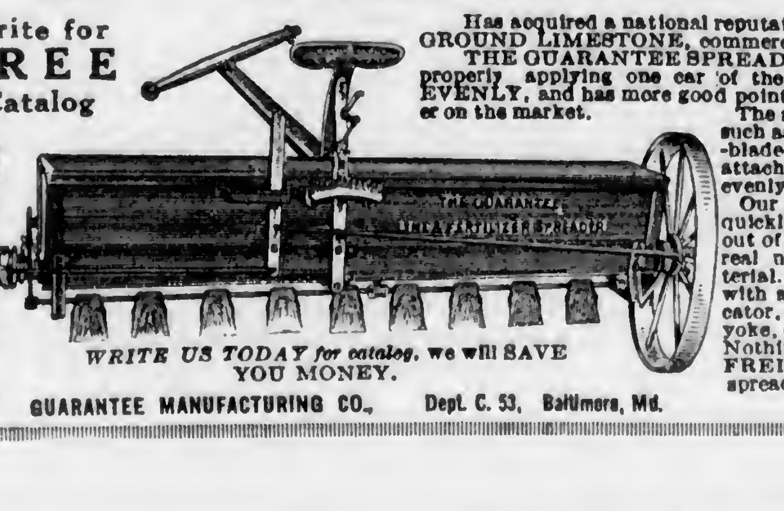
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Poultry

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(Concluded from page one.)

breathe." "What did the baker use it for?" "Honey cakes." It may be so or similar with incubator eggs. They may be used to make "honey cakes", if eggs are used in that delectable dainty. Let it be understood that if you are known to sell eggs that masquerade under false colors, none that you offer will be accepted without question. It is a great thing to have a buyer say "There are other good eggs on the market, but none that we are so certain we can rely on."

Our method of handling eggs is the reverse of all this. Nests are provided in sufficient number for all the hens. They are easy of access, both for the hens and for the attendant who gathers the eggs. These nests can easily be removed when soiled, and clean ones substituted, since they are all of the same size. They provide the partial seclusion the hens delight in. They can be entirely closed at night to prevent the hens from using them to roost in. All ledges, walls or beams on which an adventurous Leghorn would delight to make her nest, are covered with sloping boards or entirely enclosed. How necessary this is will be understood from a statement of an attendent that he saw a Leghorn trying to make a nest on a sunbeam! When they lay in the litter on the floor they are given a lecture on the error of their ways, while the attendant passes thru the pens picking up the eggs from the floor. He makes these trips frequently and twice each day all the eggs are gathered. They are sold twice a week, without exception.

Local trade absorbs a large part of what we produce, and for this purpose the eggs are packed in cartons of one dozen and sealed. Every egg is washed and dried with a soft cloth. Some apparently do not need it but to have all of even appearance none are omitted. Stains that will not wash wash off are rubbed with a cleaning powder and become perfectly white. Some authorities, so-called, say eggs should not be washed, as it lessens their keeping qualities, and it may be so. But we do not care particularly about the keeping of the eggs as they are never more than four days old when sold and not much older when used. Eggs washed and not dried become spotted and unsightly. We wish to have them fit to go from the cartons to any breakfast table.

Our eggs average large. Small ones are rejected and the cartons so filled that approximately the same weight is in each. Being sealed the cartons prevent the fouling of the eggs by unclean hands; protect them from cold, heat and dust; and a dozen is easily carried by the buyer. The eggs are guaranteed perfect and every complaint of an inferior egg is promptly and liberally adjusted. The adjustment usually takes the form of replacing the defective egg by a full dozen of good ones. Some buyers refuse to take the replacement, as they declare themselves so well satisfied that a defective egg only serves to emphasize the excellence of all the rest. It goes without saying that to live up to such a guarantee we must use the greatest care in the handling of the eggs. We cannot afford to become remiss in any detail. The best alone is good enough. The buyer is the judge and we accept his statements without question. The plan has worked so well that in our local market we are getting from the dealer from 6 to 10 cents per dozen above what he and his competitors pay for the rank and file of fresh eggs. There is an old legal maxim, Caveat emptor; let the buyer beware. We have changed that for our own purpose to Caveat vendor; let the seller beware.

Our surplus eggs are shipped in ordinary 30-dozen cases with plain fillers to a commission house in the New York district. We buy cases that have already been used, for the most part for cold storage eggs. They cost us about one-third what new cases would cost; but we re-nail every case to be sure it will hold together, and replace all fillers and separators that are stained or broken or both. For this replacement we buy fillers and separators in bulk. We do not put our clean eggs into foul cases. Because of the size of the eggs we must often raise the ends of the cases a half inch or more so we can get the cover on. If our eggs continue to increase in size we may sooner or later be compelled to split some of them to get them into the fillers!

When all is carefully done, old newspapers, folded, are placed over the eggs and the cover is nailed on. Many of the original covers are destroyed by careless opening of the cases and in place of these we use the sides and bottoms of orange boxes. If the right kind of box is chosen the covers will fit nicely. In fact, when egg cases are wanting we have used orange boxes for the same purpose. The old egg cases usually have labels on the ends. We remove these as well as convenient and paste on each end our own label printed in blue on white paper. We do this because it makes the package neat and business-like, and also to save the feelings of the original packers. Perhaps they would feel hurt to see better eggs in the cases under their labels!

Much is said and written about unsatisfactory dealings with commission men, but in the three years we have been shipping eggs we have not found occasion for a single complaint. We always receive the highest market price on the day the eggs are received, and often a cent or two more per dozen. We realize that to do better than this will require a personal canvas we have not yet found time to undertake. A check is mailed to us every Saturday to cover shipments received and we have no loss from breakage. On one occasion we were credited with three dozen less than we shipped. But it was discovered that the case had been opened, the second layer from the top half removed, and the case reclosed. This is the only loss sustained since we began shipping. Grocery men tell me there is considerable of this pilfering in transit. The Society for Ethical Culture might get busy.

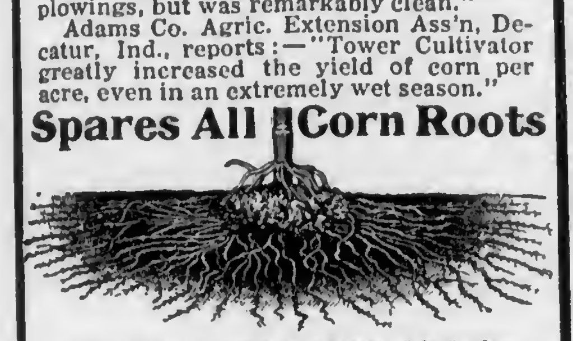
The cost of marketing varies according to the season and the place we sell. Local sales cost approximately three-fourths of a cent per dozen, the year round. Those shipped average 3½ cents per dozen, made up of: Cost of cases, ½ cent; expressage, 1 cent; commission from 1½ to 3 cents and averaging 2 cents. What the consumer, that dread being of whom we have heard so much in recent years, pays for the eggs we do not know, but we propose to find out. These costs, of course, are exclusive of the expense of taking the eggs to the express office; but as we do this at the same time we deliver to the local dealer we count the whole as part of the production expense.

Because of the confusion as to the actual meaning of the term "fresh eggs", we call ours, both on the labels and the cartons, "New Laid Eggs." It seems to us scarcely possible for any one to mistake the meaning of this. We sell no eggs we do not know to have been laid on the day they are gathered. There is no guess work about it. Any other eggs brought in are used at home. There are very few of these.

THE RAINY SEASON
CONQUERED BY
THE TOWER SYSTEM
OF
CORN CULTURE

Tower Cultivators went into the fields three days earlier than the shovels after a rain. Earlier maturity of the corn was the result.
V. H. Peck, Hull, Ill., writes:
"We can use surface cultivators after a rain three days sooner than a shovel plow and do a better job."
H. L. Chapman, Jerseyville, Ill., writes:
"It was a wet season—with your two-row Tower Cultivator; corn had only 3 plowings, but was remarkably clean."
Adams Co. Agric. Extension Ass'n, Decatur, Ind., reports:—"Tower Cultivator greatly increased the yield of corn per acre, even in an extremely wet season."

Spares All Corn Roots



These Corn Roots within Five Inches of the Surface.

Each of the following extensive corn farms of Illinois use 25 to 50 Tower Cultivators: Ill. Canning Co. and Hoopeston Canning Co., both of Hoopeston, Ill.; Iroquois Canning Co., Onarga, Ill.; Bloomington Canning Co., Bloomington, Ill.; Chenoa Canning Co., Chenoa, Ill.; LeRoy Canning Co., Leroy, Ill.—because they have proved the best.

Many thousands of farmers of the country use the "Tower" exclusively. Nearly every grower of Seed Corn uses the Tower System because it is proved the best known.

Reader, be sure your Cultivator this season has the name "TOWER" on the tongue. Write us for free literature.

J. D. TOWER & SONS CO.
54th Avenue, Mendota, Illinois.
(Original manufacturers of Surface Cultivators.)

First Aid For The Chicks

The chick's first food must take the place of the natural insect food and seeds he would eat if he had the chance. Ordinary food causes bowel trouble and most losses of baby chicks.

F. P. C.
Chick Manna
Standard Since 1884

brings chicks through first 10 days healthy and rugged and ready for common food. A perfectly balanced ration in general use with wonderful results since 1884.

At your dealer's, or write direct for offer of trial package by parcel post. Satisfaction or money back.

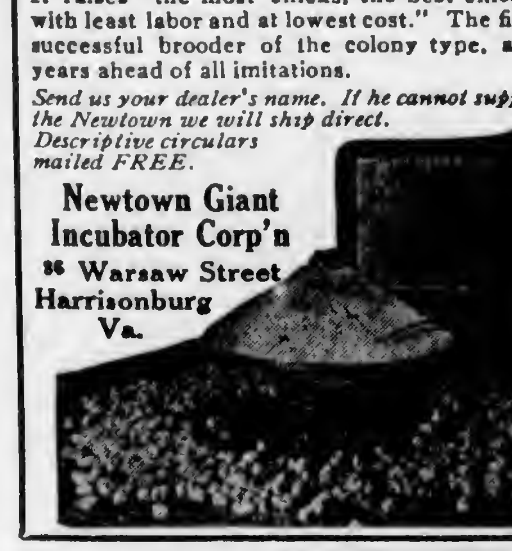
F. P. Cassel & Son,
Lansdale, Pa.
46 Main St.

Poultry Profits Sure
when you use the modern coal-burning, self-feeding, self-regulating, trouble-proof
Newtown Giant Colony Brooder

It raises "the most chicks, the best chicks, with least labor and at lowest cost." The first successful brooder of the colony type, and years ahead of all imitations.

Send us your dealer's name. If he cannot supply the Newtown we will ship direct. Descriptive circulars mailed FREE.

Newtown Giant Incubator Corp'n
86 Warsaw Street
Harrisonburg
Va.



Inoculate Your Seed for Legumes with LIVING GERMS.
Standard Inoculating Bacteria $1.00 for ONE acre.
Our name is your guarantee.
NITRATE AGENCIES CO.
104 PEARL ST. New York City. COLUMBUS Ohio.

SAY you saw the advertisement in Pennsylvania Farmer when you are writing to our advertisers.

Poultry Queries

Incubator—Advertising Eggs

I have a flock of twelve fowl to which I feed a mash mixture composed of 2 parts bran, 1 part each of middlings and corn and cob meal and ¾ part beef scraps. The grain mixture consists of equal parts corn, wheat and oats. Could this be improved? I would like to purchase an incubator, but fear the flock is too small to warrant it. What would you suggest? Would it pay to advertise eggs for hatching from this flock of twelve fowls? I have two males in the pen; one, a fine cockerel is very cowardly and is chased by the other male. Can I do anything for him? Would you advise disposing of the male who chases this cockerel? P. K. W. Montgomery Co., Pa.

Your ration is very good. The mash could be improved by using corn meal instead of corn and cob, and by the addition of 1 part alfalfa meal and ½ part linseed meal. Allow green food regularly.

A fifty egg capacity incubator could be used to advantage with your small flock. Such a machine would burn little over a gallon of oil per hatch and therefore cost very little, even if operated when half full of eggs.

It is doubtful if sufficient eggs would be obtained from twelve hens to warrant advertising. It would be a better plan to raise all the pullets possible this season so as to have a flock of twenty-five or fifty hens by next season, from which eggs for hatching could be advertised to advantage.

One male bird would be sufficient in a flock of twelve. If one of the males is to be disposed of, the cowardly fellow should be the one, as the other male shows himself to be the best bird by reason of his being boss. Where two or more males are kept in one pen there will invariably be a boss. The only way to avoid this is to keep one male in a cage while the other is on the floor, using them alternately, one day in the cage and one day on the floor with the flock.—J. R. Kessler, Chester Co., Pa.

CAUSES OF FAILURE

It is said that thirty percent of the people who go into the poultry business succeed; the other seventy percent fail. The reason for this large percentage of failures is because the parties go into the business with a decided lack of training, or, they tie up so much capital in stock and equipment that they cannot possibly get reasonable returns on their investment. In figuring the profits on poultry we should consider the minimum of profit instead of steadily gazing on the maximum; also, we should work up in the business and not try to launch a large poultry business without experience.

Sometimes when starting on a small scale the profits look very large and we think that if we could increase our business tenfold our profits would increase tenfold. But here is where the mistake is made. The large flock never yields proportionately with the smaller flock; so, when we are considering increasing our flock we should also expect a smaller percentage of profit on the capital invested. The poultry business is like any other business. It is the little losses that absorb the profit. Waste of food by rats and mice; too expensive foods; improper care of eggs; too many infertile eggs in the spring; over crowding the birds so that each bird does not have a chance to do her best. I have found all these things true by bitter experience and I have classed myself with the seventy percent of failures, but I hope to become one of the thirty percent of successes in the future.—Everett Sheppard, N. J.

THE LATEST AND THE BEST NEWS
For Farmers:-
From the Highest Authorities in Penna. and New York.

"Advocate the use of high class "HYDRATED LIME,"—
To avoid buying useless refuse contained in unrefined Lime and Limestone and in many of the cheap Hydrates. These statements were made at "Penna. State College Institute Week" in December last and confirmed at "Farmers Week" held at Ithaca, N. Y. this month.

"Most Successful Tests for Crops Made in High Magnesium Soils,"—
The "State College Farms" (of Penna.) are in Dolomitic Limestone Country and the authorities definitely recognize the favorable effect on test crops.

"HYDRATED LIME" or "GROUND BURNT LIME" gives best results,"—
Presented in January "Extension Bulletin" of the "Penna. Experiment Station" and by authorities of "Cornell College of Agriculture." Prof. J. W. White of the "Penna. Station" says the old theory that "Burned Lime Products" were to be "feared" because they might burn humus,— is now an "Exploded Idea." This statement confirmed in lecture given this month at Ithaca.

USE WARNER'S
"LIMOID"
(Pure Cedar Hollow "Hydrated Lime")

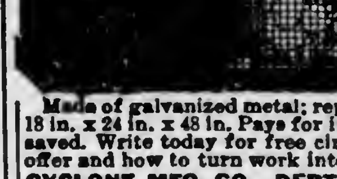
Guaranteed under the state laws; and the guaranteed analysis is printed on every bag.

Ask your dealer for Warner's Limoid. He can fill your order and give you good service. Insist on "Warner's Limoid."

CHARLES WARNER COMPANY
Wilmington, Del., Philadelphia, Pa., New York City.
Lime and Lime Products for all Purposes.

$9.85 BUYS BOTH
FREIGHT PAID EAST OF ROCKIES

Biggest Offer Yet!
BIG 155-Egg Incubator. Made of genuine California Redwood. Natural Finish. Double Doors. Deep Nursery. Thermometer. Tester. Self-regulating. Has hundreds of air cells to protect eggs from outside changes. Hot water heat. Cold-rolled, one-piece corrugated copper heater. Won't leak. Biggest bargain ever offered on a guaranteed incubator and brooder! Order from this ad or write for new 1916 catalog.
155 Chick
Progressive Incubator Co., Box 225, Racine, Wis.



"LAWN PARK" COOP
Saves Your Chicks
The Wire Park, which pulls out like a drawer, gives hen and chicks fresh grass, air and sunshine during the day; closes at night and in storms. This coop meets every demand; portable, with removable floor for easy cleaning; roomy, light, durable, sanitary.
PROOF Against Hawks, Rats Weasels, etc.
Made of galvanized metal; repels vermin. Size, open, 18 in. x 24 in. x 48 in. Pays for itself in chicks and labor saved. Write today for free circulars, special prepaid offer and how to turn work into pleasure and profit.
CYCLONE MFG. CO., DEPT. 24; URBANA, IND.

Saves Money DAILY
You have use for this Feed Cooker nearly every day in the year.
"Farmers' Favorite" Feed Cooker and Boiler.
Bigger profits from cattle, hogs and poultry by cooked feed. Heating water-washing, butchering, etc. Sterilizing milk cans, boiling spraying mixtures. Pays for itself one season boiling sap. Little fuel—cobs to chunks. 6 sizes. Many advantages. Guaranteed satisfactory or money back. Write for special price-list and circulars.
LEWIS MFG. CO.,
65-79 Owego St., Cortland, N. Y.

LET 'ER RAIN
If you've a man's work to do — wear TOWER'S FISH BRAND REFLEX SLICKER $3.
A.J TOWER CO. BOSTON
TOWER'S TRADE MARK FISH BRAND

Bottle-opener FREE to Fence-owners
Write for free bottle-opener which will show you quality of galvanizing on our wire fences. We will also send you big Fence Bargain Bulletin—free.
12¢ PER ROD
MANUFACTURERS' OUTLET CO.
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$10,000.00 BACKS THIS SAW. IT IS THE BEST AND CHEAPEST SAW MADE.
As low as $7.90
HERTZLER & ZOOK Portable Wood SAW
is easy to operate. Only $10 saw made to which ripping table can be added. Guaranteed 1 year. Money refunded if not satisfactory. Send for catalog.
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"The Profits In Poultry Keeping"
Big FREE 1916 Poultry Guide. Describes Cyphers Popular-priced Incubators, 3 styles—8 sizes, 20 years leadership. Write today.
CYPHERS INCUBATOR CO., Dept. 146, Buffalo, N.Y.
New York Boston Chicago
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PERFECTION SANITARY CIRCULAR METAL BROOD COOP
made entirely of galvanized iron which will last a life time. They are properly ventilated, and are Rat, Mink, Weasel and Skunk proof. Just the coop you are looking for. Write for circular & special introductory prices.
Perfection Metal Brood Coop Co., Box 47-W, Warsaw, Ill.

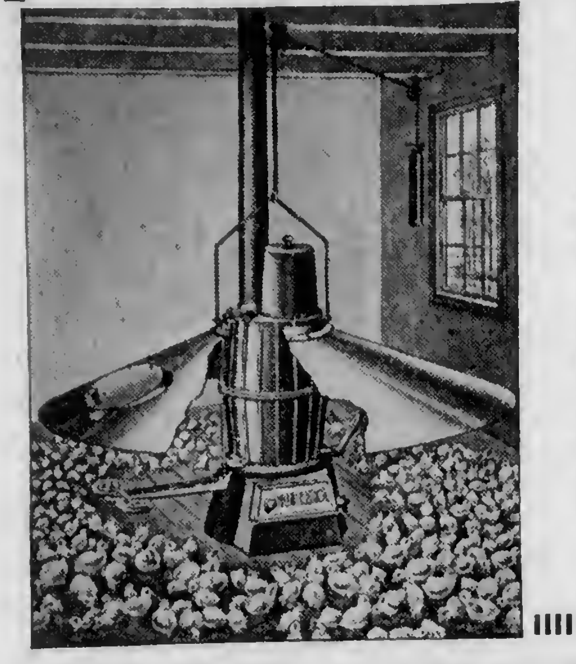
Sold On A Money-Back Guarantee

When you buy a Eureka Brooder, you run absolutely no risk. If after 30 days' trial you are not entirely satisfied with this brooder, return it to me - at my expense - and I will refund the purchase price to you without a quibble. The

Eureka Colony Brooder
Price $11 and $15

is a brooder that I have absolute confidence in. I am a large manufacturer of stoves and make every part that goes into it. I eliminate useless expense. This brooder has a corrugated fire pot, is self-regulating, and is made of solid cast iron. It will burn hard coal or natural gas, as desired. I honestly believe it will raise more chicks and better chicks at a lower cost and with less labor than any other brooder on the market. So confident am I that this brooder will satisfy, that I will gladly send it to you, on receipt of purchase price, freight prepaid, so that you can try it and see for yourself. At the end of 30 days if you are not entirely satisfied return it to me and I will refund your money at once. This is a guaranteed offer. Write me today - now - for descriptive literature, and more about my guarantee offer.

J. R. WOTHERSPOON,
248 N. Front St. Philadelphia, Pa.



ALLEN'S CHICK FOODS GUARANTEED

TO PRODUCE
Bigger—Stronger—Healthier Chicks for YOU, Mr. Poultryman.
Nutro Chick Mash
15 grain and meat meals and a portion of Nutro Salts blended into a perfect chick mash.
Nursery Chick Food
Cracked grain and seeds make this a sweet and wholesome grain ration.
Growing Chick Food—feed after chicks are 4 weeks old—perfect developer.
Remember Our Guarantee and reduce your chick mortality to a cypher. That's what the largest poultry farm in Central Penna. did last season. Send today for price and information.
Allen Milling Co., Dept. 1, Niagara Falls, N.Y.

Tells why chicks die

E. J. Reefer, the poultry expert, 4403 Farmer Bldg. Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure it." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every batch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

GREIDER'S FINE CATALOGUE
of pure bred poultry: 70 breeds illustrated and described, many in color. Perfect poultry guide—all facts. Low prices on stock and hatching eggs. Incubators and brooders. 23 years in business. You need this book. Send 10c for it—today.
B. H. GREIDER, Box 58, Rheems, Pa.

Cockerels Choice S. C. Buff Orpington, White Orpington, Black Minorcas, R. C. Golden Wyandottes, $2. each, 2 for $3.50.
EGGS For hatching, $1. for 15; $5. per 100. Infertile eggs replaced half price.
W. J. WIDNEY, Doylesburg, Pa.

Eggs for Hatching From stock on free range Leghorns (young strain) Barred Rocks (Park strain), and Turkeys (Bird Bros strain). Write for mating list and get acquainted with our free range system. W. J. Pearson, R4, Jersey Shore, Pa

The Business Farmer's Hen For eggs and meat. Heavy winter layers. Trapnested White Orpington eggs, chicks, stock. Honest values and square deal guaranteed. STEVENS RELIABLE YARDS, Box P, Lyons, N.Y.

S. C. Snowy White Leghorn baby chicks. Wyckoff strain, ten cents each. Eggs $1.50 for 15 or $6 a hundred. Eggs and baby chicks are from trapnested stock. Satisfaction guaranteed. DWIGHT GRIFFIN, Poultry Farm, Greenwich, Ohio

Eggs 15 $1; 40 $2; purebred Rocks, Wyandotts, Reds, Leghorns, Hamburgs. 35 years experience. Catalog. White Orpingtons, Houdans, Campines, Brahmas; 13 $1; 30 $2. S. K. MOHR, Coopersburg, Pa.

EGGS Strong hatchable eggs from pure bred Barred Rocks, fine free range stock. 100 - $5.00; 50 - $3.00; 15 - $1.00.
A. W. NEWCOMER, Glen Rock, Pa.

PURE BRED Golden Buff Orpington Cockerels Eggs for hatching. White Leghorns White Indian Runner drakes.
Dr. E. L. SELTZER, Marumsco, Md.

White Holland Turkeys White Emden Geese Sable and White Collies, all pure bred. W. N. Everitt, Flemington, N. J.

CAMPINES Silver and golden; Indian Runner Ducks. Eggs from one and two year old hens. I. R. Tanger, York Springs, R 4, Penna.

60 BEST BREEDS Chickens, ducks, geese turkeys, guineas, dogs and hares. Stock for sale. Valuable catalog. Free. H. A. SOUDER, Box P, Sellersville, Pa.

Thoroughbred Poultry Best 20 varieties Eggs $1. for 15, $2 for 40. Cat. free. Henry K. Mohr, R3, Quakertown, Pa.

Baby Chix 8 and 10c each. Full blooded S. C. W Leghorn Chix. Guarantee delivery—order early ARTHUR MORRIS, Ischua, N Y

S. C. W. Leghorns Winter layer hens weigh 5 to 6 lb. Eggs 15 $1; 50 $2.75; 100 $5. Circular free. Will H. Tope, Carrollton, Ohio

White Turkeys; Emden Ganders; Colored Muscovy, Pekin and Mallard Ducks, Barred Rock and Hamburg Cockerels; send for prices. B. F. Kahler, Hughesville, Pa.

10 Pointers you ought to know about Incubators Free!

Facts—hard, cold facts—naked, unadorned facts—facts you ought to know before you spend a penny for any kind of an Incubator, are set before you stripped to the skin, in this new Incubator Book. It is free—free to anyone who expects to buy an Incubator and wants to pay *only for incubation*, not for frills and fol-de-rol. When you see here in this book—

150 Egg Incubator, $5.42

backed by an iron-clad guarantee to be strong, reliable and practical, and guaranteed to hatch every hatchable egg, and when you see our *prepaid freight offer* on Page 2; then you begin to get an idea of the bed-rock *facts* about Incubators you get in this book. If, in addition to a good, strong successful hatcher, you want extra labor savers and conveniences, this Incubator Book of Facts shows you just how much you need to pay for them—if it's hot-water heat you want, here's a Maynard for $3.15; and there's a Hot-Water Heated, Metal Covered Model for $9.40; or, if you want an Incubator with every convenience and improvement that's worth having, here's the Maynard Standard $8.60 for 80 egg capacity, and $14.95 for 250 egg capacity, and you couldn't get one to serve you better if you paid $100!

Get This Free Book

Facts are what you want—the plain, unvarnished facts about Incubators, and this book gives them to you stripped of fuss and feathers. It puts a new light on Incubators. Spend no money for any kind of Incubator till you get this book—simply write a postal and say, "I want the facts about Incubators—send me the free book"

The Charles William Stores
726 Stores Building, New York

CHICKS
7 & 10c. S C.W. Leghorns, etc. Money back for dead ones. Circular free. W. A. Lauver, McAlisterville, Pa

Candee Hatched Chicks Are acknowledged by experts the most profitable ones to buy. Booking orders now. Leghorns $11 per 100 and up. Barred Rocks $15., R. C. Reds $14 Black Leghorn and Anconas. Hatching eggs. Free booklet. E. R. HUMMER & CO., R. D., Frenchtown, N.J.

50,000 Chicks for 1916. S. C. White, Brown Buff Leghorns, Barred Rocks, Wyandottes and Broiler Chicks. 7 cents each, and up. Circular free. Keystone Hatchery, Box 45, Richfield, Pa

Chicks that Live, $15 per 100. Silver, White and Partridge Wyandottes White Leghorns $12. per 100, Pekin and Rouen Ducklings, 25c each.
Aldham Poultry Farm, R. 39, Phoenixville, Pa.

Chicks S C White Leghorns, high grade utility stock, $10 per 100, any quantity.
Eggs That will produce strong husky chicks, $6 per 100, $50 per 1000.
CHAS. A. SCHWEBEL, Leaman Place, Pa

EGGS for hatching, White Leghorns, Sprecher Strain. 1400 farm range sel. breeders, $5.00 per 100; $40.00 per 1000. I want your trade.
A. S. HUBER, R. 1, Lititz, Pa.

BARRED P. ROCK cockerels and pullets, extra large S. L. and Partridge Wyandottes and Anconas, $1.50 each; five pullets and one cockerel, $7.50
BREEZE HEIGHTS FARM, Coolville, Ohio

Eggs for Hatching 15 for $1; 40 for $2; R. C. R. I Reds, Silver Laced Wyandottes S.C.W. Leghorns. HOME FARM, Centre Valley, Pa

S. C. Buff Orpingtons, S. C. White Leghorns & Buttercup c'k'r'ls. Satisfaction guar. or money back. Denniston & Sons, Slippery Rock, Pa.

Barred Rock Chicks 50- $7.75, 100- $15.00 Express prepaid.
JOHN SIEGRIST, Bird-in-hand, Pa

Black Leghorns Day old Chicks and Eggs
HAMPTON'S - - Pittstown, N. J

WHITE ROCKS Large type, heavy layers eggs 10c each, $3. per 100
ORCHARD FARMS, R. D. 2, Newton, N. J

REDS S. C. Rhode Island Great Winter Layers Eggs & Chicks. Write for prices.
AL-RICH Poultry Yards, New Milford, Pa. Box 143

Clearview Poultry Farm. Established 1900. Trapnest strain of S. C. W. Leghorns. Eggs for hatching. 15, $1; 50 $3, 100, $5. THOS. H. BARNS, Creston, O.

Blue Hen Hot-Air Colony Brooder

"I have been colony brooding for several years, with all kinds. I used to worry day and night; I now let the Blue Hen do the work and worry. I am surprised to see how little coal it consumes and how even the temperature runs day in and day out."
Gene Huse, Norfolk, Nebraska.

The Big "BLUE HEN" Book, sent *FREE*, gives profitable pointers and shows how success is made.

$14.50 $15.50 West of Mississippi River

Shows HOVER RAISED Curtain removed

Special curtain attachment gives fresh air without floor drafts. Bigger than other brooders; grates, 2¼ times usual size. Price includes everything—automatic regulator, thermometer, curtain. Satisfaction guaranteed.

WATSON MFG. CO.
Drawer 36, Lancaster, Pa.

Manufacturers of Blue Hen Brooders (Hot-air and Hot-water), Blue Hen Round Tray Incubators and Round Tray Mammoth Incubators. Special proposition to dealers or agents.

THE BREEDING PEN

As the breeding season draws near the most important problem confronting the poultryman is the selection of the breeding pen.

It is, of course, admitted by nearly every one that every poultry raiser be he fancier or farmer should keep the birds he intends to use for breeders in a separate run or breeding pen.

As like begets like only the choicest of the flock should be used in this important capacity. Special attention should be given to their shape, color, and head points. Mating cockerels with two year old hens is the practice most in vogue. Cocks mated to pullets is, however, also a good mating. Never mate cocks with hens or cockerels with pullets.

Always select the medium sized birds of each breed and have them conform in shape as nearly as possible to the standard. Use great pains in selecting only the best colored individuals. Those two common defects of white colored fowls, brassiness and creaminess can only be removed by breeding them out. Therefore use only the whitest birds for the breeding pen. Be sure the breeders have all good heads, bright eyes, good evenly serrated combs and correctly colored ear lobes.

As the male is one half the pen too much care can not be taken in selecting him. Good, healthy, vigorous cocks and cockerels with vim and pep are the ones to select. Active, scrappy fellows are the ones that will breed strong and true.

As to the number of females to mate with a male, experience has taught me that with the Mediterranean breeds one male to fifteen females is about right, with the American breeds one male to ten or twelve females, while with the Asiatics one male to five or six females will produce the best results. It is often a good plan to have two males to each pen of females and alternate them thus assuring high fertility, as males have been known to give some females preference and ignore the rest. If selection of breeders is faithfully practiced and imperfections weeded out, the quality of the flocks will surely improve and, what is more to the point, it pays—Leonard F. Strickler, Lebanon Co., Pa.

HENS IN CONFINEMENT

Editor Pennsylvania Farmer:

We receive your journal every week and we enjoy reading it very much. It contains much valuable information on different subjects, and some things, to my mind, rather amusing. I notice under poultry queries some one writing says "Give the hens liberty." I don't just understand what he means by "liberty." If it is large range, I beg to differ with the writer. We have been keeping chickens in town for the past twenty years. I bought my lot for one-third of an acre; I have it almost half covered in buildings so you see it would give the hens a very limited range if they had all of it.

We have two sheds about sixty feet long and eight feet deep but the hens do not have all of this space as I have a little compartment cut off for a gasoline tank and oil barrel, as you know nearly every one now has an auto and I am not left out. Our shed has a southern exposure which is covered with wire cloth four bars to the inch so that the English sparrow cannot become too familiar with the hens. The shed is divided into two compartments. In one end we have 24 pullets, 23 for laying and one setting. We frequently get 21 eggs from the 23 pullets. In the other end we have 19 pullets and one two-year-old hen. We are getting 16 eggs per day from the 18.

Now the ration we are feeding and feed all the time is wheat screenings in the morning, thrown into cut straw; a warm mash at middle of day in cold weather, and a mash in middle of day all the year around. This mash is composed of scraps from the table which is not very much and we mix in to make the feed crushed corn, wheat bran and cotton seed meal as this is the ration I feed my cows. And a little shelled corn at night. This forms the ration the year around except skimmed milk which is given them every morning and I want to say we get eggs the year around. These pullets were hatched last March and April and began to lay the latter part of August and I don't think there has been but four of them wanted to set yet.

Our chickens are all of laying strain of the Barred Rock and we don't want any better. I am not writing this to advertise eggs for setting as we are just testing ours and don't know how they would hatch. These pullets have not been out of the sheds over four hours since last November so you know what range they have had. We have muslin fronts on the sheds to let down so as to protect them from the cold.—S. E. Harper, Maryland.

SPROUTING OATS FOR THE FOWLS

Sprouted oats furnishes tender green food in the months when nothing will grow out of doors, and furnishes a convenient substitute when we have run out of vegetables, cabbages, etc., or have failed to store any away for winter use.

It is necessary to try a time or two, to know how many oats to soak at a time for the flock, and how often to start them. Fill a pail two-thirds full of oats and cover with warm water. Let stand twenty-four hours, then drain and pour the oats into another pail having holes bored in the bottom. Set this pail back into the first pail to catch the water that may drain off the oats, and let them stand in this pail until tiny white sprouts appear. Now pour the oats into a tight box measuring about two and one-half feet square and four inches deep. Spread the oats out to a depth of two inches and cover with burlap. Stir each day so they will not become matted, and keep oats moist by sprinkling with warm water twice daily.

When the oats have white tender sprouts about an inch long they are ready for food. They will be eaten greedily, roots and all.—C. B. Williams.

POULTRY NOTES

Keep the hoppers well filled with a good dry mash.

Change the litter and nesting material often. Keep clean.

Trap nests should be used in breeding up a prolific strain of layers.

A flock average of 150 eggs per year is wonderful, but possible, practicable, and well worth working for by the owner of every farm flock.

Use only strong, full-grown healthy birds in the breeding pens and don't run pullets and old hens together if you can avoid it.

Hatch as many chicks this season as you can feed and take proper care of and no more. This is a pretty good rule to follow.

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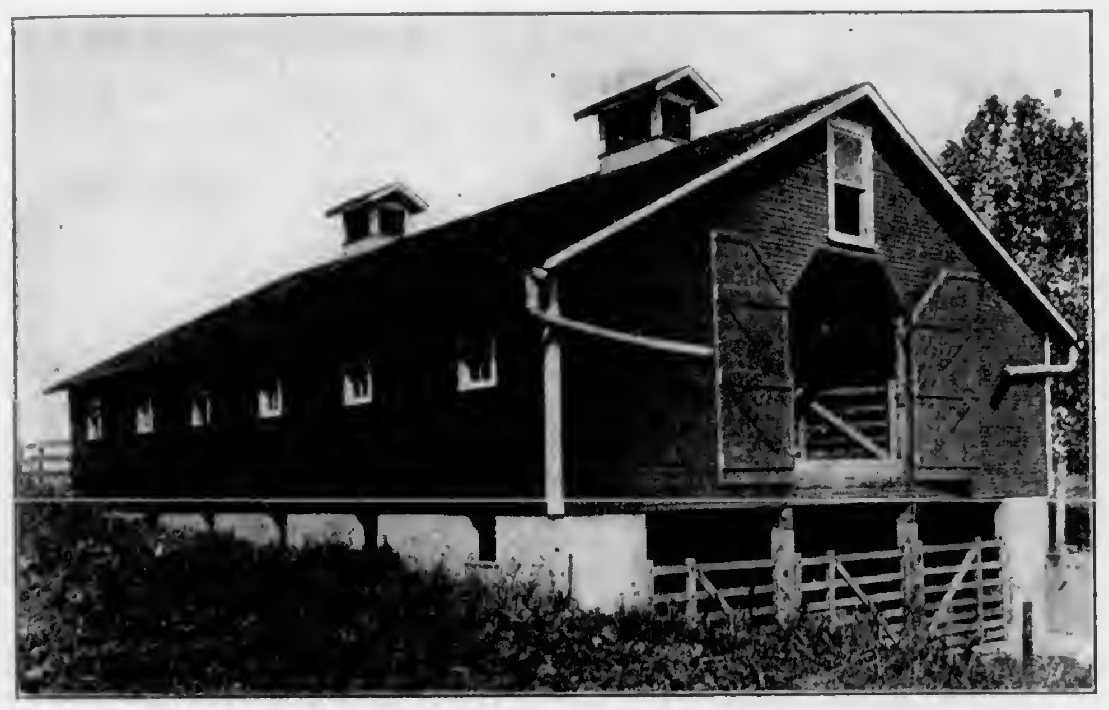
More Hogs for the East

By Paul Gerlaugh, Pennsylvania State College

Is it to our interest to raise more hogs on our farms? The answer to this question will invariably be "yes" from a majority of men who have kept hogs in numbers large enough to justify the name of hog feeder. The hog is often spoken of as a "mortgage lifter", and the name is one which is seldom not appropriate. The hog has probably lifted more mortgages and disappointed fewer people who have not lifted their mortgages than any other class of live stock. The hog is found in groups of three or four in many places to supply fresh and cured meats and lard to farmers, farm laborers and even laborers in many small towns.

Stated in terms of dry matter, a hog will produce a pound of gain from four to five pounds of dry matter, while a steer will require from ten to twelve pounds of dry matter to produce a pound of gain. The hog will produce more meat from a given amount of grain fed than will an animal belonging to any other class of live stock. The hog is usually credited with being able to produce ten pounds of gain from a bushel of corn. If properly fed he will make considerably more. Cattle will make from six to eight pounds of gain, depending largely on age, from a bushel of corn and will require rough feeds such as grass, hay or stover in addition.



A TWO-STORY HOG HOUSE WITH CONCRETE BASEMENT 32 X 50 FEET.

The hog is also a scavenger and by many people this is supposed to be his only position in the live stock world. True, the hog will make use of offal from the kitchen but this alone oftentimes keeps a hog in poor health. Many hogs die from indigestion of some sort, usually brought about by being fed garbage exclusively. Hogs can and are used to utilize offal and by-products from either beef or dairy cattle being placed in the feed lot, where they grow rapidly on skim milk or buttermilk after the cream or butter is sold. Another point not to be overlooked is that from 100 pounds live weight the hog will yield from 15 to 20 pounds more of meat than will a beef animal.

The number of hogs that can be kept on an average farm is a matter which must be worked out by the farmer himself. It is safe to say that the number is larger than the average Pennsylvania farmer is keeping. Figures from the Year Book of the United States Department of Agriculture show that the states which raise the most corn also raise the greatest number of hogs. In the case of Pennsylvania this is different. We do not raise hogs in proportion to the amount of corn which we produce. This state ranks twelfth among the states in corn production and only twenty-second as to the number of hogs produced. The reason for this is a difference in the general management and feeding of hogs in this state as compared with the system followed in the Middle Western states. To profitably produce hogs does not require corn. Some of the European countries, Denmark in particular, produce pork of the finest quality without the use of corn. These points will be discussed in following articles.

Hogs may be purchased as shotes and fed until fattened and ready for the market. These may be obtained in the home community and in some cases light hogs are purchased on the market and taken out to the country to be fattened. The latter, however, is not a common practice. Recently it was reported that a car load of shotes had been shipped from Montana to a Middle Western state to be fattened and then shipped to market. However, hogs are better raised and fattened on the same farm. This is due to several reasons. Hogs multiply very rapidly as compared with other classes of live stock. A sow will raise a litter of pigs, varying in number from four to a dozen, according to the sow, twice a year. These pigs will usually be sold on the market before they are a year old. The man who buys hogs from different places is in danger of bringing disease into his herd and thus cause great loss. Hog cholera is probably the most common of these diseases. There are not many sections of the country where a farmer can rely upon being able to purchase shotes for fattening. The men who raise them want the profit from fattening, therefore, those who want this profit must raise the hogs on their own farms.

The breeds of hogs are divided into two types, namely, the lard and the bacon. The lard hog has been developed in this country in response to a demand for a hog that would utilize the corn crop to the best advantage. It is doubtful if there are many farms which have corn in abundance that can use the bacon type to as good advantage as the lard type of hog. The bacon type, if fed such feeds as will properly develop it, is usually considered as having a superior quality of meat. However, it is very difficult to produce first-class bacon and use corn extensively in the ration and the markets do not pay a sufficient premium for good bacon hogs to justify using the more expensive grains as a hog feed. This can better be left to countries that cannot produce corn as well as this country.

There is the same discussion among hog men as among breeders of other classes of live stock as to which is the best breed. There is no "best" breed of hogs. All breeds have their strong points. A breed should be selected which will best answer the local requirements. If many hogs are raised in any

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particular community, one breed will usually predominate. Such points as the size of litters, mature weight of breed, color, quality, early maturity, adaptability to handling forage crops, and their meeting market requirements when finished, must be considered. Any breed is superior to a group of scrubs. One sometimes hears the statement that purebreds are not as prolific as scrubs or grades. Occasionally a prolific scrub is found, but the proportion of unprolific sows to this one is much wider than in the case of purebreds.—Paul Gerlaugh.

Note.—This is the first of a series of articles on growing and feeding hogs. The second article will be published in an early issue.—The Editors.

FORAGE CROPS

Experiments with forage crops in Missouri have brought out the following facts: Cowpeas and soy beans in rows spaced 30 to 36 inches apart gave best seed production, and 60 pounds seed per acre gave largest hay yield. Canada peas and oats gave the best mixture for spring forage and rape or Canada peas for a single crop. Sorghum gave best returns for summer forage and rye or rye and vetch for a fall crop. Crimson clover is not as satisfactory in that latitude as vetch. Northern alfalfa seed proved superior to ordinary commercial seed, especially that originating in humid and warm climates.—K.

MANAGEMENT OF SHEEP ON THE FARM

Professor J. W. Hammond, of the Ohio Experiment Station, in his talk at Pennsylvania Farmers' Week, on the management of sheep on the farm, brought out several reasons why more sheep should be kept in Pennsylvania.

First, they are economical producers compared with other animals; second, the labor in caring for them is light as compared with that in connection with other lines of animal industry, such as dairying; third, they allow for the utilization of rough and pasture lands which might otherwise be unmarketable so far as the feed secured from them was concerned.

The fourth point on which Mr. Hammond placed particular stress was that the high prices now prevailing, and which probably will prevail for years to come for wool and mutton, should induce Pennsylvania farmers to raise more and thus to get in on the market for these products. Discussing the type of farms on which sheep may be kept, he stated that, contrary to orthodox teaching, sheep should not be kept on all farms. Where a farm is highly specialized, such as in the raising of truck crops and fruits, or in dairying, for instance, sheep would hardly be profitable. On most general farms a few sheep may be kept and especially where the land is rough. The question of whether sheep should be kept for wool or mutton was disposed of with the statement that the principal object today in raising sheep is for the mutton. It was the opinion of Professor Hammond that the mutton type of sheep would be best for Pennsylvania.

The most profitable line of mutton production is that of lambs. It was shown that 85 percent of the sheep stock which is sent to market is in the shape of lambs, and that a comparison of the prices of sheep and lambs will show that lambs usually sell for from $2 to $3 per hundred higher than sheep. Lambs are also more economically produced than sheep and a greater amount of mutton is secured with less food. Lambs also yield quicker returns than older sheep. Professor Hammond discussed the systems of producing lambs and also the systems which should be carried out in caring for sheep during the summer time. He did not advocate any particular system, stating that the conditions of a particular locality are to be taken into consideration first.

WATER SANITATION ON THE FARM

We all concede that water for family use must be pure. And so should the water for the farm animals, not only for their own health but for the sake of the family as well. The cow may drink impure water and it may not affect her perceptibly, but she may pass its impurities on to the family.

On many farms the rain water cistern becomes a place of vile odors in summer. Rain water is more friendly to organic life than well water. On many farms this water is given to the stock when its smell points the need of a thoro cleansing and should prohibit its use. Every farm creature ought to have access to water that comes pure from the depths of the earth.

Even the sunlit pasture brook is not a safe drinking place for cattle if there flows into it any small rivulet from barnyards or accumulations of refuse or waste. Such tributaries of filth may operate only during heavy rains, showing no trace during fair weather when we saunter forth to inspect conditions. Impurities thrown upon the frozen ground in winter are washed far by subsequent rains and should be thought of. Of course, a swift flowing brook stands a better chance of being pure than a sluggish one. All pasture brooks should be kept running freely by being dug clean along their banks with no stagnant pools for breeding disease. Standing water should be fenced away from the cattle if it cannot be safely drained.—M. R. C., New Jersey.

CARING FOR WINTER PIGS

Many farmers seem to think that it does not pay to try to raise pigs in cold weather. It is not unusual to find breeders who never raise more than one litter from each brood sow during the year and that in the spring. Spring pigs can be fattened at less expense but it is also true that keeping the brood animals the remainder of the year without any income is expensive, and a litter of pigs in the fall should bring a fair profit if managed rightly. September and October pigs can be handled without serious trouble during the winter. Warm quarters are needed and plenty of litter for bedding. And dry pens are necessary.

One of the biggest mistakes made by hog raisers is in trying to feed whole grains during the winter. The animals will eat some of the whole corn right from the cob, but it will be found more satisfactory from a growing standpoint to give the young pigs ground feeds. They fatten quicker and keep in better condition. Quick growth is what makes the profit. Middlings, corn meal, rye and buckwheat make good winter feeds. They should be fed in mixtures, rather than any one alone. Oil meal should also be fed, or tankage will answer the same purpose. These crushed grains mixed with milk, and fed as a sort of sloppy mash are weight-producers. Salt should be given frequently, usually mixed with the slop. Charcoal is also needed by the animals, and fresh, slightly-warm water at least twice a day.

There is a tendency on the part of the pigs to lie in the litter in a sluggish state a large part of the day when the weather is cold. This habit should be overcome. The active pig is the healthy one, and the one that will grow the fastest. Young pigs do not need to be fattened, rather they need to grow bone and muscle. The hog that is marketed at the age of six or seven months is the profit maker.—C. H. C.

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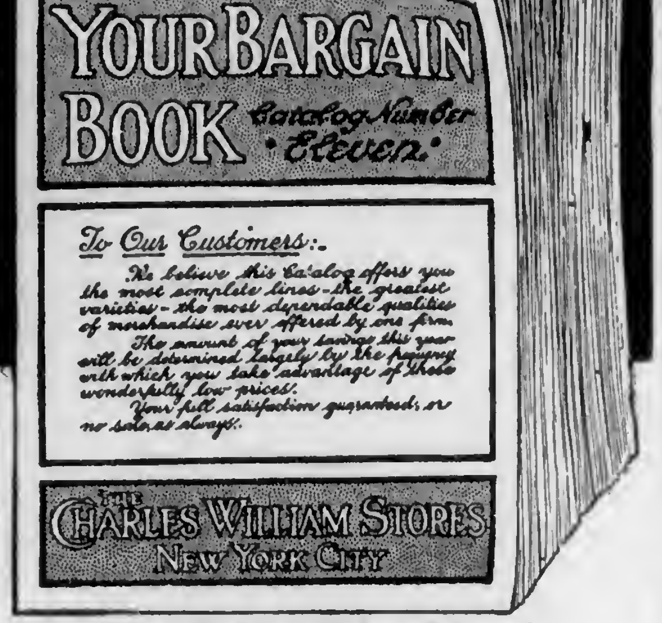
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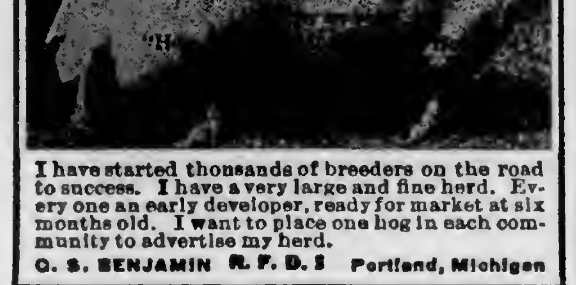

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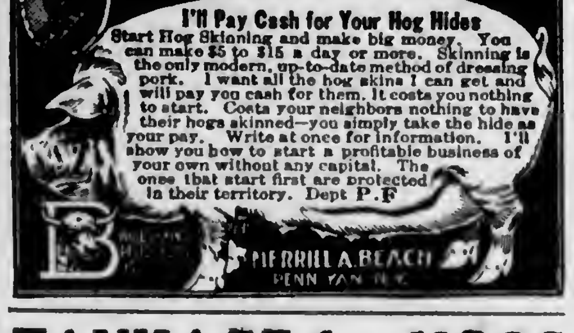

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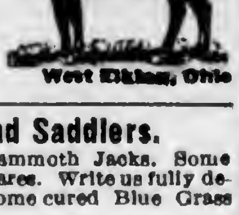

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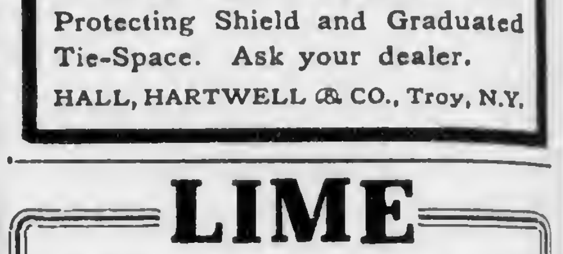
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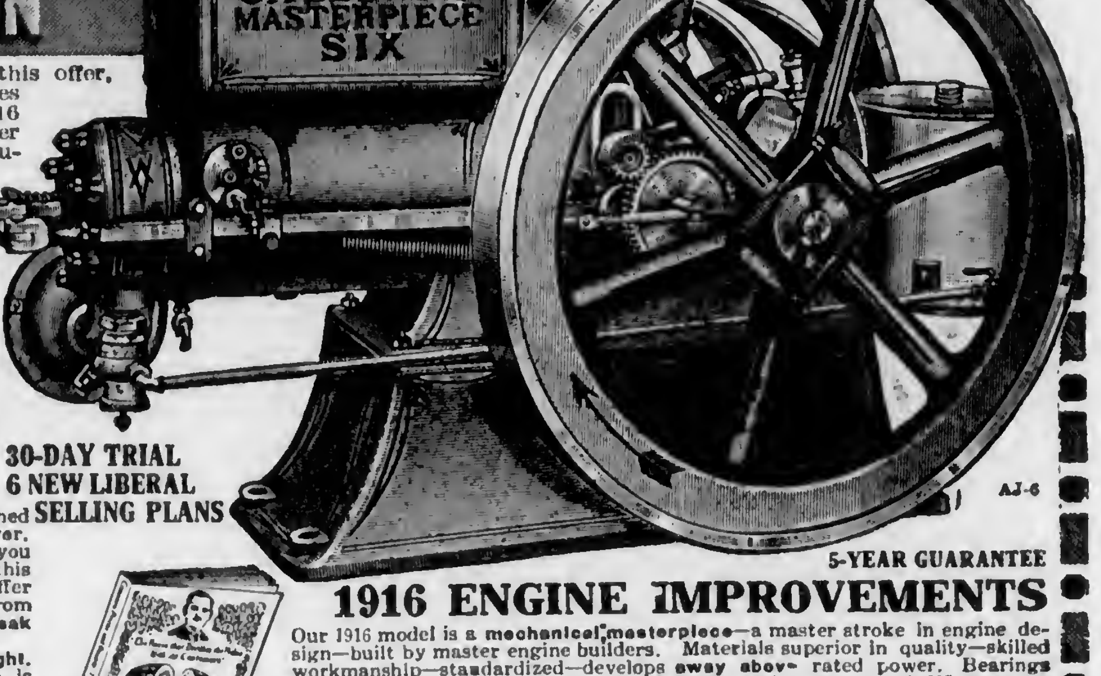

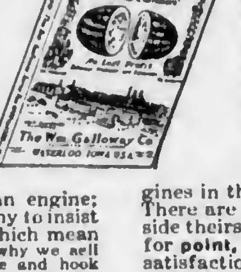
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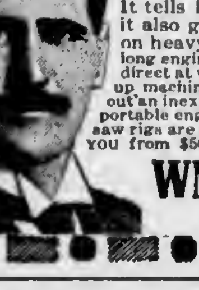

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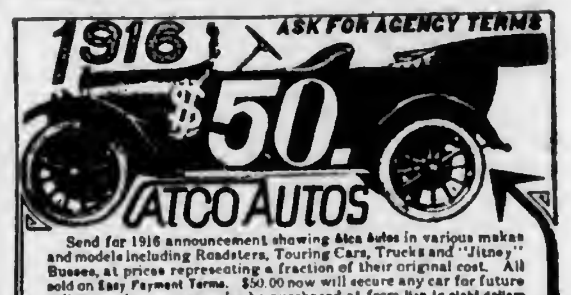

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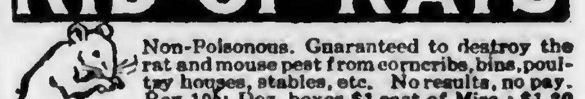

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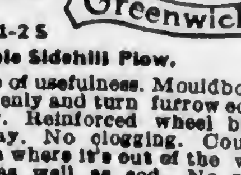
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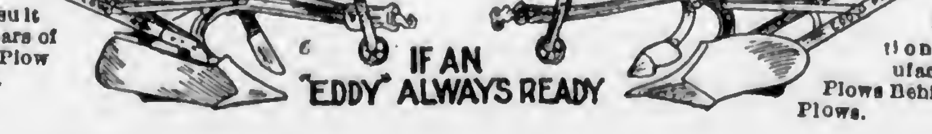
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Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., Feb. 28, 1916.

White potatoes have been in moderate supply with 75 to 80 cars on the track daily. The bulk of the stock is from Pennsylvania and is selling at $1.15 to $1.20 per bushel when fancy. Maine Green Mountains run about even with Pennsylvania stock for price, selling at $1.15 to $1.20. York State potatoes at $1.10 to $1.15 and western stock at $1.10 find lesser demand than either the Pennsylvania or Maine potatoes.

Sweet potatoes are in good demand at fair prices. Jersey sweets are selling at 50 to 65 cents per basket; the No. 2 stock 25 to 35 cents. Delaware sweets in hampers sold at 70 to 80 cents and Virginia stock at $1.50 to $1.75 per barrel.

Vegetables

The average offerings in onions is a moderate supply of about 20 cars daily. The principal receipts are from New York State and of only fair quality. Fancy onions command fancy prices whenever received, but the supply has been extremely light. The average sales were at $2.25 to $2.50 per 100 lb. bag. Fair grades sold at $1.50 to $2.

Cabbage has been in very irregular supply thruout the season. Three weeks ago carloads of Danish were offered on the track at $4 and $5 per ton. In the past week receipts have been from 10 to 15 cars daily, with the fancy marks selling as high as $15 per ton. The general run on sales of fancy Danish is from $12 to $15. Florida cabbage, too, is meeting with better prices and selling at $1 to $1.35 per hamper.

The bulk of the celery offered is that received from Florida and is selling from $1.50 to $2.50 per crate. Pennsylvania celery is becoming scarce and fancy stock selling out at 12 cents per bunch.

Southern vegetables are arriving in better condition and several commodities in the past week have made severe advances in price, most notably lettuce. The Norfolk shipments were in bad order this morning altho in the past week shipments have been in better order. Fancy spinach is now selling as high as $1.75 and $2 per barrel and kale at 65 to 75 cents. Fancy Florida lettuce was in brisk demand at $2.25 and $2.50 per hamper. Some stock less fancy was quickly moved at $1.50 to $1.75. Florida beans are selling at $1.75 to $2.25 per basket; peas, $2.50 to $3.50 per basket; peppers, $1.50 to $2.25 per carrier; eggplants, $2.00 to $3.00 per crate; tomatoes, fancy, $2.50 to $3.00, choice, $1.75 to $2.25.

The market for root crops continues about as quoted last week with a fair supply and the good prices maintained. Fancy carrots are selling around $2.50 per barrel; beets, $2 to $2.25 per barrel; parsnips, $1 to $1.25 per barrel and rutabagas, 60 cents per bushel.

Fruits

Reports from all apple-producing sections show increased holding over their records of one year ago. The government report of February first shows increased holdings of 14.8 percent as compared with the same date last year. It would appear that apples must be moved at a swifter pace in order to clean out during the season. Shipments to this market have been only moderate, receipts averaging about 40 cars daily, most of which is from York state. A good movement prevailed for good fruit and the prices quoted last week continued with but slight change. York State Kings sold at $2.50 to 3.25; Hubbardstons, $2.50 to $2.75; Greenings, $2.50 to $3; Spys, $2.25 to $3; Baldwins, $2.50 to $3.50; Ben Davis, $2 to $2.50. Pennsylvania, Virginia and West Virginia stock sold as follows: Winesap, Stayman, Black Twig, $2.50 to $3.25; York Imperial, $2.25 to $2.75; Ben Davis, $2 to $2.50. Second grade apples held steady around $1.25 to $1.75 per barrel. Western boxed apples continue to arrive in only moderate supply and fancy stock is moving around $1.75 to $2. The principal sales are at an average of $1.25 to $1.50.

Poultry

Little change is apparent over last week's prices in dressed poultry and fancy stock continues to clean-up at well sustained prices. In the early part of last week there was ample supply and the market ruled weak but conditions improved at the close. Chickens of fancy quality and desirable size were in strong demand and brought full prices. Extra fancy fowl are selling today at 18½ to 20 cents per pound; smaller size 15 to 17 cents, old roosters 15 cents. Fancy Jersey broilers sold at 24 to 26 cents, other near-by broilers 22 to 24 cents. Middle West stock sold at 21 to 22 cents. Near-by fancy turkeys continue at the record price of 30 cents under an extreme scarcity. Fair to choice turkeys are selling at 25 to 28 cents; old toms, 25 cents. Spring ducks, 18 to 20 cents; geese, 16 to 18 cents.

The demand for live poultry has been slight and only strictly fancy stock sold at full quotations. Receipts at the beginning of this week are light and the inquiry fair. Fowl are selling about one-half cent below last Monday's prices. We quote fancy fowl, 16½ cents to 17 cents; roosters, 12 to 13 cents; fancy spring chickens, 19 to 20 cents; ducks, 18 to 20 cents; geese, 17 to 19 cents.

Eggs

Quotations on fancy near-by extras are identical with those of one week ago. A moderate but steady supply has kept the demand good for desirable stock. Fancy near-by extras are selling today at 28 cents; near-by firsts, 25½ cents; near-by current receipts, 25 cents. Western extra firsts are selling at 25½ cents; firsts, 25 cents; seconds, 21 to 22 cents. Fancy selected candled fresh eggs jobbed at 30 to 32 cents per dozen.

—Selmarad.

NEW YORK PRODUCE

New York City, Feb. 28, 1916.

The butter trade is a little slow, altho prices are slightly advanced above those of last week. Very little active business in cheese and prices remain as before. Egg market unsettled and fluctuating. Apple trade rules weak and figures quoted are outside prices. The weather is too cold to move potatoes, but prices are without material change.

Butter. — Creamery extra, (92 score) per pound, 35½@36c; higher score, 36½@37c; thirds to firsts, 28@35c; state dairy, 24@34c; packing stock, 19@22c.

Cheese.—Whole milk specials, 18¼c; daisies, 18½c; skims, 12½@16¼c.

Eggs. — Fresh gathered, extra, 26@26½c; firsts, 24@25c; thirds, 20@21c; dirties, 20c; near-by whites, fine to fancy, 31@32c dozen; ordinary to good, 26@30c; browns, 25@27c.

Dressed Poultry.—Fresh soft meated—Barrels, Philadelphia and Long Island, fancy, 3 to 4 pounds to pair, 40@42c; Philadelphia and Long Island, average, 3 to 4 pounds to pair, per pound, 28@30c; fancy roasters, 25@26c. Capons, 24@32c. Fowls, 16@19c; old roosters, 14½c; squabs, $2.25@7.00 doz. Spring ducks, per pound, 19@20c. Turkeys, dry picked, 26@30c.

Apples.—These prices show the range from "B" to "A". Jonathan, bbl., $2@4; York Imperial, barrel, $2.25@3.25; Winesap, barrel, $2.25@4.25; Greening, barrel, $2@3; King, bbl., $2@3.50; Northern Spy, $2.25@4; Baldwin, bbl., $2@3.25; Hubbardson, bbl., $2@2.50; Ben Davis and Gano, bbl., $1.75@3; Common, bbl., $1.50@3.

Vegetables.—Beets, per bbl., $1. Carrots, bbl., $1@2. Cabbage, Danish, ton, $10@20. Turnips, bbl., $1@1.25. Onions, yellow, $2@2.50 bag. Squash, Hubbard and Marrow, $1.75@2 bbl. Potatoes, Jersey, $2.50@3 bag. Long Island, $4 bag. Sweets, $1.75@2.50 barrel.

Country Dressed Veals.—

Choice,	@16½
Prime,	15¼@16
Fair to good	13½@14½
Coarse, heavy	13½@14½
Common	12½@13
Buttermilks	11 @12
Grassers	10 @11

BALTIMORE PRODUCE

Baltimore, Md., Feb. 28, 1916.

Butter.—Creamery fancy, 33@34c; choice 33 @ 35c; good, 31c; prints, 26 @ 27c; ladles, 21@22c; Maryland and Pennsylvania rolls, 23c.

Eggs.—Market firm. Maryland, Pennsylvania and near-by firsts, 23@24c; Eastern Shore, 23@24c; Western firsts, 23@24c.

Live Poultry.—Chickens, young average run, 19@21c lb. winter, 2 lbs. and under 22@24c; young, rough, staggy, 11@15c; old hens, heavy, fat, 16c; do., small to medium, 16c; old roosters and stags, 10@11c. Ducks Muscovey and Mongrel, 17@18c; White Pekins, 19@20c; Indian Runners, 17@18c Pigeons, per pair, old, 25@30c; young, 25c. Guinea Fowl, each, young, 2 pounds and over, 60@65c; young, 1½ and 1¾ pounds, 60@65c; old, 25@30c.

Dressed Poultry.—Turkeys, fancy, 26@27c; mixed hens and gobblers, 24@25c. Chickens, young, 19@20c; mixed, 16@17c; old roosters 11@12c. Ducks, choice, fat, 19@20c.

Vegetables.—Potatoes — White Eastern Shore 90c@$1; do., Maryland and Pennsylvania, $1.05@1.15; do., New York and Maine, $1.05@$1.15; Sweets, yellow, Eastern Shore, Md., per barrel, $2@2.25. Apples—Near-by, loose packed, per barrel, $1@1.50; New York State packed, per barrel, $2@3.50; Western Maryland and Pennsylvania packed, per barrel, $1.75@2.75. Beans, green per basket, $1.50@2.25; wax, $1.75@2. Cabbage, New York State, per ton, old $10@12. Onions, Western Maryland and Pennsylvania, per bushel, yellow, 75c@$1.25; Western, per 100-pound sack, $1.50@2.25. Spinach, per barrel, 50c@$1.50. Strawberries, refrigerator per quart, 25@30c. Turnips, per bushel box, 25@35c.

YORK PRODUCE MARKETS

York, Pa., Feb. 28, 1916.

Large quantities of produce were on display at the city markets last week. In apples, potatoes and eggs unsettled conditions prevailed. There is some demand for potatoes, but the grocery men are buying very guardedly. From the buyer's standpoint it is generally thought they will soon come below $1, while the sellers are asking from $1.10 to $1.25 per bu. Apples are rather lower than a week ago, but there is little fancy stock on the market. Mostly York Imperials which are not of high quality The hog market has been holding considerable attention for the past ten days. In thirty days it has advanced from $2 to $2.50 per cwt. as dressed meat.

Eggs.—23@25c per dozen.

Butter.—Country, 27@30c lb; separator, 32@35c lb. Milk, 6c quart.

Poultry.—Hens, 14@16c lb; dressed, 50c to $1 each.

Vegetables.—Potatoes, 12@18c ½-pk; $1 @1.30 bu. Cabbage, 3@7c a head. Lettuce, 6@10c a head. Beets, 4@5c bunch. Radishes, 5@6c bunch. Onions, 4@5c bunch; 10 12c ½-pk. Lima beans, 25c quart. Soup beans, 14@18c quart. Lard, 12@14c lb. Turnips, 10@12c ½-pk. Sauer kraut, 8c quart. Spinach, 10c ½-pk.

Fruit.—Apples, 12@30c ½-pk; 75c to $1.50 per bu. Choice, Stayman, $6 a barrel. Pears, 15c ½-pk. Strawberries, 25c box.

Retail Grain Market.—Wheat, $1.30; corn, 90c; oats, 65c; rye, 92c; bran, $1.40 cwt.; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.20; corn, 78c; oats, 55c; rye, 80c; bran, $26 per ton; middlings, $32 per ton.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., Feb. 28, 1916.

Receipts for the week ending Saturday evening, February 26:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	...3,097	6,847	6,632
Previous week	...2,885	5,780	7,662

Calves. — Total receipts of calves for this week were 1,527 against 1,087 last week.

Beef Cattle.—Cattle of nearby, Western and Southern brands in ample numbers fully supplied the moderate wants of the market, prices holding fairly steady. Cows and calves, as well as bulls, sold slowly at well sustained rates, especially in the choicest offerings.

Best steers	$8.50@8.75
Choice	8.25@8.50
Good	8.00@8.25
Medium	7.50@7.75
Common	7.00@7.25
Bulls	5.50@6.50
Fat cows	5.00@6.50
Thin cows	2.75@4.00
Veal Calves —	
Exceptional lots	$12.00@12.50
Good to choice	11.25@11.50
Medium	9.00@10.00
Common	7.00@ 8.00
Southerns and barnyards	4.00@ 5.00

Sheep and Lambs.—A dull and hesitating feeling prevailed, with buyers indisposed to trade outside of absolute wants. Values closed steady.

Wethers, extra	$ 8.75@ 9.00
Choice	8.25@ 8.50
Good	7.75@ 8.00
Medium	7.00@ 7.25
Common	5.00@ 6.00
Lambs, extras	11.75@12.00
Good to choice	11.25@11.50
Medium	10.00@10.25
Common	8.00@ 9.00
Ewes, heavy, fat	7.00@ 8.00

Hogs.—There was a very strong feeling predominating, with a good disposal at the full straight rate, Westerns, $12.

City Dressed Stock.—Every description of high-grade meats were held in a steady to firm manner at the current prices. Inquiry was about normal.

Steers	10 @14
Heifers	9 @13
Cows	8 @11
Veal calves	14 @16
Extra calves	17 @
Southerns and barnyards	10 @13
Country dressed	12 @14
Extras	16 @
Sheep	13 @14
Extra wethers	16 @
Lambs	17 @18
Extra lambs	19 @
Hogs	12¼ @

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., Feb. 28, 1916.

Cattle.—The supply on sale was 90 loads compared with 110 loads the week before. The market ruled slow and easier, generally 10 to 15c per cwt., except on a few choice fat tidy cattle which ruled steady. Heifers in fair supply and market ruled steady. Cows steady on all grades from bolognas to choice. Bulls steady on all grades. Fresh cows lower on all grades; springers and medium grades very slow sale. Today's receipts 85 loads. Demand moderate, market slow. General trade about steady.

Good to choice	$8.50@8.65
Good, 1300 to 1400 lb.	8.15@8.50
Medium to good, 1200 to 1300 lb.	7.75@8.10
Tidy, 1050 to 1150 lb.	7.75@8.15
Fair to medium, 1000 to 1100 lb.	7.25@7.65
Fair, 900 to 1000 lb.	6.50@7.00
Common, 700 to 900 lb.	5.50@6.25
Rough, half-fat, 1000 to 1300 lb.	6.25@7.25
Common to good fat oxen	4.00@6.75
Common to good fat bulls	4.25@7.00
Common to good fat cows	4.25@6.50
Heifers, 700 to 1100 lb.	4.75@7.50
Bologna cows	3.50@4.10
Fresh cows and springers	$25@85

Calves.—Veal calves in liberal supply and closed 50c per cwt. below Monday's prices. Today's receipts 500. Market steady.

Veal calves	$9.00@12.00
Heavy and thin calves	5.00@ 8.50

Hogs.—The supply on sale during the week has been light and with a good demand the market has ruled stronger on good weight grades while pigs and lights were slow and sold lower, the close on good weights being 30c per cwt. above Monday's prices. With 35 double-deck loads on sale today the market was higher.

Prime heavy	$9.10@
Heavy mixed	9.10@
Prime medium weights	9.15@
Best heavy Yorkers	9.15@
Light Yorkers	8.50@
Good pigs	7.50@8.00
Common to good roughs	7.25@7.75
Stags	5.75@6.25

Sheep and lambs.—The supply of sheep and lambs during the week has been fair. Choice sheep ruled steady while lambs were lower, the close on lambs being 25c per cwt. below Monday's prices. Today's receipts five cars. No choice grades on sale. If here would sell higher. Common and medium grades slow at steady prices.

Prime wethers	$ 8.75@ 9.00
Good mixed	7.75@ 8.25
Fair mixed ewes and wethers	6.25@ 7.25
Culls and common	3.50@ 5.00
Spring lambs	7.00@11.75
Heavy lambs	8.50@11.60
Culls to choice yearlings	6.00@ 9.50

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., Feb. 28, 1916.

Hay and Straw.—There is a fair demand for all desirable grades of hay and the market rules firm at last week's quotations. Offerings are not heavy and the supply is well cleaned up. All undergrades are dull and weak. Straw is quiet at unchanged prices. The demand is limited and light supplies are sufficient to meet requirements.

Grains.—The wheat speculative market is suffering from a heavy bearish movement and prices have declined heavily during the past week. There was a drop of from 15 to 18 cents per bushel, and the price is still falling. There is little trading in corn but offerings are moderate and prices are fairly well maintained. The oat market is quiet at a decline of about 3 cents in sympathy with wheat. Offerings are light. Feed is firm.

Hay.—No. 1 timothy, medium bales, $21.50@22; No. 2 do., $19.50@20; no grade, $10@14. Light mixed clover, $19@19.50; No. 1 do., $18.50@19; No. 2 do., $15.50@16.50.

Straw.—No. 1 straight rye, $13.50@14; No. 2 do., $12.50@13; No. 1 tangled rye, $11.50@12; do., No. 2 $10.50@11. No. 1 wheat straw, $10@10.50; No. 2 do., $9@9.50. **No. 1 oat straw,** $10@10.50; No. 2 do., $8.50@9.

Wheat.—No. 2 red, $1.16@1.18; No. 3 red, $1.16@1.18; rejected A, $1.13½@1.15½; rejected B, $1.12@1.14.

Corn.—No. 2 yellow western, 81½@82½c; steamer yellow, 80@81c; western, No. 3, 76@77c; No. 4 yellow, 74@75c; ear corn, 78c per 70 pounds.

Oats.—No. 2 white, 54@54½c; No. 3 do., 51@52c; No. 4 do., 49@50c; standard white, 52@53c; sample oats, 46@47c.

Feed.—Winter bran, in 100-pound sacks, $24.50@25 per ton; spring bran, do., $23.50@24.

Flour.—Car lots, winter clear, $5.40@5.55; straight, $5.65@5.90; patent, $6.00@6.30. City mills, choice to fancy patent, $6.25@7.00; do., regular grades, $5.40@5.50. Rye flour, $5.50@6 per bbl.

NEW YORK HAY AND GRAIN

New York City, Feb. 28, 1916.

Hay and Straw.—The hay market is steady to firm on all good grades. Medium to good timothy is moving readily at firm figures. Even poorer grades of timothy are gradually cleaning up, altho there is still some surplus, as well as of poor clover and heavy mixed. The latter are being pressed for sale and are making fair movement. Rye straw is quiet. No call for other straw. The freight embargoes are interfering with free movement of hay.

Grains.—The wheat market is suffering from a speculative upheaval which has destroyed all stability. There has been a decline of about 30 cents per bushel during the week. The foreign situation rules the market, the submarine controversy, the Verdun struggle and the possibility of moving South American wheat all being factors. Railroad embargoes also affect the general market. The market is demoralized and no one dares prophesy what the future trend will be. Reports from the growing crop are unfavorable, but little attention is being paid to these. Corn has been holding up fairly well, but broke 3 cents per bushel yesterday. There is a fairly active trade. Oats are lower with a fair trade.

Hay.—Large bales—No. 1 timothy, $25.50@26; No. 2 $23@25; No. 3 $19@21; fancy clover, light mixed, $23@24; No. 1, $19@21.50; No. 1 clover, clear, $18@19.

Straw.—Per ton, No. 1 rye, $14.50@15; do., No. 2, $13@14; oat straw, $9.

Wheat.—No. 1 Northern, $1.38; No. 2 $1.35; No. 2 hard winter, $1.09¼.

Corn.—No. 2 yellow, 84@84½c; No. 3 yellow, 81¼@81¾c.

Oats.—No. 3 white, 49@49½c; No. 4 47¾@48¼c; ordinary to fancy, 48@49½c.

Rye.—$1.02.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $23.50. Standard middlings, $26; flour, do., $29 to arrive. Red dog, to arrive, 140-pound sacks $33.50. Oil meal, $38@39. City feed, bulk bran, $23. Heavy feed in bulk, $24. Red dog, $33. Flour middlings, $32.00.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., Feb. 28, 1916.

Hay.—Receipts of hay and billings in transit are the heaviest they have been for a long time. The railroads here are fearfully congested, the Pennsylvania Company placing hay at all and every point making it a difficult matter to inspect it. Notwithstanding this fact there is no difficulty in disposing of strictly No. 1 timothy, also good No. 2 timothy and No. 1 light clover mixed. Other grades are somewhat hard to place; this is especially true of clover hay, a commodity with which the different terminals are choked, with no buyers. No grade clover hay practically unsalable. No. 1 timothy, $18.75 @ 19.25; No. 2 timothy, $15.75@17; No. 3 timothy, $13@14; No. 1 light mixed, $15.50@16; No. 1 clover mixed, $15@15.50; No. 2 clover mixed, $12@13; No. 1 clover, $13.50@14; No. 2 clover, $8.50@11.50; No. 3 prairie, $11@11.50; No. 4 prairie, $8.50@9.

Straw.—Receipts of straw are heavy with very little demand; prices declining. No. 1 oat, $8@8.25; No. 2 oat, $7.25@7.50; No. 1 wheat, $8@8.25; No. 2 wheat, $7.25@7.50; No. 1 rye, $9@9.50; No. 2 rye, $7.75@8.25.

Ear Corn.—Receipts very heavy, demand light, prices lower. New No. 2 yellow, 74@75; No. 3 yellow, 66@69c; No. 2 high mixed 71½@72½c; No. 2 mixed, 69@70c.

Oats.—Market dull and draggy, more than sufficient arriving to meet the demand; market looks weak. No. 2 white, 49½@50c; Standard, 47½@48c; No. 3 white, 46½@47c; No. 4 white, 45@45½c; Rejected, 39½@43½c.

NEW YORK MILK MARKET

New York City, Feb. 28, 1916.

The market is nicely balanced despite the fact that there was practically no change in receipts last week. It is expected that the market value in March will be 4 cents a quart in the 26-cent zone, as some dealers found it necessary in February to meet the cheese market by paying more than 4 cents.

The receipts of milk and cream in 40-quart cans for the week ending February 26, were as follows:

Railroad	Milk	Cream
Erie	43,218	1,812
Susquehanna	9,112	96
West Shore	17,582	1,055
Lackawanna	58,055	1,410
N. Y. Central (long haul)	84,142	1,481
N. Y. Central (short haul)	22,320	87
Ontario	38,502	2,650
Lehigh Valley	41,656	795
Homer Ramsdell Line	3,630	34
New Haven	7,446	56
Pennsylvania	7,490	175
Other sources	1,190	24
Totals	334,343	9,625
Same week last year	323,546	11,654

ELGIN BUTTER MARKET

Elgin, Ill., Feb. 26, 1916.

Butter sales were offered today at 34c; 50 tubs were offered, 34 cents bid; no sales made.

TOBACCO MARKET

Practically the whole of the transactions during the week were between packers and factories and of course for old tobacco, the meagre supply of which is being rapidly taken. The year promises to be a very lean one for packers, as they bought very little of the new crop and must wait until another is grown. The situation, however, is favorable to growers, who, after selling their 1915 product very promptly and at satisfactory prices, will apparently have a waiting demand for the product of the present year. This will undoubtedly have a stimulating effect on the acreage, but this is denied by many prominent growers who hold that tobacco farmers have been disappointed so often that they will desist on the old theory that "one swallow does not make a summer." The comprehensive buying which took the Pennsylvania crop in such a short time has been taken up in the other cigar sections, including Ohio, Wisconsin and Connecticut, where the demand and prices are better than for some time.

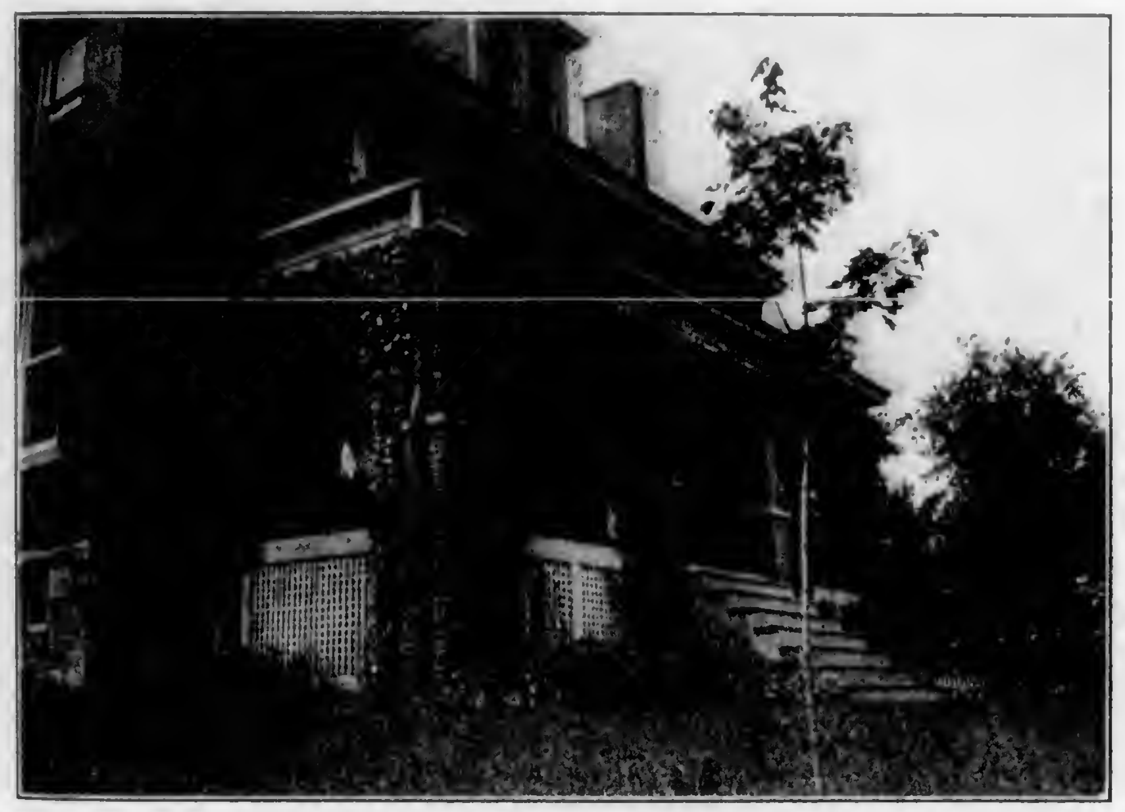
At a recent meeting of the Tobacco Growers' Association, Mr. Kimbrough, the organizer, read a paper setting forth the importance of proper cultural methods and the necessity of organization. He said that if farmers will give proper attention to seeding, fertilizing, planting, cultivating, topping, insecticiding, suckering, cutting, housing, curing, handling, grading and marketing, then success will be assured and that thru "association methods" the product may be sold at from $13 and 4 to $15 and 5 per cwt. He urged more efficient organization and told of a plan which he said will guarantee sufficient cash capital by November 1 to finance the proposed movement. — H. E. Tweed, Feb. 28.

Household

MAKING THE HOME AND LAWN BEAUTIFUL

There is nothing that makes the home more attractive than well-arranged and well-selected vines. They may cover fences, porches or buildings. The porch shown in the illustration faces the morning sun and also gives a good view over the country. The vines are arranged to partly shade the porch but not to conceal the good view. In the afternoon, when the sun does not shine on it, the vines give seclusion while reading or sewing, beside adding to the appearance of the house.

The vines at one end and in front are Cinnamon and Maderia vines. At the other end, they are Clematis paniculata. They are all white flowering and sweet scented. The Cinnamon vine roots stay in the ground over winter, come up early and grow very rapidly. They bloom in July, the blossoms being tiny white and strongly scented with cinnamon. The Maderia roots must be lifted before heavy frost and put in a dry, cool cellar, where they are easily kept. The Maderia blooms in September at the same time as the Clematis. The Maderia blossoms make a sweet-scented, fringe-like border of white all along the top of the porch, while the end is one white sheet of Clematis bloom. The Cinnamon and Mederia are planted together as both are entirely removed in the winter time, so nothing obstructs the view from the living room windows.



A VINE-CLAD PORCH ADDS BEAUTY AND COMFORT TO THE HOME.

The photo shown was taken the first of July, before the vines were near done growing. The vines grow up on twine strings tied to strips of 18-inch trellis wire hung on hooks along the top of the porch all around. The trellis wire makes a good foundation to wind and train the vines across spaces at top of porch, making a green border all around at the top, 18 inches wide. Variegated-leaved nasturtiums form a pretty border at the bottom of the vines. Last year a border of shrubbery and perennial flowers was planted along the fence seen in the right of picture. The perennials were nearly all started from seed to save expense. It takes some time to establish a hardy border this way, but I expect to have the fence pretty well hidden this year. There are borders of annual flowers along the walk and edge of lawn.

We had a border of petunias and verbenas 45 feet long, along the front walks last year. They were planted 12 inches apart in the rows and the rows 10 inches apart. All were left to grow, the edge of bed being kept even by training and trimming. Visitors coming to the lawn just stopped and looked at this border, and it was a sight to look at; a mass of bloom all summer. The petunias were Howard's Star altho all did not come true to name. Some were clear dark red. The verbanas were red, white and pink, the white ones making a fine contrast to the red petunias. The verbenas growing up thru the petunias made long stemmed flowers fine for cutting.

The seeds were sown early and the seedlings planted in the border in May. They were planted when the ground was dry. Holes were dug and water poured in each, then the plant set in and dry ground put around them. Planted in this way the ground does not get hard around them and they do not wilt. It does not take long to set a lot of plants. If there are little folks in the family they can soon set a lot of plants and take keen delight later when they begin to bloom.

I think it best to plant continuous bloomers in the lawn, to keep the appearance the same thruout the season. Many other pretty annuals will do well along the garden fence, and make an abundance of cut flowers, such as asters, marigolds, calendula, scaboisa, cosmos and many others.—Mary A. Kintigh, Westmoreland Co., Pa.

CANDIED CRANBERRIES

Candied cranberries make delicious and inexpensive candy, much resembling candied cherries but having a distinct flavor of their own. This is a suggestion to housewives from the home economics experts of the U. S. Department of Agriculture, who have been developing new uses for the cranberry. They have developed a method which if followed closely gives a bright, firm, plump, semi-transparent candied fruit, which can be eaten as a sweetmeat or used to give a touch of color to frosted cakes, whipped cream, or custards, or which can be used like citron in cakes or puddings or chopped up and added to "tutti-frutti" ice creams.

The secret of candying cranberries lies in handling the fruit so that it will become saturated with sugar. This calls for slow cooking on the installment plan and the use of a dish large enough to permit all the berries to float at the top of the syrup during cooking. The skins are so tough that they must be pierced before cooking to let the syrup into the pulp. To do this, three little slits about one-eighth inch long, should be made in each berry with the point of a penknife. Use selected large, firm cranberries. The directions for cooking are as follows:

For 1½ cups of berries, make a thin syrup by boiling together until clear 2 cups sugar and 2½ cups water. When the syrup is cool, add the berries and bring very slowly to the boiling point. If the berries are heated too quickly, the skins will burst before the syrup soaks into the pulp. As soon as the syrup boils, take the dish off the stove and let it stand over night. Next day, drain the syrup from the berries and boil until it is reduced to about half its original volume. Put the berries into this medium-thick syrup and heat slowly, boil gently for 3 or 4 minutes then allow to stand for 2 hours or more. Then boil gently a third time for 5 minutes. A smaller dish probably will be needed for the third and last boiling. When thoroly cold, drain off the syrup and spread the berries out on a lightly buttered plate or a sheet of clean waxed or lightly buttered paper until the surface of the berries dries. If directions have been followed, they will candy separately, and not into a sticky mass.

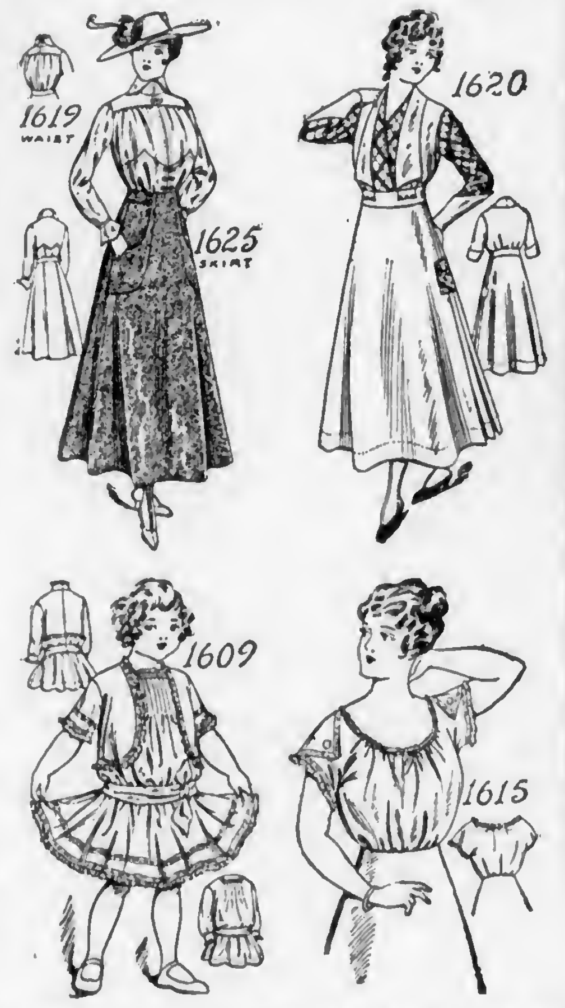
To make a delicious ice cream, add ½ to ¾ cup of chopped candied cranberries to each quart of the cream mixture. They also can be combined with bits of candied orange or lemon peel, or other glace fruits to make "tutti-frutti" ice cream. The syrup left over after the berries are candied has a pleasant sweet-acid flavor and fine color and is excellent in pudding sauce or when diluted with water, for use on pancakes, waffles, etc.

PENNSYLVANIA FARMER PATTERNS

Be sure to give the figures and letters of each pattern exactly as pirnted at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-63 So. Third Street, Philadelphia, Pa.

1619-1625.—Ladies' Costume.—Waist, 1619, cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 2¼ yards of 44-inch material, if made in plain outline. For pointed outline, 2⅜ yards will be required for a 36-inch size. Skirt, 1625, cut in 6 sizes: 22, 24, 26, 28, 30 and 32 inches, waist measure. It requires 4¼ yards of 44-inch material for a medium size, and measures 3 yards at the lower edge. This calls for two separate patterns, 10 cents for each pattern.

1620.—Costume for Misses and Small Women.—Cut in 3 sizes: 16, 18, and 20 years. It requires 6 yards of 44-inch material for a 16-year size. The skirt measures 3¾ yards at the foot, with plaits drawn out. Price, 10 cents.



1609.—Girl's Dress, with or without Bolero.—Cut in 4 sizes: 4, 6, 8 and 10 years. It requires 3⅜ yards of 44-inch material for a 6-year size. Price, 10 cents.

1615.—Ladies' Camisole in Kimono Style.—Cut in 3 sizes: Small, medium and large. It requires 1¼ yards of 36-inch material for a medium size. Price, 10 cents.

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Grange

Among the Granges

Wayne County.—Pomona grange No. 41 met at Honesdale, the county seat, Wednesday, February 16th, with Samuel Saunders, master, in the chair. Reports from seventeen out of twenty-two granges were received and the honor banner went to Hickory grange of Rileyville. One grange was reported as having been organized February 9, by Deputy F. S. Keene.

The May meeting will be held with Delaware Valley, at Atco and the midsummer meeting will go to the northern end of the county.

At the afternoon session, Pomona treasurer explained the corn contest to be given by a local bank this year with a hundred dollars in cash prizes. C. M. Honeywell, Master of Centre Hill No. 1026 of Luzerne County, was present and spoke on the fertilizer situation. George Knorr clerk in the county commissioner's office and a seventh degree member gave some good suggestions as also did Homer Boncar secretary of Cherry Ridge.

Prof. J. S. Champion, who was appointed at the last meeting to create interest in the Farm Bureau movement, reported good progress being made and after a general discussion Deputy F. S. Keene and County Superintendent of Schools J. J. Koehler were added to the committee with power to act. State orchard inspector W. H. Bullock read an article from the Pennsylvania Farmer on "The Producer."

The evening session opened at 8 o'clock after the fifth degree session to the general public and was turned over to the worthy lecturer Mrs. F. S. Keene who after a few remarks called on several for short talks. The farm bureau subject was again taken up and two representatives of the O. & H. railroad who were present spoke and said their company would assist in the work of organizing a bureau. Enough money was subscribed to start the work of getting a central meeting which will soon be called for the purpose of electing a central committee with one representative of each township to act as an advisory board to help the farm bureau agent.

The committee will send out cards for signatures which will entitle each, upon the payment of one dollar, to membership. There are 3265 farmers in the county, 8,000 voters and 12,000 taxables. —F. S. K.

BUCKS COUNTY FARM BUREAU

Recently about fifty men and women met in the Court House for the first annual meeting of the Bucks County Bureau. This association was organized last August and made application for the funds available from the state for this work and also asked the county commissioners for an appropriation. The treasurer announced that the commissioners had appropriated fifteen hundred dollars. A letter from M. S. McDowell, head of the agricultural extension bureau, stated that the state funds necessary to complete the amount needed, in order to employ a county agent for Bucks County, would not be available until July 10 of this year. It was a disappointment to those interested that the work must be delayed for this season.

County Superintendent J. H. Hoffman's announcement that he would be able to start the boys' corn and the girls' canning clubs this spring, and that M. S. McDowell had promised to send an assistant to help with the work, was encouraging and well received.

There were forty-five names proposed for membership. These with those already enrolled will make over one hundred members. The state of Pennsylvania has twenty-two counties with Farm Bureaus and County Advisors, and five more counties are ready for the work as soon as there are state funds available.

The new officers elected were: president, Wilmer A. Twining, Wycombe; vice-president, Henry T. Moon, Morrisville; secretary, Eugene L. Martin, Bristol; treasurer, George Watson, Doylestown; executive comittee, Dr. W. A. Haines, Edgely; superintendent J. H. Hoffman, Doylestown, William H. Bishop, Doylestown, W. H. Weamer, Springtown, B. Frank Wambold, Sellersville, Walter Collins, Morrisville, and Hugo Hund, Wrightstown.—M. B.

THE ADVANTAGES OF LIVING CLOSE TO MARKETS

In looking about for a location, one should always consider, as a primary point, the location of the farm in relation to its nearness to a market. Growing the crop is not the only thing, as many think. The cost of getting the crop to market is a point that vitally influences profits.

Several weeks ago, two farmer friends of mine were hauling corn to town. One lives twelve miles away. The road to his home is hilly and bad, so bad in fact that he had to use four horses to haul fifty bushels of corn. He was able to make but one load a day. Figuring his time at one dollar, and the time of each horse at one dollar, it cost him five dollars to market fifty bushels of corn. In other words, it cost him ten cents a bushel to market his corn.

The other farmer lived about a mile from town, on a good road. Roads are nearly always good close to town. If they are not the citizens of the town get together and induce the authorities to make them so. This farmer was able to haul fifty bushels of corn with two horses, and made four loads a day. In one day, he marketed two hundred bushels of corn at a cost of three dollars, or one and one-half cents a bushel. It will not require any very close figuring to see that, in reality, the farmer living near the market received eight and one-half cents a bushel more for his corn than did the farmer who had the long haul.

The farmer living near town has other advantages. He can keep in close touch with market conditions. He is nearly always more conveniently located in relation to schools and churches. He can, if he desires, develop a trucking business, thus getting first price for his produce. His boys and girls are generally willing to stay on the farm, for the reason that they can get to town as often as they desire.—T. Z. Richey.

THE SMALL TOWN AS A MARKET

If there is one thing more than another that farmers and especially truckers and fruit growers who have perishable articles to sell need, it is a sure, stable, profitable market for their products all thru the season.

When produce first comes in it may sell easily at a fair profit and then later at a lower price, barely above cost of production and during a glut at a loss.

So to make a living profit on the crop as a whole, its cost having already been established by investment in fertilizers, seeds, labor, etc., it is necessary to take advantage of scarcity and unusual demand and take a price that seems exhorbitant when considered alone.

I have thought much over this question and it seems that until there is some better way of fixing prices found than by the law of supply and demand, it is necessary for producers to take advantage of the situation and get the price when it is within reach.

This being admitted, it is up to the farmer to keep posted on market conditions and meet them fairly.

One of the most difficult problems is the fixing of market prices in the towns where farmers sell produce and in many cases farmers themselves depress the market in competition with each other, because many of them feel rather out of their element when marketing and wish to sell out before their neighbors and get home to their farm work.

As it is, I think it best for those who wholesale to stores to find out from them about the prices at which they retail and anything the farmer retails should be sold at this price unless he is selling a special article at a special price. This is only fair to the merchant and he should not and usually does not object to this practice for it does not upset the retail market.

But quite often the farmer will unload all he can on the storekeeper at the wholesale price and then go all around and supply the customers the storeman is depending on to buy the stuff he got from the farmer before it goes to loss—at the same wholesale price.

This is a sure way to make future market troubles, not only for the farmer himself but for other retailers, for next time he comes into town the storekeeper will hardly take the risk of buying from him again and he will have to retail even lower than before to meet the demands of customers and so dispose of his load.

Another practice that has a tendency to depress the market is that of farmers nearly all coming to town with marketing on Saturday.

This is especially noticeable in winter. Eggs, for instance, may be quite scarce thru the week and prices fairly good, only to be upset on Saturday when everyone comes in with the week's accumulation. I have often been told by green grocers how the market becomes disorganized as soon as nearby farmers begin to bring in their home products—not so much on account of the quantity as because of the methods employed in their marketing.

These methods and lack of careful preparation have much to do with depressing these markets in the smaller towns. These towns, often neglected for the larger city market, many times offer a good outlet for the near-by farmer's products, and it behooves him to take advantage of his opportunity to supply them. I believe a curbstone market regulated in some such way as the city markets so that a committee or market master would fix prices for the day, with some provision for disposing of surplus products to the needy at special prices, to canning factories and to drying establishments, etc., would be an excellent thing to cure some of the market ills of which farmers justly complain. — T. L. Wall, Clearfield County, Pa.

LYCOMING BETTER SEEDS DAY

Plans have been completed by County Superintendent of Schools Bruce G. Milnor and Robert H. Bell, County Agriculturist, to have in the schools of Lycoming county early this Spring a "Better Seeds" day. Letters will be sent out by the farm bureau to the rural schools explaining "Better Seeds" day. On the date that will be selected for the exercises the pupils will bring to school samples of their father's seed corn. Mr. Bell said that corn is one of the largest and the most profitable crops in the county. The quality of the seed, however, varies, and it is the purpose of "Better Seeds" day to acquaint the young tillers of the soil how to test corn seed. The patrons will be invited to attend the exercises and the County Superintendent, his assistant and Mr. Bell will visit as many schools on that day as possible.

GRANGE NOTES IN GENERAL

Miss Julia W. Kelley, a daughter of the late "Father" O. H. Kelley, one of the founders of the Order, died last January at her home in Washington, D. C. Two sisters survive.

* * *

Every county in Ohio is now on the grange map. The state has 734 subordinate granges and 60,000 members. We look for large gains under the leadership of state master L. J. Taber.

* * *

Secretary C. M. Freeman of the national grange has been seriously ill but is now on the road to recovery. He was taken ill soon after his return from the national grange meeting at Oakland, California.

* * *

There is considerable discussion in the granges as to whether we should use the word "Patron" or the word "Granger" in referring to members of the Order. The New York state grange went on record in favor of "Granger."

* * *

State secretary H. E. Loomis and state treasurer N. S. Platt, of the Connecticut state grange were both reelected at the last meeting of that body, which is the 14th time this thing has happened. The past service of both these officers covers a period of 26 years.

* * *

The newly-elected master of the Connecticut state grange is Charles T. Davis, of Middletown, who is a prosperous farmer on a large scale with a beautiful modern home. The new master of Maine state grange is William J. Thompson, of South China, the owner of 300 acres of as fine land as any South Chinaman can boast.

* * *

Other new state masters are A. L. King, of Omro, Wisconsin; Charles F. Shick, of Lark, North Dakota; Rev. W. W. Deal, of Nampa, Idaho; Sherman J. Lowell, of Fredonia, N. Y. Six new state masters in the national grange with the two or three or so elected last year will change the facial appearance of that body very considerably.

* * *

The legislative committee of the national grange has arranged with Postmaster General Burleson for a hearing on the rural mail problem in the near future. Facts regarding the rural mail service are wanted by the committee, covering any phase of the subject particularly as to the possible curtailment of the service and as to how its efficiency may be increased.

* * *

At the recent meeting of the New York State Grange a resolution asking the state grange to contribute a certain amount toward the erection of any new grange hall this year, did not meet with favor. In some states the state grange is offering to make the last payment on such structures, say of $50 or $100 There's a difference between paying the first and last payments on such buildings, the latter making an incentive for the grange to hustle and make all payments but the last.

* * *

If state master Chapman, of Massachusetts, who is also lecturer of the national grange, gets a few more honors he may find himself a very busy Chapman. Gov. McCall has recently appointed him a member of the state board of agriculture for a term of three years. —D.

The New REO "Six"

The 7-Passenger Fashion Plate of '16

YOU NEED GO NO FURTHER—you need pay no more—to obtain all the mechanical excellence, all the beauty, style, finish and luxurious riding qualities in a seven-passenger touring car, that your heart can desire.

FOR WE MAINTAIN that, though you search the world over, you will find no car at any price, that is the superior of this new Reo Six in these essentials.

MECHANICALLY IT HAS NO SUPERIOR—it is not possible to put better materials in a chassis, simply because the science of metallurgy knows no better. Reo uses and always has used the best. The fame of Reo rests on that.

IT IS NOT POSSIBLE to machine parts more accurately—for the Reo factories are admittedly the "Models" among automobile factories and Reo standards are admittedly of the highest.

AND IT ISN'T POSSIBLE to obtain an automobile, in the designing and fabrication of which more experience has been applied—for the Reo organization is the oldest in the Automobile industry. And never since the first Reo was made has there been a single change in the executive organization of Reo.

ALL WE'VE LEARNED, WE'VE KEPT right here in the Reo factories—and this latest product of Reo brains and experience and facilities is the net result.

AS TO BEAUTY OF EXTERIOR we need only say that when this new Reo Six was announced and its graceful lines shown in the engravings it was instantly hailed by everyone in the trade—rival and friend alike—as the "Fashion Plate" for the coming year.

AND IF YOU HAVE WATCHED closely the various new bodies that have since come out—some of them only too palpably redesigned to emulate the lines of this Reo Six—you have observed that it had set the style for the season.

BUT REO BEAUTY ISN'T on the outside alone—it's in the unseen places as well. In fact none so thoroughly appreciates Reo engineering as he who has studied it most intimately.

THE SAME STURDINESS—the same wonderful reliability, dependability and economy of upkeep—that have made the four-cylinder Reo world famous, are in this Reo Six.

"50 PER CENT OVER-SIZE in all vital parts," that Reo factor of safety is the reason at the same time for Reo dependability and low maintenance cost.

EVERY PART THAT IS SUBJECTED—or may ever be subjected—to excessive strains is made fifty per cent heavier—or of better material and therefore fifty per cent stronger—than other makers consider necessary. Motor parts—as crank-shafts, connecting rods, bearings—transmission gears, driving shafts, axles, differentials—all vital parts are made to the Reo standard "fifty per cent over-size."

SEE THIS NEW REO SIX. Ride in it. Drive it yourself—you can if you have ever driven any automobile. You will say you have never tasted the real joys of motoring before.

JUST A WORD ABOUT DELIVERIES. Those who know are unanimous in stating that there will be a tremendous shortage of automobiles the next few months. Can't be otherwise. Shortage of all kinds of materials and of tools to manufacture them—demand greater than ever before. Those who order early will get Reos—those who delay cannot hope to.

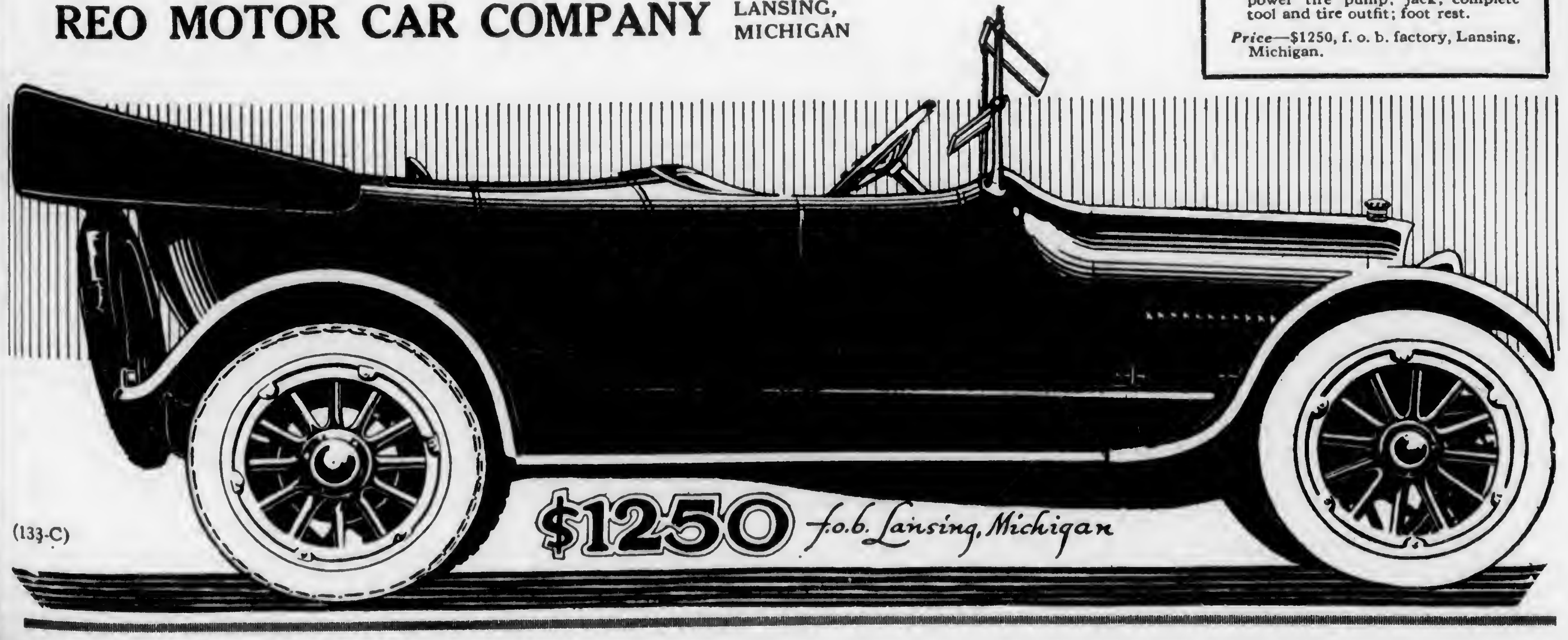
SO WE SUGGEST that you decide this matter at once and order your Reo immediately. Then you'll be one of "the lucky ones."

TODAY won't be a minute too soon.

For the Man Who Knows Cars

Wheel Base—126 inches.
Front Springs—Semi-elliptic.
Rear Springs—Cantilever.
Front Axle—I-beam.
Rear Axle—Full floating. Timken roller bearings throughout.
Tires—34"x4½". Non-skids on rear. Demountable rims.
Motor—Vertical, six-cylinder, cast in threes. Valves protected.
Cylinder Dimensions—3 7/16" x 5⅛".
Horsepower—45.
Lubrication—Automatic force feed.
Carburetor—Automatic-heated.
Ignition—Generator and magneto.
Starter—Electric (Remy).
Transmission — Selective swinging type.
Single rod, center control.
Clutch—Multiple dry disc.
Brakes—Two on each rear wheel.
Steering — Gear and sector. 18" steering wheel.
Control—Left-hand drive, center control.
Spark and throttle on steering wheel. Foot accelerator.
Fenders—Drawn sheet steel.
Aluminum bound, linoleum covered running boards.
Gasoline capacity—18 gallons. Gasoline tank in rear.
Stewart vacuum system supply.
Gasoline gauge beside filler.
Body— Seven-passenger "Sheer-line" touring.
Genuine hand-buffed bright enamel finish leather upholstering.
Deep cushions and backs. Divided front seats.
Finish—Body, Golden Olive. Running gear, Black. Equipment nickel trimmed.
Thief-proof—Locking device. This enables the driver to lock simultaneously the starting device, the transmission and the floor boards. Starting device is made inoperative, at the same time that the transmission gears are locked in neutral position. It would take a volume to describe it—but you will see and appreciate it at a glance.
Equipment—Fully electric lighted throughout; improved 5-bow, one man, mohair top, with full side curtains; mohair slipcover; clear-vision, rain-vision, ventilating windshield; speedometer; electric horn; extra rim with improved tire brackets; power tire pump; jack; complete tool and tire outfit; foot rest.
Price—$1250, f. o. b. factory, Lansing, Michigan.

REO MOTOR CAR COMPANY LANSING, MICHIGAN



Hepsey Burke

By Frank N. Westcott

CHAPTER XXIII (Concluded)

Nelson, who was known to be Mr. Bascom's right-hand man, attempted to divert the call for subscriptions. He arose and said:

''This is a most unusual proceeding, Mrs. Burke.''

The chair remained immobile—but Hepsey turned upon the foe like a flash of lightning.

''Precisely, Mr. Nelson. And we are a most unusual parish. I don't claim to have any information gained by world-wide travel, but livin' my life as I've found it here, in this town, I've got to say that this is the first time I ever heard of a church turnin' its rector out of house and home, and refusin' to give him salary enough to buy food for his family. Maybe in the course of your professional travels this thing has got to be an everyday occurence to you,—but there's some of us here that ain't got much interest in such goings-on, outside of Durford.''

''You have no authority to raise money for the church; I believe the Warden will concur in that opinion?'' and he bowed towards Bascom.

''That is a point for the meeting to decide,'' he replied judically, as Hepsey turned towards him.

''Seems to me,'' continued Mrs. Burke, facing the audience, ''that authority won't fill the rector's purse so well as cash. It's awful curious how a church with six Vestrymen and two Wardens, all of them good business men—men that can squeeze money out of a monkey-wrench, and always get the best of the other fellow in a horse-trade, and smoke cigars enough to pay the rector's whole salary—get limp and faint and find it necessary to fall back on talkin' about 'authority' when any money is to be raised. What we want in the parish is not authority, but just everyday plain business hustle, the sort of hustle that wears trousers; and as we don't seem to get that, the next best kind is the sort that wears skirts. I'd always rather that men shall do the public work than women; but if men won't, women must. What we need right here in Durford is a few full grown men who aren't shirks or quitters, who can put up prayers with one hand while they put down the cash with the other; and I don't believe the Lord ever laid it up against any man who paid first, and prayed afterwards.

''Now brethren, don't all speak at once. I'm goin' to start takin' subscriptions. Who's goin' to head the list?''

A little withered old woman laboriously struggled to her feet, and in a high-pitched voice began:

''I'd like to give suthin' towards the end in view. Our rector were powerful good to my Thomas when he had the brown kitties in his throat. He come to see him mos' every day and read to him, and said prayers with him, and brought him papers and jelly. He certainly were powerful good to my Thomas; and once when Thomas had a fever our rector said that he thought a bath would do my Thomas a heap of good, and he guessed he'd give him one. So I got some water in a bowl and some soap, and our rector just took off his coat, and his vest, and his collar, and his cuffs, and our rector he washed Thomas, and he washed him, and he wa——''

''Well,'' Hepsey interrupted, to stay the flow of eloquence, ''so you'd like to pay for his laundry now, would you Mrs. Summer? Shall I put you down for two dollars? Good! Mrs. Summer sets the ball rollin' with two dollars. Who'll be the next?''

As there was no response, Mrs. Burke glanced critically over the assembly until she had picked her man, and then announced:

''Hiram Mason, I'm sure you must be on the anxious bench.''

Hiram colored painfully as he replied:

''I don't know as I am prepared to say what I can give, just at present, Mrs. Burke.''

''Well now let's think about it a little. Last night's Daily Bugle had your name in a list of those that gave ten dollars apiece at St. Bridget's fair. I suppose the Irish trade's valuable to a grocer like yourself; but you surely can't do less for your own church? I'll put you down for ten, tho of course you can double it if you like.''

''No,'' said Hiram, meditatively; ''I guess ten'll do.''

''Hiram Mason gives ten dollars. The Lord loveth a cheerful giver. Thanks, Hiram.''

Again there was a pause; and as no one volunteered, Hepsey continued:

''Sylvester Perkins, how much will you give?''

''I suppose I'll give five dollars,'' Sylvester responded, before Mrs. Burke could have a chance to put him down for a larger sum. ''But I don't like this way of doin' things a little bit. It's not a woman's place to hold up a man and rob him in public meetin'.''

''No, a woman usually goes thru her husband's pockets when he's asleep, I suppose. But you see I'm not your wife. Thanks, Mr. Perkins: Mr. Perkins, five dollars,'' she repeated as she entered his subscription in the book. ''Next?'' she called briskly.

''Mrs. Burke, I'll give twenty dollars, if you think that's enough,'' called a voice from the back timidly. Everyone turned to the speaker in some surprise. He was a delicate, slender fellow, evidently in bad health. He trembled nervously, and Mrs. Burke hesitated for an instant, between fear of hurting his feelings and letting him give more than she knew he could possibly afford.

''I am afraid you ought not to give so much, Amos. Let me put you down for five,'' she said kindly. ''We mustn't rob Peter to pay Paul.''

''No, ma'am, put me down for twenty,'' he persisted; and then burst forth—''and I wish it was twenty thousand. I'd do anything for Mr. Maxwell; I owe it to him, I tell you.''

The speaker hesitated a moment and wiped his forehead with his handkerchief, and then continued slowly, and with obvious effort:

''Maybe you'll think I am a fool to give myself away before a crowd like this, and I a member of the church; but the simple fact is that Mr. Maxwell saved my life once, when I was pretty near all in.''

Again the speaker stopped, breathing heavily, and there was absolute silence in the room. Regaining his courage, he continued: ''Yes, he saved me, body and soul, and I guess I'll tell the whole story. Most of you would have kicked me into the street or lodged me in jail; but he wasn't that kind, thank God!

''I was clerking in the Post Office a while back, and I left town one night, suddenly. I'd been drinking some, and when I left, my accounts were two hundred dollars short. The thing was kept quiet. Only two men knew about it. Mr. Maxwell was one. He got the other man to keep his mouth shut, handed over the amount, and chased after me and made me come back with him and stay at his house for a while. Then he gave me some work and helped me to make a new start. He didn't say a word of reproach, nor he didn't talk religion to me. He just acted as if he cared a whole lot for me, and wanted to put me on my feet again.

''I didn't know for a long time where Mr. Maxwell got the money for me but after a while I discovered that he'd given a chattel mortgage on his books and personal belongings. Do you suppose that there's anybody else in the world would have done that for me? It wasn't only his giving me the money; it was finding that somebody trusted me and cared for me, who had no business to trust me, and couldn't afford to trust me. That's what saved me and kept me straight.

''I haven't touched a drop since, and I never will. I've been paying my debt to him as quick as I can, and as far as money can pay it; but all the gold in the world wouldn't even me up with him. I don't know just why I've told all about it, but I guess it's because I felt you ought to know the kind of a man the rector is; and I'm glad he isn't here, or he'd never have let me give him away like this.''

Amos sat down, while the astonished gathering stared at him, the defaulter, who in a moment of gratitude had betrayed himself. The woman next to him edged a little farther away from him and watched him furtively, but he did not seem to care.

Under the stimulus of this confession, the feelings of the people quickly responded to the occasion, and a line soon formed, without further need of wit or eloquence on Hepsey's part, to have their subscriptions recorded. In half an hour, Mrs. Burke, whose face was glowing with pleasure—albeit she glanced anxiously from time to time towards old Mr. Bascom, in an endeavor to size up his mood and force his intentions—had written down the name of the last volunteer. She turned towards her audience:

''As I don't want to keep you waitin' here all night while I add up the subscriptions, I'll ask the chairman to do it for me and let you know the result. He's quicker at figurin' than I am, I guess,'' with which compliment, she smilingly handed the book to the Senior Warden. While the old man bent to his task the room buzzed with low, excited conversation. Enough was already known of Bascom's hostility to the rector, to make the meeting decidedly curious as to his attitude towards Hepsey's remarks anent the mortgage; and they knew him well enough to be aware that he would not allow that item in her speech to go unanswered, in some way or other.

All eyes rested upon the gaunt figure of the chairman, as he rose to his feet to announce the total of the subscription list. He cleared his throat, and looked down at Hepsey Burke; and Jonathan, as he squinted anxiously at Hepsey by his side, noticed that she sat with her eyes tight-closed, oblivious of the chairman's glance. Jonathan looked hastily up at Bascom, and noticed him shift his position a little nervously, as he cleared his throat again.

''The amount subscribed on this list, is two hundred and thirty-seven dollars and thirty-five cents,'' he said. The loud applause was instantaneous, and Jonathan turned quickly to Hepsey, as he stamped his feet and clapped his hands.

''Thirty-seven dollars and thirty-five cents more than we owe him; Hepsey, you've done fine,'' he chortled.

But Hepsey's look was now riveted on the chairman, and except for a half-absent smile of pleasure, the keenest anxiety showed in her expression.

Bascom cleared his voice again, and then proceeded:

''Mrs. Burke informed you that the rector's salary was in arrears to the extent of about two hundred dollars. It is now for this meeting to pass a formal resolution for the application of the amount subscribed to the object in view.''

Hepsey's lips narrowed; not a cent was down on the list to the name of the Senior Warden; the debt was being paid without assistance from him.

''I presume I may put it to the meeting that the amount, when collected, be paid over to the rector by a committee formed for that purpose?'' proceeded the chairman.

This resolution being duly seconded and carried, Bascom continued:

''Before we adjourn I request the opportunity to make a few remarks, in reply to Mrs. Burke's observations concerning the ejection of the rector from the house which he occupied. She was good enough to spare my feelings by pointing out that from a business or legal point of view it was not I who was responsible for that act, but the parishioners, who, having purchased the rectory subject to a mortgage, had failed to meet the interest upon it. That is what Mrs. Burke said: what she did not say, and what none of you have said in public, tho I reckon you've said it among yourselves, I will take upon myself to say for her and you.''

He paused—and every eye was fixed upon him and every mouth agape in paralysed astonishment: and the said features of Hepsey Burke were no exception to the rule.

''When,'' continued Bascom evenly and urbanely, ''the word went around that the interest on the mortgage had got behind, and the money must be collected for it, those concerned no doubt remarked easily: 'Oh, I guess that'll be all right. Bascom won't worry about that; he don't need it; anyway he can pay it to himself, for the parish, if he does.''

There was an uncomfortable stirring of the audience at this shrewd thrust; but Hepsey could not contain herself, and laughed right out, clapping loudly.

''And yet I don't mind saying that if I had thought of suggesting to anyone of you such a method of collecting interest due to you, you might have kicked some,'' he commented dryly.

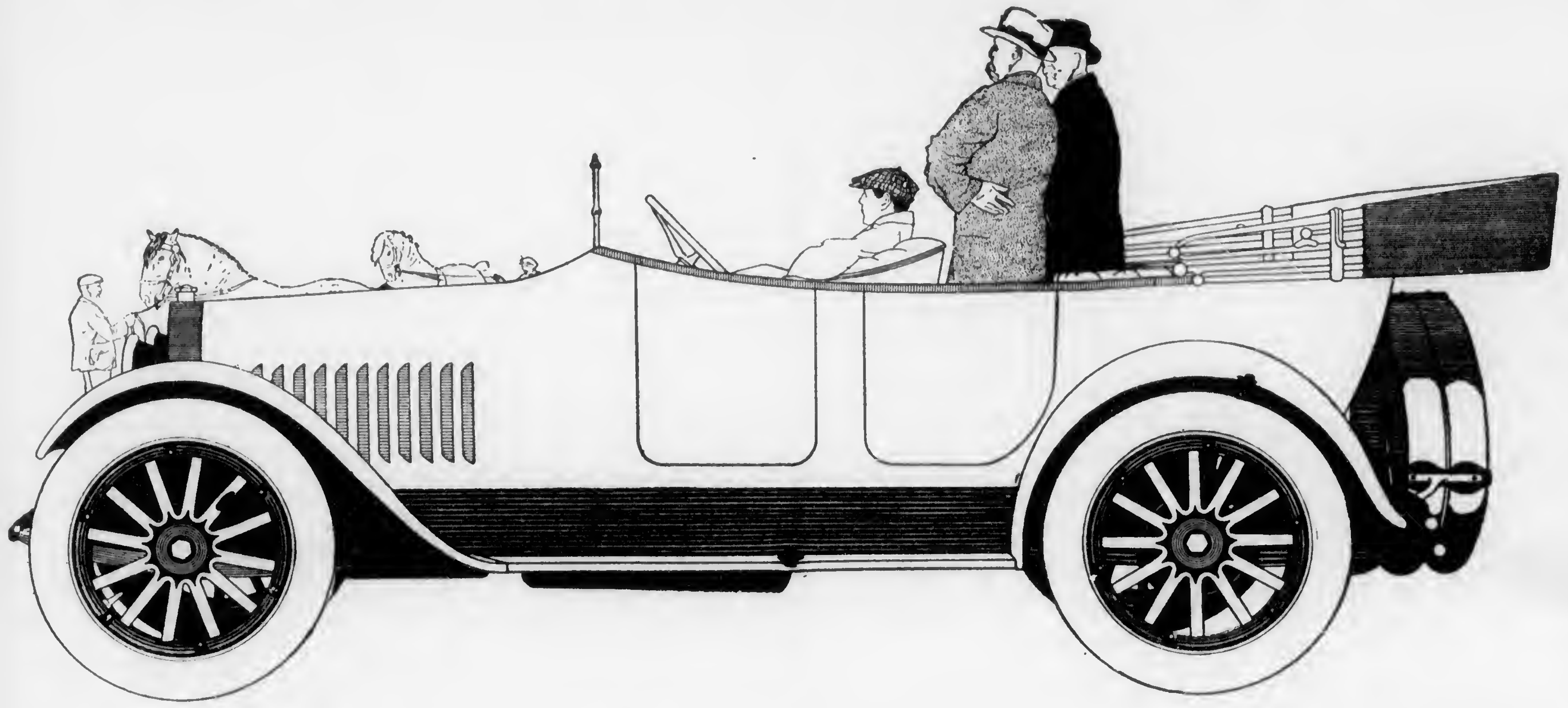
''At the next step, when I ultimately concluded to act upon my right to eject Mr. Maxwell from the rectory, I've no doubt that on all sides it was: 'Well, did you ever know the likes of that? Turning the rector out of house and home! Well he's a skinflint for fair!' ''

He paused and watched the effect. This time his hearers sat absolutely motionless.

''And I agree with you,'' he added presently, in a quiet voice: ''I was a skinflint for fair!''

''But I would not have you misunderstand me: tho it was for me to call myself a skinflint for that act, it was not for you to do so. You did so on wrong grounds. Those who in making money have been less successful than others, find it convenient to leave all such obligations upon the shoulders of the richer man, and to say 'it's up to him; he can afford it.' Is it any wonder that it makes the rich man sour on subscriptions and philanthropies? He has as much, or more, of inducement to apply his earnings and savings to his own ends and pleasures; why then, is it not up to all, in their proportions to meet social needs? A good many years of such meanness among his neighbors makes even a rich man sour and mean, I guess. And that's what it made me—and tho that isn't a justification of my act, it gave me as much right to call you skinflints as for you to call me: all except one of you, Hepsey Burke.''

(To be continued.)



IT'S A COMMON-SENSE CAR TO DRIVE—THIS 3400 R. P. M. CHALMERS

Great energy in an engine will do one of two things.

It will either deliver great power or great all-round performance. But it won't do both.

It was up to Chalmers engineers to decide which of the two would be the more desirable in the new 3400 r. p. m. Chalmers.

In early road and laboratory tests of this phenomenal engine's energy they found that it developed superfluous power.

The might of this small engine was amazing; the temptation to let it deliver its full measure of might was tremendous.

But Hugh Chalmers said: ''Might isn't everything. We can't afford to sacrifice performance to power. Keep her horse-power down. Get long mileage on gas—quicken her acceleration. Make her perform.''

So it was decided that the headlong power of the 3400 r. p. m. Chalmers must be held in check—by the curb-bit of fuel-economy.

Thus it added mileage to might, made every gallon of gas kick in with 18 miles of wonderful flight, with an uninterrupted flow of silken, miraculous acceleration, and speed up to sixty miles an hour.

But bore, stroke, and engine speed remained unchanged. It still recorded its 3400 revolutions per minute.

As long as motor cars run on gasoline, extreme racing speed will be as prohibitive in cost to the average user as extreme racing speed in a horse.

A Dan Patch is not for the average stable—an interesting sort of beast, but pretty useless when it comes to the prosaic requirements of the day's work in town or country.

When Mr. Chalmers refused to O. K. the sacrifice of all-round performance to mere brute might, he saved the owner of the 3400 r. p. m. Chalmers from $150 to $200 per year in cost of gas.

And so it's a common-sense car for a farmer to drive, because thrift is the first law of scientific farming. This car does not require a big burnt offering on the altar of useless might.

Its pick-up and ease of control will astound you the moment you set foot on the accelerator button. You can shoot ahead of another car's dust at will. No jar or sideway—always four wheels on the road—you slip up the hills on high—your direction is straight and true.

Big and roomy; 115 inches of wheelbase; Westinghouse starting and lighting; deep, rich, genuine full-grain leather upholstery; stunning color options.

The next time you go to town, go and see this car; you feel already that this is the car you must own.

$1050 Detroit
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Chalmers Motor Company, Detroit, Michigan

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Detroit. Mich. U.S.A.

Quality First

"SNAG PROOF" FOUR BUCKLE ARCTIC
"SNAG PROOF" SHORT BOOT

LAMBERTVILLE
RUBBER FOOTWEAR

Made by a concern whose reputation for forty years is based on QUALITY.

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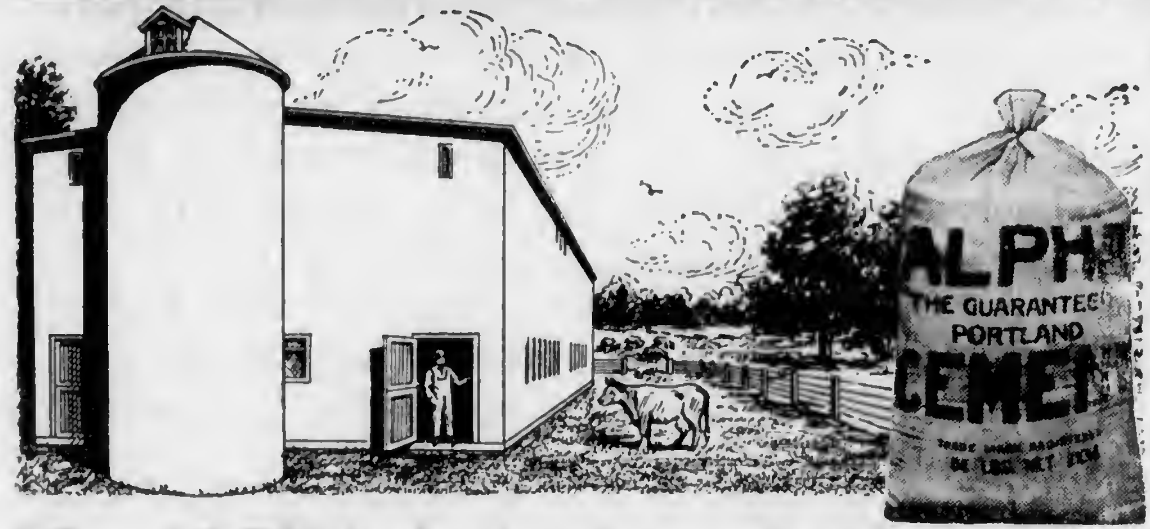

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CONCRETE FOR PERMANENCE

The New Pennsylvania Paint Law

By Prof. James W. Kellog
Chief Chemist in Department of Agriculture

Thru the new Pennsylvania Paint Law, which became effective December 1, 1915, positive protection is extended to the farmer against any deception in his purchase of paint, putty or turpentine. By careful reading of the labels, which must be on every article, he can determine whether he is purchasing pure white lead paint or a compound, pure putty or a compound and pure spirits of turpentine, or a mixture containing mineral oil.

The enforcement of the provisions of the paint law was placed in the hands of the Secretary of Agriculture and arrangements were immediately made for the necessary chemical work in the department laboratories. While the paint law does not require that the formula or chemical analysis of mixed paints, paste paints and colors in oil be placed upon the label, it does require that there shall be no false statement in regard to the contents of the can or anything misleading placed upon the labels. It also requires that turpentine shall be pure. This means, therefore, that as has been the case for a number of years, mixtures of white lead and barytes or other extended or reduced leads which were being sold as white lead, can no longer be sold for the full strength paint, but must be labeled "Compound". It appears that in quite a number of cases, before the law was passed, colors in oil had been reduced, as in the case of white lead and zinc, and sold for full strength articles.

The paint law will correct this evil and make it possible for farmers to know character of these materials when buying. In quite a few cases manufacturers have gone so far as to place the formula labels on containers so that the exact composition of the paint can be determined. Farmers when buying white lead, zinc white and colors in oil, therefore, should carefully examine the labels on the cans containing these products and if they see anywhere the word "Compound" they will know that the articles are not pure strength, but have been reduced. In the case of white lead, which has been reduced by using barytes, China clay or some other inert pigment, it may contain at least 50 percent of white lead if it is labeled "Compound". If it does not contain 50 percent of white lead, the word (lead) cannot appear as a part of the title.

No doubt there have been a number of grades of "Ready Mixed Paints" sold in the state which have contained mineral oil in excess, instead of linseed oil, and also they may have contained excessive amounts of water. While the law does not require the formula label to be placed on the can, the farmers can be protected when purchasing ready mixed paints which contain excessive amounts of mineral oil and water, under the paint law, as these products are considered adulterants. It is the purpose of the Department of Agriculture to analyze samples of mixed paints from time to time and publish the results of analysis, which will then show the composition of such paints, and it can then be readily determined by referring to these reports, whether a mixed paint contains excessive quantities of inert matter impure oils, or whether it contains sufficient amounts of proper pigments and oils to be of value as a protective coating.

Inspectors are now taking samples of paints to be sent to the Department of Agriculture laboratories for analysis, and as the work is new, no results will be available for publication for some little time. It is of interest, however, to report that manufacturers have shown a willingness to comply with the requirements by correcting labels where necessary and placing the word "Compound" on those articles which have been reduced and extended. A number of such labels have been sent to the department for examination and these labels will be kept on file for reference.

The paint law does not establish standards for putty and turpentine, and in the absence of such standards it is necessary to abide by the standards recognized in the trade for these products. In the case of putty, which is either composed of white lead and linseed oil, or white lead, whiting and linseed oil, they may be sold and labeled as "White Lead and Whiting Putty", as the case may be, but all other mixtures or putties made from materials other than those mentioned above must be labeled as a "Compound". Therefore, if the farmer desires to buy putty which is free from mineral oil and materials other than white lead and whiting, he should not purchase any labeled as a "Compound.". In the case of turpentine, any product which is not strictly pure spirits of turpentine, and which contains mineral oil and is sold as pure turpentine, will be considered an adulterated article and sold in violation of the law.

While the paint law does not cover linseed oil, Pennsylvania has had for a number of years a splendid linseed oil law, which has been enforced and which has been the means of stopping the sale of large quantities of adulterated linseed oil. Reports of this work have been published from time to time and may be had upon application to the Department of Agriculture. Any farmer wishing any information along this line can secure it by writing to the Department at Harrisburg. The analysis of special samples is not permitted in the case of paints, putties and turpentine, but, in the case of linseed oil, the law provides that anyone can have samples analyzed and tested for purity, by submitting a sample, together with an analysis fee of $1.

Whenever mineral oil is suspected of being present in linseed oil and where a chemical analysis is not required, the Department will make a preliminary test free of charge to determine whether or not the oil is adulterated with this product. Insofar as time will permit, we will examine samples of turpentine in a like manner. The farmers of the state, therefore, are requested to co-operate with the Department of Agriculture, and where they have reason to suspect that any linseed oil or turpentine is being sold which is impure, or any paints improperly labeled, they are requested to notify the Department and an effort will be made to correct the discrepancies.

Practical Farm Drainage. A manual for the farmer and student, taking up the subject of farm drainage in a practical way. Written by Charles G. Elliott, and published by John Wiley & Sons, New York. Price $1.50. For sale thru Pennsylvania Farmer.

The author first shows the effects and advantages of proper drainage for farm lands, and then proceeds to instruct in the principles and methods of doing the work. Open ditches and under drains are both considered and the text is well illustrated by cuts, thus making clear the directions given. The book is well designed as a practical guide in surveying a plot to be drained laying out lines, determining levels and laying the tile.

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Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the cause in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Barren Sow.—Have a sow that has been bred several times and fails to get with pig. I feed her corn and milk. W. W. W., Hickorytown, Pa.—If fleshy, reduce her, also see that she has plenty of exercise and she may perhaps get with pig.

Bunch on Neck.—I have a horse with a big bunch on neck or shoulder, caused by a bruise from collar and trace. The swelling is hard and rather extensive. V. H., Newton, N. J.—Your collar is not properly fitted to the shoulder and neck; either too wide or perhaps too narrow, pinching the neck. Apply equal parts alcohol and spirits of camphor and discontinue working horse. Occasionally apply tincture of iodine. If an abscess forms, open it and inject a small quantity of tincture iodine into cavity, 3 times a week.

Barb Wire Cut.—I have a 4-year-old mare that was cut on barb wire last August, making wound on pastern. I applied a germ killer and later on applied wool fat freely; however, the wound filled with proud flesh. Then our local veterinarian gave me a wash which I applied but it failed to kill it. E. J. B., Three Bridges, N. J.—Dissolve 1 oz. permanganate of potash in one-half pint of water and paint fungus once a day.

Partial Paralysis — Clinging Afterbirth.—I have two calves, six months old. One is getting so weak and helpless that it is unable to stand up. This calf appears to eat everything placed before it and it drinks plenty of water. It does not appear to be sick, altho it looks as tho it were paralyzed. It generally bloats after eating. I also have a cow that freshened two weeks ago. It failed to clean until at the end of a week the afterbirth sloughed away. I am unable to tell whether it all came away or not. C. K. H., Pottstown, Pa.—Give your calves 15 grains ground nux vomica, 30 grains hyposulphite of soda and 120 grains ground gentian at a dose, either in feed or water, 3 times a day. Give your cow 2 dr. red cinchona, 1 oz. cooking soda and 1 oz. ground gentian at a dose in feed, 3 times a day. Dissolve 1 dr. permanganate of potash in ½ gallon of tepid water and wash out vagina 3 times a week until vaginal discharge ceases.

Indigestion—Worms.—I have a 7-year-old mare that fails to gain in flesh, altho she is not working and is fairly well fed. I am sure she has worms. I have fed her different kinds of worm remedy, but they fail to make any impression. She lacks appetite and is rather dull and dumpish. L. B. T., Berwick, Pa.—Give your mare 1 dr. powdered sulphate iron, 1 dr. ground fenugreek, 1 dr. ground nux vomica and 2 dr. ground gentian at a dose in feed, 3 times a day.

Feeding Milk from Abortive Cows.—We have a cow in our herd that aborted. I would like to know if there is any danger in feeding her milk to calves. If so, is it likely to spread the disease? J. R. B., Dillsburg, Pa.—In order to be safe, I would advise you to sterilize the milk from cows that suffer from contagious abortion when milk is fed to heifer calves, or to sows.

Parcel Post Marketing. — Farmers' Bulletin No. 703 gives suggestions for parcel post marketing. The discussion covers postal requirements, parcel post zones, measurement limits for parcel post mail matter, containers, packing produce for shipment, agreeing on prices, remittances, quality and appearance of produce and standards of quality. Products discussed specifically with reference to postal marketing include poultry, butter, eggs, fruits (apples berries, strawberries, raspberries, cantaloupes, cherries, currants, grapes, pears, peaches, and plums), vegetables (asparagus, snap beans, cabbage, cauliflower, celery, cucumbers, eggplant, corn, lettuce, onions, peas, peppers, potatoes, spinach and kale). The bulletin is free upon request addressed to U. S. Department of Agriculture, Washington, D. C.

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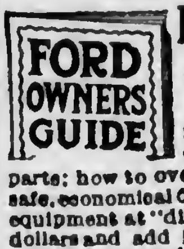

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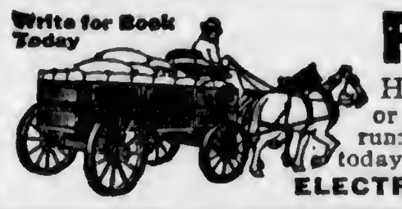

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Name..

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Ship to..............................State..................

"Have been feeding "Sal-Vet" to our pigs. The other day we butchered six of them and there wasn't a worm in the bunch."—C. H. Henninger, Pottsgrove, Pa.

"I am cheerfully paying for the "Sal-Vet" you shipped on trial. I have been feeding it to my horses; it cleaned out the worms, and now it does not take one-half the amount of feed to maintain them that it did before I fed "Sal-Vet."—Chas. Dorman, Millmont, Pa.

"When I sent for "Sal-Vet", I had a bunch of hogs which would not eat. When I went to feed them they would just lie still, ignoring their feed completely. Since they have been taking "Sal-Vet", they eat everything I give them, are doing finely, and are like entirely different lot of hogs."—W. J. Hall, Quakertown, Pa.

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ESTABLISHED 1880
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BUILDING UP A DAIRY HERD

By HUGH FERGUS

U. S. Bureau Animal Industry

In many sections of the East dairying, as a business, is just in its infancy. Right here in our own state of Delaware, for instance, dairying is really only in its beginning, for in spite of the fact that Delaware is right in the heart of a great market for dairy products, viz., the cities of Philadelphia, Wilmington, Baltimore and Washington, it has only been within the past few years that an outlet for the product has been made by the establishment of creameries in the lower part and milk shipping stations in the central part of the state. Similar changes in conditions hold good in nearly all the other states.

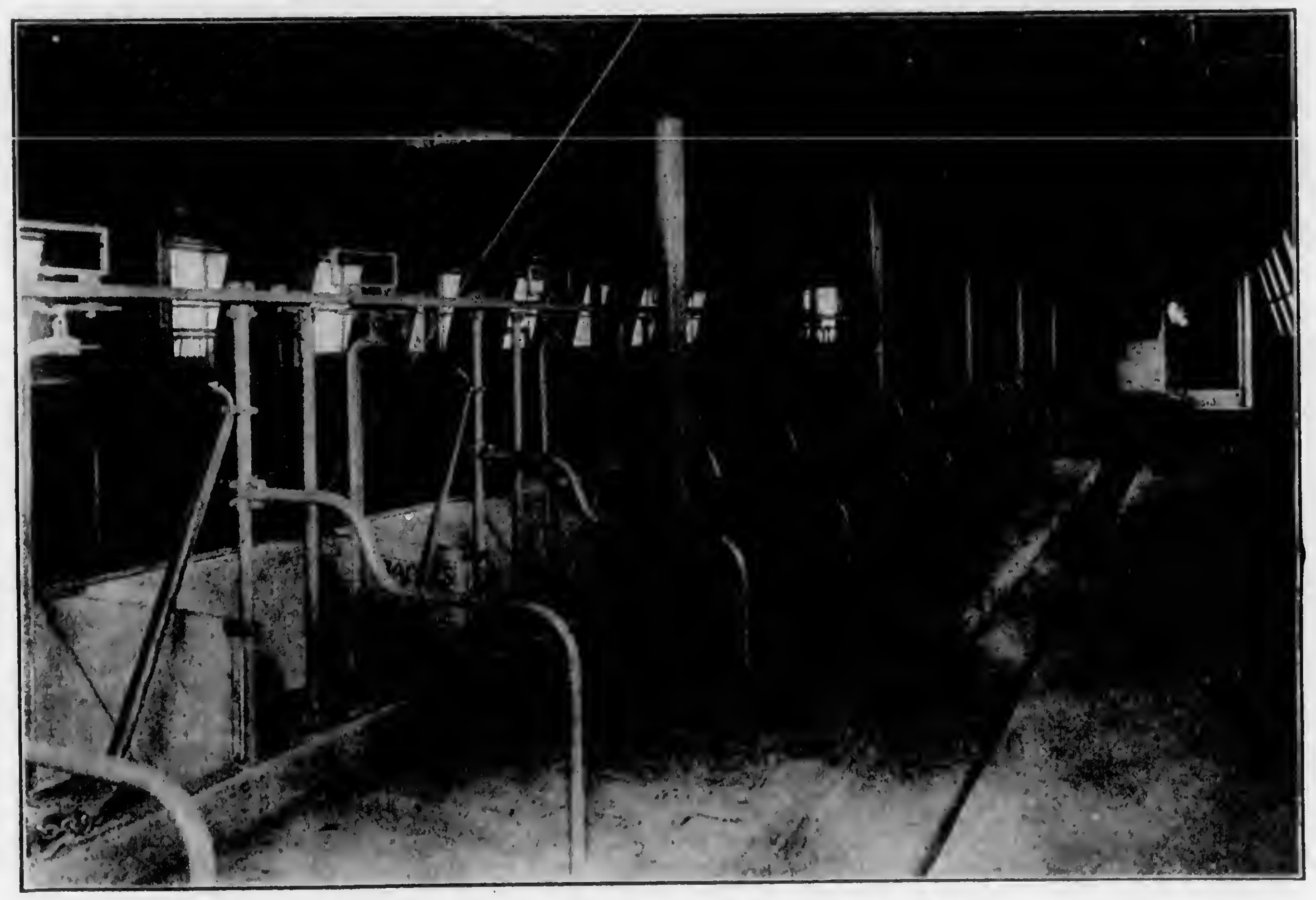
This means that there are many farmers who are for the first time in their farm experience seriously getting into the dairy business. Most of these men have always kept one or two cows for their farm supply of milk and butter, but so far as any particular care or breeding for improvement has been concerned, these essentials have been ignored. When these same men get a market for their product and increase their herds they quite naturally try to follow these same methods and the result is that they soon become dissatisfied with cows and say that dairying does not pay. By following a few fundamental principles the dairy might be made one of the most profitable sources of the farm income.

Which Breed

In starting to build up a herd, about the first question that presents itself is what breed. In this country we have four main dairy breeds, the Holstein, Ayshire, Jersey and Guernsey, with several other less known breeds such as the Brown Swiss, Dutch Belted, Dairy Shorthorn, French Canadian, Normandy and Kerry. In their original homes all of these breeds have been developed for a special purpose. About two years ago, in a cow-testing association in which the writer worked as tester, there were twenty-nine herds that included individuals of all of the leading dairy breeds. Among these herds we found good yielding and poor yielding cows of all the breeds. And as far as profits were concerned, I was surprised to find that where nearly all these men were selling butterfat there was not as much difference in their profits at the end of the year as might be expected.

All of the breeding associations publish descriptive literature of their breeds, so that if a man is unacquainted with the merits of the different breeds it would pay him first to get this literature and make a special study of it before deciding which breed he would prefer. However, if a man already has a preference for a particular breed, he will make more of a success of it than he would of a breed he favors less, which might really be better adapted to his conditions. I know men who have been very successful with their particular breed, but I seriously doubt whether they would have done so well if they had taken up some breed they favored less.

However, if a dairyman has no special preference and one of the dairy breeds is becoming established in his community, it will pay him to take up this same breed rather than to start breeding some other that has hitherto been little heard of in his community. He may not think of this so much at the present time but in the future he will find what an advantage this community breeding will be when his section will have a surplus of either grade or purebred stock for sale to attract buyers from a distance.



A MODERN DAIRY BARN BOUGHT AND PAID FOR BY THE COWS.

Probably as good an example of the success of community breeding as could be found is that of the first community breeders' association in this country. The story runs something like this: About ten years ago, out in a certain part of Waukesha County Wisconsin, there were about half a dozen young farmers, each owning a purebred Guernsey bull and a few purebred cows along with their grades. Having a common interest they decided to form a community breeders' association. At first their meetings were mostly of a social nature, but as time passed they began to have surplus stock for sale. This led to advertising and today this association has increased its membership to over one hundred, and stock is being sold from Waukesha County to all parts of the dairy world. Besides their private sales, this association now holds each year a public consignment sale at which the average price per animal has been over $300 for three or four years.

To Buy or to Breed

The next question that comes to the dairyman is whether it will pay him to keep up his herd by raising heifer calves from his own herd or buy cows. I would say raise his own, for then he will not only be improving his average production per cow each year but he has a better chance to keep his herd free from disease, such as tuberculosis and the much dreaded contagious abortion. In some sections of the country the dairymen who do not keep accounts have the idea that it costs too much to raise a calf from calf-hood to milk-hood. To settle this question the Dairy Division of the U. S. Department of Agriculture has kept careful accounts along this line in various sections of the country and it has been found to cost between $60 and $70 to raise a calf from the time it is dropped until it reaches the milk-producing stage.

Probably as striking an example of what is being done where the herds are maintained by raising heifers, and where the cows are all bought is to be found in the New England states. In Vermont, Maine and the upper part of New Hampshire the dairymen all raise their own cows, and thru their cow-testing associations most of the herds are reaching a high average production. In Connecticut and Rhode Island and most of Massachusetts a majority of the dairymen have the idea that raising cows is too expensive, so there are dealers who make a specialty of going to Vermont, Maine and New Hampshire to buy the boarder cows that are being weeded out by the dairymen of these other states. The result is that in Massachusetts, Connecticut and Rhode Island there is little improvement being made so far as production is concerned. But this is not the worst. Cattle dealers are not the most scrupulous people in the world and they have brought not only boarder cows into these states but have also brought much contagious abortion. And a little over a year ago it was a cattle dealer at Hartford, Conn., that brought foot-and-mouth disease into the state.

The Herd Sire

The old saying that "the bull is half the herd" hold true today just as much as it ever did. Today purebred bulls with good breeding and with mothers having good records can be bought too cheaply for a dairyman to take a chance on "a bull from Neighbor Smith's best grade cow". When I say purebred bull I do not mean one from "any" purebred cow, for we often find scrub purebreds as well as scrub grades. I have in mind a dairyman who has been using purebred bulls of this type and says he can notice no improvement in his herd. Little wonder, for in looking up his bulls' pedigrees no production

(Continued on page 10.)

Lessons of the Season

In Potato and General Farm Work

By Daniel Dean, Tioga Co., N. Y.

The year 1915 will be long remembered for the period of rainy weather which lasted thru most of July and August. The spring, early summer and fall were all favorable for farm crops but the wet time in summer caused heavy losses to most of the farmers of southern New York and northenr Pennsylvania. Much of the clover and timothy hay was either completely spoiled or else got in the barn in poor condition to feed or sell. Corn grew slowly and some never ripened. Only the most careful farmers succeeded in saving their wheat in good milling condition. The greatest loss of all came when the late blight and rot struck the potatoes and cut the yield to one-third of the usual amount. On the other hand, pasture was good all summer, oats did quite well, cabbage was good, alfalfa made good crops before and after the rainy period and potatoes, when thoroly sprayed, made a good crop which is bringing record prices.

Diversified Cropping.—The first lesson for me from last season is the value of diversified cropping. It spreads the work more evenly over the whole season, the income is more certain and there is less liability of a single bad period of weather spoiling most of the sources of income. The dangers of too specialized farming may be seen by observing the losses of Canadian wheat growers in seasons of frost, of the southern cotton planter, or the Aroostook potato grower in years of war and panic like 1914, or of the exclusive dairyman when some epidemic of disease has swept thru his herd.

Reliable Machinery.—Another lesson was the value of reliable farm machinery and ease of getting repairs. There was so little time available for work in the wet period that break-downs meant bad losses.

NON-CONSERVATION OF FARM MACHINERY. PHOTO TAKEN JANUARY 26, 1916.

Good Seed. — Improved seed has shown well this year. Altho much corn failed to mature on account of the cool summer, several strains selected for our conditions ripened in fine shape. I bought seed of a strain of late cabbage from a farmer who has been breeding it for our state conditions. My crop had a larger proportion of sound heads and less of "cushions" than that of growers who used imported seed. I lost part of my seed potatoes by an accident and had to buy some of the same variety from a neighbor to finish planting. The product of the purchased seed had a much larger proportion of culls than had my own strain. This has been hill-selected by saving the best hills for eleven years. I have tried over 20 strains and varieties of alfalfa from America, Europe and Asia, ranging from seed grown under irrigation in hot climates to that from the deserts of Siberia, near the Arctic Circle. I get the best results from seed grown in sections of the east where conditions are similar to my own. These strains winter-kill less and are more sure to give paying crops than the western seed.

Treating Seed. — Several scientific seed treatments paid well this year. I saw several fields of potatoes before the rains which had poor stands due to rhizoctonia. This disease kills the growing sprouts before they reach the surface. The plants have to start over again, so are almost always poor and small. It is easily prevented by treating the seed with corrosive sublimate solution, at the cost of a little trouble and less than one cent a bushel of seed for material. Formalin treatment prevents common scab but does not prevent the rhizoctonia damage. Many cabbage growers up state had trouble with diseases easily prevented by seed treatment. Many fields of oats were badly damaged by smut. I escaped this by the easy formalin treatment.

Late Blight.—Last and worst of all, the late blight and rot of potatoes found just the conditions it wanted this year. Cool and wet weather with the air damp between showers produced the worst attack of blight seen here for many years. Only the most thoro spraying with bordeaux prevented damage. I had an average of 230 bushels per acre with eight thoro sprayings. How near I missed disceaster will be seen by the fact that my next neighbor sprayed seven times with a similar machine but with less pressure and had a crop of 120 bushels per acre. His tops died during the wet weather while I saved mine to make the yield in September and early October. With the high prices this year, spraying was the most profitable work I did in 1915.

TEST FOR WIRE FENCING

By the process of manufacture now in use, the length of service of wire fencing depends largely upon the quality and quantity of galvanizing on the wire. A common test that may be easilly applied to determine the relative amount of galvanizing, or spelter, on a woven-wire fabric, as given in a recent Department Bulletin.

Make a saturated solution of copper sulphate by dissolving 36 parts of copper sulphate to 100 parts of water by weight. Not less than a quart of the solution should be used in the test, and to make a quart of the saturated solution requires approximately 11½ ounces of copper sulphate, or, as it is commonly known, blue vitrol. Slightly more than this amount should be used, however, as there should be a small excess of the copper sulphate. This may be either left in the solution or the solution may be strained off from it. The wire to be tested is immersed in the prepared solution, which should be at a temperature of 60 to 70 degrees Fahrenheit, and left for one minute, at the end of which time it should be removed and wiped thoroly dry. This operation should be repeated until the wire shows a deposit of metallic copper. The copper will not be deposited on the wire until the galvanizing is removed, and a well-galvanized wire should stand at least three immersions in the copper-sulphate solution without showing copper deposits on it. Some specially galvanized wire will withstand four immersions without showing copper. This wire is known as four-minute wire, and may be had at a slight advance in price. When the common commercial copper sulphate is used in performing the test there is a very slight excess of acid present in the copper sulphate solution, which, if not neutralized, may cause the solution to act more strongly on the wire than it should. The acidity may be neutralized by adding a small amount of copper oxide; 2 ounces to a quart of solution should be sufficient. On account of the nonsolubility of the copper oxide it must be added a long time—at least a month—prior to the time the solution is to be used.

QUERIES AND COMMENTS

Trucking Without Manure

"I have 13 acres which I am developing for trucking purposes. Manure is out of the question and I will have to rely upon commercial fertilizers. Can it be done? If so, what mixture and what quantities per acre? I wish to raise cabbage, sweet corn, potatoes, etc." E. H., Luzern Co., Pa.

With all our appreciation of the value of other fertilizing agencies, we are convinced that nothing can fully take the place of good manure in truck growing. However, it is fully possible on soil that is naturally fertile to succeed with many of the staple crops, such as the ones you mention, including tomatoes, peas, beans, etc., by the use of commercial fertilizers and the growing and plowing down of legume crops such as the clovers, peas, soybeans, vetch, etc. Make it a point to plant or sow one of these every year for plowing down. This can usually be done after you harvest a crop. Of course this will not permit as full use of the land as can be done when manure is applied, but it is the only way to maintain and increase fertility. The kind of fertilizer to use will depend upon the crop to be raised and what you can obtain. This year you will have to get along without much if any potash. It will be well to have a little nitrate of soda but for the present use tankage, fish scraps, etc., for nitrogen. For phosphoric acid use acid phosphate. You can mix these as you wish. Apply nitrate of soda after plants are up, using 75 to 150 pounds per acre. Of the other mixtures you may make, apply 300 to 500 pounds per acre according to the soil and crop requirements.

Canada Thistles

"You can destroy Canada thistles by keeping them cut off with a hoe. First, cultivate the patch in the spring with a cultivator or disk, then cut them with a hoe every week or two. If the patch is too big, make a cutting scraper of some kind. A road scraper will do. I have had two patches on my farm and have destroyed them."R. K., Lancaster Co., Pa.

Joseph Cleaver, of Luzern Co., writes that it is best to hammer the Canada thistle with some blunt instrument, like the back of a heavy hoe, rather than to cut it off. He claims that bruising it in this way is most effectual.

Alsike and Rape in Oats

"Can I sow alsike clover and dwarf essex rape with oats in the spring to make a green crop to plow down in fall? Would they interfere with the growth or harvesting of the oats? If these crops will not do, what would you advise?" Subscriber, Pennsylvania.

Alsike clover will not make much growth the first season and we would not recommend it for your purpose. Rape would seriously interfere with the growth of oats if the oats were sown thin enough to give the rape a chance. Your letter does not give your location, but if it is in southern Pennsylvania it is possible that crimson clover will do more for you than anything else. It is difficult to grow a soiling crop in oats and in the oats season that will produce much material to turn under, especially if the oats are sown thick and they make a rank growth.

Nitrate of Soda

"I am a young farmer and would gladly accept a little advice on the use of nitrate of soda. Can it be used on oats, wheat or corn as well as hay? If so, how is the best way to apply it to the various crops and in what quantities?" H. H. D., Franklin, Pa.

It is well to understand the nature of nitrate of soda in order to use it intelligently and economically. It is a very soluble, concentrated carrier of nitrogen. Nitrogen makes for growth of stalk, stem and leaf of plants, hence its great value as a hay producer. Since it is so soluble it should be applied where there are roots ready to make use of it at once. If it were used on corn, it would better be applied along the rows after the corn is up. If on oats, broadcast it when they are about two inches high. It may be applied profitably to wheat in the spring. Use from 75 to 150 pounds per acre. Be sure that the lumps are crushed so it can be applied evenly.

Canada Thistles and Wild Morning Glory

In the year 1877 I undertook to exterminate a plot of about four rods square of Canada thistles which had been harvested for years previous in the hay or grain which even happened to be sown. My Uncle proposed that a covering of salt would eradicate them and as I was working under instruction I gave the patch a dose of eight bushels as evenly as I could spread it. I could see no effect from the application. The next dose was kerosene oil, but that was labor thrown away. In August after the hedges and brush cut along fences were drawn and piled on the plot and burned. The effect was great; the thistle grew very luxuriantly. If it had been alfalfa it would

have made me smile. But unfortunately it was not alfalfa.

Not being discouraged I plowed the plot the first part of June and turned the whole crop under, not leaving a living thing to be seen. After a week it was harrowed both ways and repeated three times about a week apart, with a spring tooth, to get all the roots possible to the surface, as all exposed would sun kill. When the plot was in fine condition to sow I broadcasted one bushel of German Millet, sown both ways. We did not have kodaks in those days or I should certainly have had a picture of this patch. When it was cut the millet was as tall as the mules' back and so thick that a man had to follow to clear the track of the machine. It was thirty-five years ago and I fail to see a Canada thistle there since. Morning Glories can be exterminated the same way, simply smother them in June. Do not be afraid of putting on too much seed.—C. M. Kitchel, New Jersey.

Pea and Oat Hay

"We are anxious to find some substitute for timothy hay for feeding to horses. We have tried millet and find it makes large yields; our objections to millet, however, are the effect it apparently has in depleting the fertility of the land. Would Canada field peas and oats grown together make a satisfactory feed for horses as well as for a dairy herd? What is the above method of culture? Kindly advise us thru the columns of the Pennsylvania Farmer." J. W. H., Harford Co., Md.

Canadian field peas and oats make a palatable and nutritious feed relished by horses as well as cows, and is preferable to millet as a substitute for timothy hay. It is richer in protein and fat than timothy and when properly grown on good soil makes a good yield. While both these plants grow best in more northerly latitudes, being most at home in cool climates, yet they will do well in Maryland providing they are planted very early in the spring so that a good growth is obtained before hot weather begins. For this reason they should be sown as soon as possible in spring.

The ground should be plowed and rolled until quite firm, then harrowed. The peas should be drilled in separately, 1½ bushels per acre, weighting the drill hose so as to put them down three or four inches. Then drill the same amount of oats, drilling cross ways, without weighting hose. The oat drilling may be left a few days, if the weather will warrant, so the peas will come up about the same time. Cut for hay before maturity of the one farthest on.

PREPARE AGAINST WEEDS

The excessive wet weather of last year brought forth an unusual growth of weeds, which matured, producing an exceptionally strong weed seed. This seed is now being protected from the winter's freezing by the unusual growth of vegetation. When spring opens these seeds will sprout and grow causing serious damage to the crops for this year and for years to come, unless they are combated.

If the spring opens early and is warm the danger is going to be especially great. This is because of the great amount of plowing that must be done before the crops can be planted. Consequently by the time the farmer is thru plowing he will be turning under a growth of weeds. If the spring is late, cold, and damp, the weed seeds will not sprout and grow as vigorously, but in plowing as the farmer must do with the ordinary plow, half burying the weeds and trash, the final preparing of the seed bed with the harrow will pull out the trash and scatter the weed seeds on top of the ground where they will grow and produce a luxuriant growth before the crops can get a start. The reason for this growth is easily explained when one considers that weed seeds germinate and grow at a much lower temperature than any of the crops which farmers plant. Consequently this process of preparing the seed bed when there are billions upon billions of seeds on top of the ground now, will seriously handicap this year's crops.

The redeeming feature of the whole problem is this: If the farmer plows his ground in the proper manner, being careful to see that all the weed seeds and trash are placed on the bottom of the furrow where the harrow teeth cannot pull them out and scatter them on top of the ground, he will turn these weed seeds and trash into profit.

When corn is planted this year it should be on ground that is plowed deeply with every particle of trash and vegetation on the bottom of the furrow, the ground well harrowed and the seed bed compact from the bottom to the top. Before a hill of corn is planted, the ground must be warm enough for it to grow. This kind of a seed bed will help the corn to sprout and reach a good growth before the weeds can choke it out, thus giving the farmer an opportunity to cultivate before the weeds get high enough to interfere with the growth of the corn.

Weeds sprout and grow at a temperature at which corn can not. If the spring should be cold and backward it is plainly evident that the weeds will grow and reach a growth before the corn can start.

Stirring the ground in the spring has a tendency to warm it. This is simply because the rays of light and heat cause the moisture on the surface to evaporate. This evaporation of the moisture tends to warm the ground simply because the water in the ground determinates very largely the temperature. Consequently the more the ground is stirred and worked in the spring the quicker it becomes warm on the surface.

If the farmer will see to it that the weed seeds and trash are buried deep enough so as not to interfere with the final preparation of the seed bed, this portion of the seed bed will remain colder than the surface. The difference in these two temperatures will assist the farmer to get his crop planted in the surface soil and the seeds sprouted long before the lower portion will become warm enough for the weed seeds to sprout and grow.

Every farmer knows that it is absolutely impossible from the nature of plow mouldboards to bury trash on the bottom of the furrow. Weed hooks and chains have been used for many years with but partial success. In localities where jointers are used trash is buried on the bottom of the furrow. The reason for this is because the jointer turns a little furrow on top the unplowed ground. The plow following turns the trash which is ordinarily left straggling thru the turned furrow on the bottom of the furrow.

This trash must not be left partially uncovered this spring simply because the weeds having an unusual growth will be pulled out by the harrow teeth and scattered over the top of the ground. Some device for getting the weed seeds on the bottom of the furrow must be used. The jointer is the most successful of any device thus far known for doing this work. There are sections of the country where the jointer is not known but farmers owe it to themselves to look into the real virtues of plow jointers if they expect to properly put the trash and weed seeds on the bottom of the furrow.

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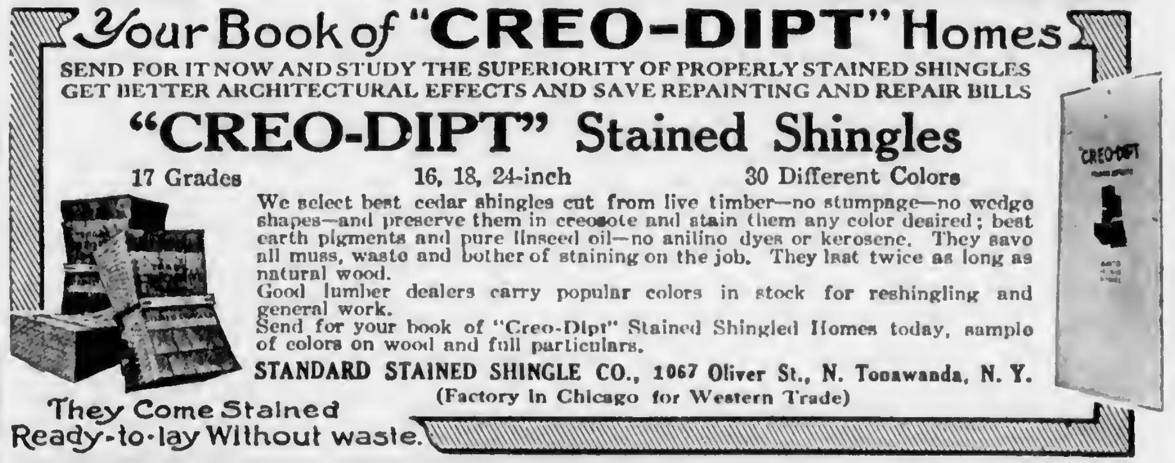

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Spraying Plan for Orchards

By Dr. J. P. Stewart

One of the chief causes for disappointment in the character of the fruit crop in the fall is the failure to spray properly in the spring. Improper spraying may result from the use of the wrong materials for the pests involved or from applications at the wrong times or at improper strengths. All these causes for failures can be avoided by preserving and carrying out the following condensed spraying plans for the tree fruits of Pennsylvania and adjacent states. In addition, thoroness in the applications is all that is needed to secure complete protection from all the important pests that are even likely to appear in this section.

Apples, Pears and Quinces

(Where pests are known to be absent, omit corresponding spray.)

1. Dormant Spray.—Preferably just before buds start. Lime-sulphur solution diluted to a specific gravity of 1.03. For scale, blister-mite, and fungus diseases. Add nicotine as in "2", if aphids or red-bugs are hatching.

2. Scab and Aphis Spray.—When blossoms show pink, before opening. Lime-sulphur solution, 1.01, for scab or cedar rust. Add lead arsenate paste, 3 lb. to 50 gal., for canker worms, bud-moth and othe leaf-eaters. Add 40 percent nicotine extract, ½ to ¾ pint to 50 gal., for oat, rosy and green aphis, mites, red-bugs, or pear psylla. (These two sprays may also aid against blossom blight, by checking aphids and ants, and killing bacterial masses.)

3. First Codling Spray.—To be completed within 10 days after petals fall. Lime-sulphur solution, 1.008, for scab, rust, blotch, etc.; and lead arsenate paste 2 or 3 lb. to 50 gal., for codling moth or apple worm, curculio, canker-worms, etc. Add nicotine as in "2" for green aphis, clover mite, red-bugs, etc. (Use plenty of material and fill calyces with poison.)

4. Second Codling Spray.—About 2 weeks after "3", altho best applied when moths actually begin emerging, as determined by cage observations in the orchard. Materials same and pest largely the same as in "3". Also useful against apple maggot, leaf-hoppers, etc., where they occur.

5. Second-brood Spray.—About July 25 to August 1. Materials as in "3". For second brood codling moth, leaf-eating caterpillars, late scab infections, blotch, green aphis, etc. (Not often needed, if earlier applications have been thoro.)

Peaches and Plums

(Destroy all mummied fruit before growth starts.)

1. Dormant Spray.—In spring, before buds start. Lime-sulphur solution, 1.03, for San Jose scale and leaf-curl. For lecanium scale, substitute miscible oil, diluted 1 to 15.

2. Curculio Spray.—When the husks or calyces begin shedding. Lead arsenate paste, 3 lb. to 50 gal., and 2 lb. lime slaked. Add 40 percent nicotine extract, ½ to ¾ pint to 50 gal., if aphis is bad. On plums, add self-boiled lime-sulphur (8-8-50) for leaf-spot.

3. First Rot Spray.—3 to 4 weeks after "2". Self-boiled lime sulphur (8-8-50), and lead arsenate paste, 2 or 3 lb. For brown rot, scab and curculio. Repeat nicotine if needed for aphis.

4. Second Rot Spray. — About 4 weeks after "3". Lime-sulphur solution alone, at 1.003; or self-boiled lime-sulphur (8-8-50), if variety is especially subject to spray injury. For brown rot and scab.

Cherries

(If pests are known to be absent, omit corresponding spray.)

1. Dormant Spray.—In spring, before buds start. Lime-sulphur solution, at 1.03, for scale and fungus disease. (Not often needed on sour varieties.)

2. Aphis and Curculio Spray.—Immediately after petals fall. Lime-sulphur solution, at 1.008, and 40 percent nicotine extract, ½ to ¾ pint to 50 gal. for aphis and leaf-spot; add lead arsenate paste, 3 lb. for curculio, slugs, and red leaf-beetle.

3. Brown Rot Spray.—When fruit is size of a small pea. Materials and pests same as "2", and especially for brown rot and fruit fly. (Latter is worst on late sour varieties. If very bad, use a coarse spray of lead arsenate, 3 lb. and molasses 1 pint to 50 gal., on lower limbs, when adults appear, in early June.)

4. Leaf-spot Spray.—Shortly after fruit is picked. Lime-sulphur alone, 1.008, to prevent defoliation by the leaf-spot or shot-hole fungus. Repeat a month later, if this disease is bad.

Asparagus Culture---II

By C. C. Hulsart, Monmouth Co., N. J.

Soils

Asparagus will live and grow on many types of soil. From the barren sands along our rivers and salt water bays and creeks to the tough heavy clays of our higher elevations. But because it will live and grow in so many different types of soil does not prove that all soils are ideal for growing this crop. In fact, it proves the contrary. If the soil is too light and lacking in vegetable matter and plant food, the shoots will be small and few. If planted on heavy clay the shoots will be crooked and distorted. If gravel or stone exist, the crop will be very hard to gather and many crooked spears are caused by the stony condition of the soil.

I heard an old asparagus grower say once, that "no grower would think of setting an asparagus bed on anything but sand." My study and observation leads me to think that the above advice is not wholly good. The crop will grow and produce well on sand, but it costs more for manure and fertilizers in order to make it do so than it does on heavier soils. My ideal soil is a sandy loam with an open porous subsoil, naturally well drained. If this plant is set in a soil with a hard compact subsoil the bed is short lived, because the root system cannot penetrate deep enough, and it comes to the surface much more quickly. If the roots cannot go down they will come up, hence the crown comes to the surface too soon.

Preparation for the Plants

When one contemplates planting an asparagus bed it is well to think about it a year or more before it is to be done, and not only think about it but begin to get ready. The writer began last summer to get a piece of ground ready for this crop to be set in the spring of 1917. Why so far ahead? Because I want the land in as good condition as I can possibly get it, by manuring and planting to such crops as will help me reach that end. I would not want to plant an asparagus bed following a crop that was exhaustive to the soil. This field of mine was in red raspberries until last July, a crop that is very exhaustive to the soil, because of its long continuation on the same land. The land is now under cover crop (rye and crimson clover). This will be plowed down after being spread with manure, and planted to early tomatoes. As soon as that crop is gathered it will be plowed again, soon to a cover crop, then manured and plowed down for the young asparagus plants in 1917. Is that about right? No, if I could afford more stable manure, I would use twice as much. The asparagus plant is a gross feeder.

Plow the land for this crop as early as it can be worked, and plow 9 or 10 inches deep if soil will permit, but do not go more than half an inch into the subsoil at any one plowing. Fit the land by thoro harrowings and mark off in rows 5½ feet apart. To open these rows sufficiently deep for the plants I use a large two-horse turning plow going once in each direction throwing out the soil down to, but not into, the subsoil. The plant should be set 7 to 8 inches below the natural level. They should be taken up from the nursery row as soon as frost is out, and ground settled. The buds on young asparagus plants are very early in starting to grow hence we can not be too soon on our job because the plant should be in its permanent home before any growth begins.

On a one year old plant there is but one or two strong and fully developed eyes. If these start to grow and are broken off in handling between the nursery row and field, that plant is compelled to force smaller and weaker buds into growth in order to live. That together with the digging from the nursery row is so much of a shock the plant is a long time recovering. The best way I have found to get the plants out of the nursery row is to plow them out with a large two-horse plow and then shake the plants out of this furrow with a manure fork. This method mutilates the roots less than any I have seen tried.

The plants after being shaken from most of the soil will have to be selected and from 25 to 35 percent discarded. Eliminate all small, weak and poorly rooted plants. This will cost a little more for plants but it pays to keep these weaklings out. When plants and the new bed are in readiness, proceed with the planting. Have a boy drop the plants on edge of the row while the setter stands down in the bottom. He takes hold of each plant by one half of the roots and places it on bottom of furrow covering it about two inches deep and stepping one foot on each side of the plant to firm the soil. Place plants 20 to 22 inches apart. Use no manure in the row either under or over the plants where there is danger of field mice. The little rascals will burrow under the manure and search out the plants and chew up many of them. As soon as the young plants show signs of growing apply a dressing of fertilizer right down the row, using it about the same as you would for a row of potatoes. This can be followed with a light one-horse harrow on each side of the row close to the edge allowing a small amount to roll down towards the plants this will cover up some young weeds that are starting, fill up the foot tracks and keep the soil from baking hard.

Cultivation and fertilization will follow in another article.

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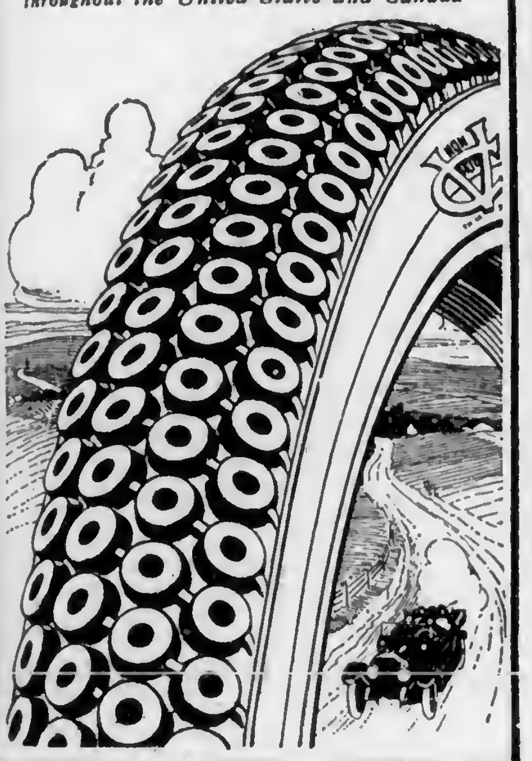

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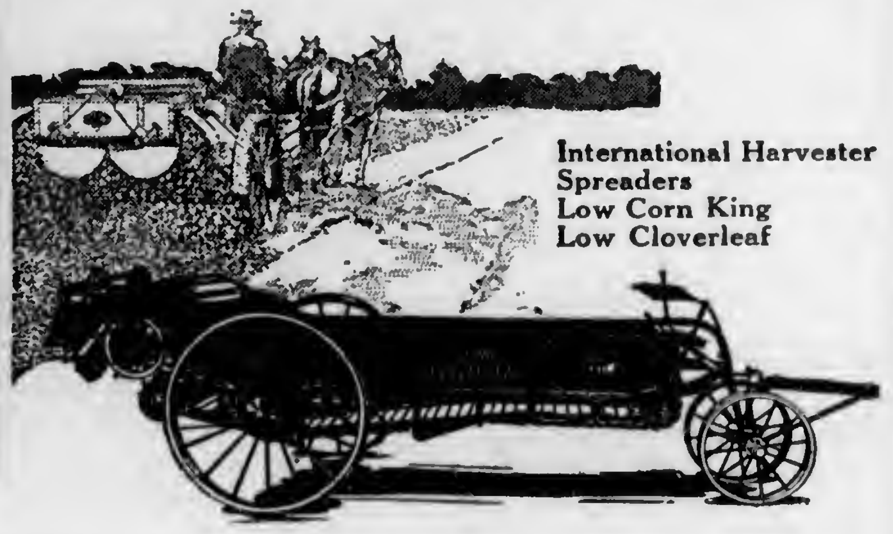

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EARLY PEAS

Early peas bring in early money to the market gardener or truck farmer. In the growing of them one turns his money quickly and has his land available for another crop in the early part of the summer. They may be planted between rows of strawberries, melons, or young asparagus and so make use of what would otherwise be waste space. They are a gamble crop, the returns being enormous some years and little or nothing other years. This is due to the fact that weather and cultural factors affect the yield to a marked extent. Also the acreage planted to them varies from year to year, because farmers persist in gambling with them. The only way for the average farmer to be sure of a profit from a "gamble" crop, such as peas, is to plant the same acreage year after year regardless of the previous season's prices.

The Soil and its Preparation

A sandy loam soil is the preferable type for early peas. It should dry out early to permit of timely preparation; but, at the same time, it should be sufficiently retentive of moisture not to become so dry in May as to check growth.

Fall plowing is advisable. Early in March, as soon as the land is workable, it can be put into condition by the cut harrow followed by the acme. It is marked out in rows 2½ feet apart. These are furrowed out with a one horse plow.

Fertilization

Five hundred pounds of a 2-8-0 fertilizer spread in the row and mixed with the soil may be used. But taking into consideration the character of the commercial fertilizers being offered this year and the prices charged for them, it is quite likely there is no better method of fertilization than the old-fashioned one of spreading fine, well-rotted horse or hog manure in the rows. This should be done just ahead of the planter, giving the manure no chance to dry out.

Varieties and Planting

The smooth peas can be planted first. In the latitude of Philadelphia they can often be planted safely before the middle of March. Wrinkled peas may decay if planted when the soil is too cold and wet; altho they are quite often planted just as early as the smooth peas. The smooth peas are small but they mature quickly, are the first in the market and usually bring good prices in spite of their small size and inferior quality. The Alaska is the best known and most widely grown of this type.

The earliest and probably the best commercial variety of the wrinkled type is the Gradus. It matures but a few days later than Alaska. The pods are larger, the peas better flavored and they are prefered on the market. Among the medium to late wrinkled peas may be mentioned the Telephone. None of the varieties mentioned grow high enough to need support; the tall varieties which need support have no place in commercial plantings. The three varieties mentioned, or varieties from the same group, if planted in about equal quantities, give a long harvesting period. This is advantageous in that fewer pickers can care for a larger acreage.

It requires about two bushels of seed to plant an acre. Most any of the standard drills may be used for planting. The seed should lay from one to two inches apart in the rows. They can be covered by raking the soil over them or by the use of a one-horse plow. The latter method is the common one where the acreage is large. The plow is not held upright, but is dragged along the edge of the furrow in which the peas lie so that the soil is scraped over them. They should be covered from one to three inches. Deep covering retards earliness but it increases productiveness, especially if the early summer is hot and dry.

As soon as the peas are up the cultivator should be started in them. Frequent, shallow cultivations should be given until the vines fall over. Hand hoeing or weeding is seldom necessary.

Harvesting and Marketing

For canning purposes peas are harvested with a mowing machine. That is, the vines are cut when the majority of the pods are filled. The machinery at the canning factory picks and shells the peas. For the general market hand picking is necessary. This is the most expensive item in the production of market peas. It is customary to pay from 10 to 15 cents a ⅝-basket for picking. The higher price is paid for the small podded extra early varieties, while 12½ or 10 cents is paid for picking the later, large podded varieties. The women and children of a neighborhood may be depended upon to pick a small acreage, but for large plantings Italians are much more satisfactory. With the extra early varieties like Alaska practically all the peas are harvested at one picking. The later varieties require two or three pickings. As the baskets are filled they should be covered with vines or set in the shade. If wilted, the peas can be freshened and made attractive by a thoro soaking with cold water.

When conveyed to market in boats, wagons or auto trucks the peas are sold in the ⅝-basket. The bushel hamper is used for distant shipping.

The yield ranges from 200 to 400 ⅝-baskets per acre and the price varies from $1 to 20 cents a basket so it is impossible to give any fair estimate of the returns to be expected from growing peas.—Harris T. Kille.

ADVANTAGES OF COLD FRAMES

While I grow lettuce all winter in cold frames, the greatest use of frames, to my mind, is in receiving plants from the seed-bed early in the spring. Transplanting from the seed-bed to cold-frames is essential if one would get strong, stocky plants that will mature quickly. Transplanting causes the development of hundreds of small, fibrous rootlets, which are the plant's main dependence when it goes into the open ground. When plants are transplanted from the seed-bed to cold-frames, they gradually become hardened to withstand outside conditions. Plants that go into the open ground directly from the seed-bed often suffer a serious setback, on account of the great difference of the temperature of the soil in the seed-bed and that outside.

Such plants as tomato, cabbage and celery I always transplant to cold-frames. Indeed, my experience is that it is not possible to grow first-class celery unless the plants are transplanted before going into the open ground.

Another use I find for cold-frames is in starting melons, cucumbers and lima beans. These will not stand transplanting in the ordinary way. My method is to use paper boxes, filling these with soil and planting the seed. The boxes are kept in the frames. I have also planted on inverted sod and find this method satisfactory. Pieces of inverted sod, four or five inches square, are packed side by side, on the soil in the frames. The surface of the sod is scratched in order to form loose soil on top, and the seed are placed on top of this loose soil. The seed are then covered with about an inch of fine soil. The bed is then given a good watering and the sash placed in position. When the plants are ready for transplanting, it is only necessary to lift the box or sod and place in holes previously made, packing the soil firmly about the plants. The roots will grow thru the sod or box.—T. Z. R.

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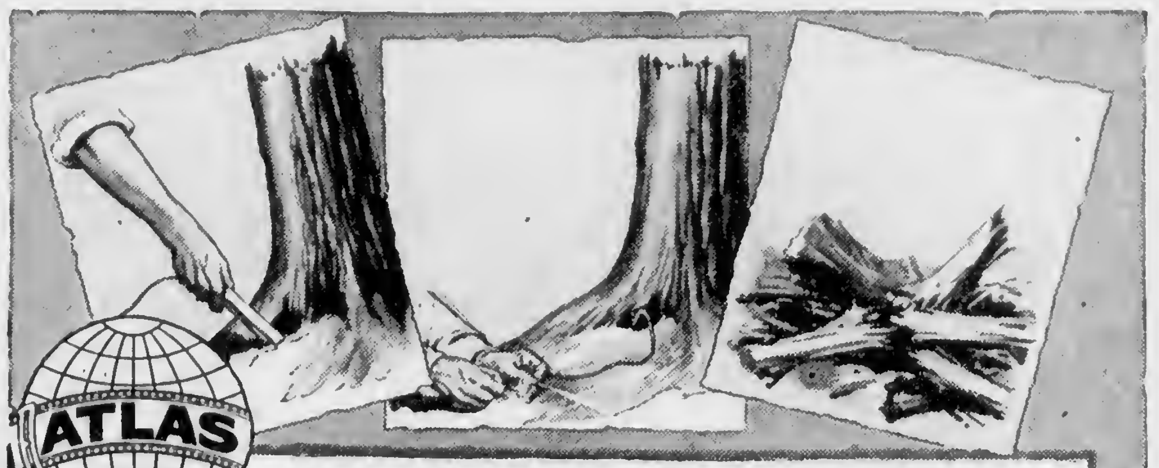

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Philadelphia, Pa., March 11, 1916.

FIGHT THE WEEDS

It may reasonably be expected that weeds will be abundant the coming season unless a campaign of weed control is started early and the work kept up all summer. Last summer and fall were especially favorable to the growth and maturing of all kinds of weed plants and the abundant crop of seeds has been well protected by the abundant vegetation which has gone down and lain on the ground. This material may be turned to good advantage as humus if it is plowed under. Burning it will destroy the humus making material, and besides it will destroy few seeds because they lie so close to the earth that fire can not reach them. The first work of "preparedness" for cultivated crops will be to do a thoro job of plowing. This will mean the turning into the bottom of the furrow all seeds and trash. Few weed seeds will germinate and come thru 7 or 8 inches of earth. In order to get them there it will be necessary to use a jointer, a little plow which turns a small furrow ahead of the main plow. Nothing should be left so that it can be pulled out by harrow or cultivator. Fall plowed land should be harrowed several times before planting. Let cultivation be begun as soon as possible after planting and continued as long as possible. If it is seen that hoeing will be necessary, do it early as it will be cheaper then than later. Keep ahead of the weeds at whatever cost.

AUCTION SELLING

For various reasons the auction method of selling fruit in New York has given a publicity to that method and spread information concerning it which the public never before had. It is not generally known perhaps that the system is an old one, being used in some parts of Europe for 100 years, and for nearly 70 years in the United States. In London, Glasgow, Liverpool and other foreign cities the greater part of the fruit, flowers, vegetables, etc., are sold to buyers at public auction. In the United States, nearly 100 percent of the fruit from the Pacific coast, the northwest and from Spain is sold in this way. There are 16 American cities in which are held regularly public auctions of fruits. The proof of its success it is alleged lies in the fact that it returns a better price to the producer and delivers it to the consumer at a less cost than is done by other methods. Every sale by auction is a matter of public record and the shipper may find at any time the price at which his fruit was sold, since a clerk keeps a complete record of every transaction, to whom sold, price and quantity. One thing necessary to success is uniform grading and marking. Produce must be so graded and packed that buyers can rely upon the grade and quality of the goods. In fact, this is necessary for best success in any method and it seems strange that farmers and business men are so negligent in this regard in most eastern states.

BE FAIR WITH THE FARM

A farmer remarked the other day that, in figuring up the results of his business for 1915, he found if he allowed 6 percent on his investment he would have nothing for his time after all expenses were paid; if he allowed himself $50 per month he would have nothing for his investment. He finished by saying, "Why, a carpenter gets $4.00 a day and has no investment, except a few tools." Now we do not wish to be understood as contending that the income on the average farm is what it should be, or might be, but we think it only fair to the farm to call attention to an important item which the farmer overlooked and which the average farmer overlooks, and that is the home and living which the family of six had for the year. Altho $100 or $200 per month seems a big sum to the average farmer for a month's work, yet he will find that the man who receives it has paid it all out for the things which this farmer forgot even to mention, and is daily approaching a time when he may have no salary or no home. While we are rightfully asking for fair play and a square deal, let us give the same to the old farm.

HOW DOES YOUR SCHOOL SUIT YOU?

We have never yet asked our readers for their opinions, or descriptions and methods relating to crops, stock, chickens, etc., but what we received a generous response. However, there is one request we made some months ago to which no one has replied, and that was in reference to their rural schools. We asked for short letters making constructive criticism and offering helpful suggestions as to how this great institution might be made to better serve its purpose. We wanted to know what you think about the kind of directors elected, the teachers employed, the school buildings and grounds, the curriculum, the educational spirit of the neighborhood—in fact anything that needs more and better attention. Is the failure to respond to our invitation due to the fact that they have no criticisms to make or suggestions to offer? We frequently hear farmers make the criticism that city people and professional teachers outline the rural school program. Whose fault is it? We do not want long, academic articles, but short, personal letters describing local needs and conditions. If published, the names of the writers will be withheld.

A DOSE OF MUST

Humanity has been in quest of a general panacea for prolongation of life ever since and long before Ponce De Leon sought the fountain of eternal youth. We frequently read of some man who has passed the century mark and attributes his vigor to the fact that he has never touched tobacco or liquor in any form. The lesson is good until we read of some other sturdy old fellow a few years older who boasts of liberal use of both tobacco and liquor for many years. Pondering the two we are forced to conclude that what is one man's flesh is another man's poison. M. S. Bond, of Montour County, one of the grand old guard of Pennsylvania farmers, has a panacea which suffers no such limitations. He credits his strength and vigor, in spite of some eighty-three years, to the fact that he takes two "big doses of must" every morning. When asked to explain he will tell you that his two doses are the realization that there is work that "must" be done and that he "must" do it. This is not a remedy to appeal to a physical or mental weakling, but as a preventive it is almost infallible, particularly if liberally combined with that other curative, cheerfulness. One needs only to meet Mr. Bond to appreciate how thoroly he has mixed cheerfulness with his "must", and his combination comes as near to being a general cure-all as will probably ever be found. About the healthiest specimens to be found in any trade, profession or condition of present or past servitude are the cheerful workers who can find cheer in work that must be done.

DRY COUNTIES

John Barleycorn is having a strenuous fight for free and untrammeled liberty in Pennsylvania in spite of the fact that local option legislation failed last year. Thru recent decisions in license courts, there are now eleven dry counties in this state, making up about one-seventh of the area and one-thirteenth of the population. These dry victories are largely the result of the expressed wish of the people of the various counties in the last election, as judges in many cases were elected upon the wet or dry issue. This is an indirect local option choice that is attended with some dangers. Qualifications for judicial position ought to be based upon grounds other than sentiments on the liquor question. But until the people are given a direct opportunity to vote on the saloon question thru a definite local option measure, they must continue to express themselves thru the judiciary. In the meantime the public may be treated to a view of the "inner works" of liquor legislation and learn the causes of the peculiar influence which liquor interests exert over state legislatures. The federal investigation of the brewers' campaign contributions promises to make public a lot of interesting information on modern politics and modern politicians. Cou evidence on both would be mighty enlightening, a if the politicians might be persuaded to tell what th know about each other no doubt the voters wou have a valuable guide to future voting. By a means, let the investigation go on, and let it be thor

TARIFF COMMISSION

Supporters of the permanent tar commission idea are surprised the wide-spread demand that is d veloping. A statement by the N tional Chamber of Commerce says that business me have favored the commission plan for years becau of the general disturbance of business which usuall attends tariff revision under the old and existin methods. The commission plan can not take th tariff out of politics. It can not compell Congre to raise or lower tariff rates, however strong i statistical arguments. But it can, if given adequa powers and assured of permanency, determine an make public the facts, figures and conditions upo which tariff regulations are supposed to be based. I can make this information available so that tari changes can be made gradually and in accordan with existing conditions. Then Congress will a upon this information just so far as the publ chooses to make it act. The commission plan ma not succeed in taking politics out of tariff makin but it can take out a lot of the bumcombe that no passes for politics. It can remove a lot of the mys tery in tariff making which is supposed to be too dee for any except the legislator, and provide informatio that will enable the voter to discriminate betwee statesmanship and mere bluff.

NEW STATE BUREAUS

It is reported that plans are in th making for the establishment of State Bureau of Marketing and late a Bureau of soils in the State Depar ment of Agriculture. It is assumed that a marketin bureau would be expected to give aid in the ma keting of farm products and the bureau of soils mak soil surveys and advise in the conservation of so fertility. Both lines of service would extend th scope of the Department very materially if any de finite work could be done, but it seems doubtful i the creation of such bureaus at this time, withou legislation to back them up and give direction t their operations, would permit of much actual se vice. There are no state laws governing marketin that require a separate bureau to enforce. There ar no legalized ways of state participation in marke control that a bureau head could follow. All such bureau could do would be to advise farmers how t market to better advantage under existing condition It might conduct a campaign of education but unles backed up by definite legislation a state bureau i decidedly limited as an educational agency. A burea of soils, it would seem, would be similarly hand capped. Comparatively little money would be avail able for exhaustive soil survey work, and there woul be little the bureau could do except advise on meth ods of handling. Soil surveys are now being made b State College in co-operation with the federal De partment of Agriculture, and any duplication of th work would be needless waste. Without supplement ary legislation, it would seem that both propose bureaus would be limited to advisory work; and i seems very doubtful if that alone would justify th expense of creating and maintaining offices contem plated. The state is already contributing to a county agent system which maintains an advisor or agen in each county asking for such service. These agents have available the records of investigation of the Ex periment Station and Federal Department. If advice alone is needed this system is equipped to care fo such needs. We believe there is important work fo the state to do in promoting distribution of farm pro ducts and eliminating waste in the process of movin food products from the farm to the city consumer but it will require more than a state bureau unaide by constructive legislation to accomplish desired re sults. The state agricultural commission could be o great service if it would make a complete survey of work done by other states in simplifying farm marketing and be prepared to present to the nex legislature a measure that will meet the needs of thi state. A commission-control bill is needed, alth other states have not found them as effective a hoped. The auction sale system is being tried i New York and is admitted to have many virtues Other states have sought different methods of mar ket control. There is material for strong, helpful legislation especially adapted to this state. If such a law calls for the establishment of a new bureau, it wil be time to create the office but the office without th law would be simply one more expensive ornament i an already highly ornamented state government.

HARRISBURG NOTES

Fertilizers at Home.—State farm advisors and others connected with information service for the farmers and fruit growers will start out soon and special attention is to be given to the fertilizer situation. Advisors will endeavor to show what can be done at home in utilization of manure, its proper collection and elimination of waste and also by the home mixing of fertilizers. Bulletins and other printed information are being prepared to show that what is now thrown away or disregarded may be turned to profit. Water-tight stable floors, better barnyards, experiments with lime, etc., are to be demonstrated.

More Agriculture at Fairs.—Among subjects which Secretary of Agriculture Patton is planning to bring to attention of executives of agricultural fairs is that if they expect to continue to receive state aid for encouragement of agriculture there must be more display of crops, fruits and vegetables, work horses, live stock and poultry than has been the case in recent years. Hearings held in the auditor general's department have shown that the fairs are tending largely toward the amusement rather than instructive features and that song and dance artists are apt to get more consideration than the farmer boy who exhibits the prize farm products. County fairs have been successful in attracting crowds, as the presence of politicians, amusement purveyors, horsemen and fakers demonstrates, but the benefit to the farmer, except as a day off, seems to be doubted on Capitol Hill. The fairs should be more agricultural and less commercial.

What the State Gives.—The state paid out $100,000 in aid of county fairs as encouragement to agriculture and its allied branches during 1913 and 1914 and the last legislature appropriated $67,000 for 1915 and 1916. Possibly if agreements could be made to have more attention paid to agriculture this would be increased next session and substantial contributions secured for big premium lists. Or, the state could undertake its own show to boost its agricultural, horticultural and live stock interests.

Orchard Demonstrations. — Arrangements are being made for the spring orchard demonstrations to be conducted in orchards best adapted for the most people. The demonstrators are being given demonstrations by State Zoologist Surface. The plan is to have demonstrators start out within a short time and to continue work as long as conditions in orchards are favorable.

Coal Price Probe.—It is said that delays in inaugurating the probe into increased cost of anthracite coal, which has for its primary object the refunding of money taken in the form of tax, have been overcome and that the work will be started soon. The idea is to get the coal operators to tell to whom they sold and then to have the middlemen give the names of dealers who bought the coal and thus get at the names of the householders and others who really paid the tax. Some dealers are said to have kept lists of those who bought with tax and that if they must they will give credit for payments.

Buying Road Machines.—The State Highway department is getting busy on repair and maintenance work rather than construction for this year, and the plan appears to be to get roads into good condition instead of ripping them up and putting in expensive reconstruction. The department has bought almost 100 road machines which are to be turned loose with the hundreds of road drags and other equipment as soon as weather allows, it being the idea to work in co-operation with supervisors as much as possible. The conventions are now being held and the supervisors being told how the state will do its repair work, as well as where and when. Indicentally, a legal opinion given by the attorney general's department says that the commissioner may expend from appropriations not otherwise specified such sums as are needed to keep highways in good condition. Passable roads appears to be the rule now rather than rebuilding.

Farming the Bounties. — Investigations by officials of the State Game commission indicate that many pot hunters have been chased out of business, but that there are still many who are making it their business to hunt down bounty animals in the woods and mountains instead of clearing them from vicinity of farms. The object of the bounty law was to rid the farming land of four-footed and feathered pests, but the chances of farmers being benefitted depends upon how soon the pests are killed in mountain land. It would be better to organize and kill off nuisances in agricultural regions and have the farmers or their employees get the bounties.

Marketing Committee. — The State Commission of Agriculture at recent meeting named two members as a committee to work with Secretary of Agriculture Patton in problems attending improvement of marketing conditions and it is likely that something will be submitted to the governor soon for his approval. Dr. Brumbaugh has been referring to the necessity for better marketing, grading and routing in recent speeches and it is up to the Commission to devise a plan whereby the commonwealth of Pennsylvania can be of assistance to its food raisers and also to the consumers.

Forests Worth Money. — The mere statement in the newspapers the other day that the state forests now amount to over 1,005,000 acres probably impressed some people with the extent of the state's conservation plans, but it happens that in the last two or three years the state has received $125,000 and more for its permanent school fund from the forests. In other words, the forests have at last started to turn in some money. It was bad enough for the state to have to buy back the land it gave away, but forests without income were doubtful investments except for conservation of water. The recent statement shows that the state forests are being put on a paying basis and that springs have been walled, fish planted, game protected and fire protection installed as well as many seedlings set out or given away. The state investment is commencing to show a return.—Hamilton, Harrisburg, March 6.

NEW YORK LETTER

Potato Growers Organize. — The Onondaga Potato Growers' Association completed organization this week by electing Geo. Butts, of Manilus, president, W. J. Ward, of Baldwinsville, secretary and W. E. Bowen, of Onondaga Hill, treasurer. The object of the organization is to promote the raising of pure varieties of potatoes and to that end will devote attention this year to improving the seed for the crop. A tentative plan calls for the raising of tubers on the community basis. The different members will communicate thru the secretary when in need of information of any sort regarding the crop. The members will work together to stamp out diseases of the potato, and exhibitions of potatoes with reference to comparative merit of variety and methods of culture will be encouraged.

State Fair Premiums.—Pending legislation may have an effect on the amount of premiums that will be offered by the state fair commission. Last year the state appropriated only $50,000 for premiums but the commission paid out $63,138. The difference was made up from the gate receipts. If the state does not appropriate more than $50,000 this year (and it is a good guess that it won't) then smaller or fewer premiums will be offered. The whole matter will come at a later meeting of the commission.

Bovine Tuberculosis.—A statement of interest to every cattle owner of this state was recently sent out from the office of commissioner Wilson giving the department approval of the Witter bill now before the Assembly to suppress bovine tuberculosis. The bill proposes a physical test which is intended to eliminate, so far as possible, the spreaders of the disease. The test is not compulsory with cattle owners but only where the tuberculosis bacteria are found in milk or where the disease is apparent. The bill also provides that if a farmer wishes to use tuberculin on his cattle he may do so without reporting to the department. This is expected to increase the use of tuberculin by farmers. The bill further provides that the owner of cattle killed by the state may collect 90 percent of the appraised value of the stock. Another bill that is favored by the department relates to the pasteurization of whey and skim milk and forbids its return to the farmer by the factories unless pasteurized. It is argued that unpasteurized milk fed to stock may, and in certain instances quoted has, carried the germs of foot and mouth disease. It is conceded that bovine tuberculosis may be conveyed in the same manner.

Governor's Budget Plan Opposed. — Opposition coming from such sources as the state college of agriculture and the state experiment station, to the governor's budget plan, will have its influence. The bill which carries into effect the plan suggested by the governor cuts down the appropriation to the state college of agriculture $80,000 less than the amount now available and ignores the request for $130,000 for the maintenance of the students and the extension work of the institution. Furthermore it removes nearly all the administrative power from the trustees of the institution and puts it into the hands of a fiscal officer in Albany. Dean Galloway argues that such a law would very seriously affect every agricultural educational institution in the state. Dr W. H. Jordan, of the state experiment station, agrees with him.—D.

NEW JERSEY FARM NOTES

Consider Auto Thieves. — Because farmers are now using automobiles almost as much as horses, the Consolidated Vigilence Society of Pennsylvania and New Jersey, composed mostly of farmers, amended its by-laws so that a reward will be paid for arrest and conviction of motor vehicle as well as horse thieves. Officers were re-elected, as follows: President T. Sidney Cadwalader, Yardley, Pa; vice president, Jacob Dilts, Flemington; secretary-treasurer, George W. Row, Yardley, Pa.

Warns Pine Growers.—The Department of Conservation and Development is warning owners of white pine trees against ravages of pine blister rust which attacks all pine species having five needles in a sheath. Pines with two or three needles in a sheath are not attacked. This pine blister rust was imported from Germany and since 1909 has been under constant surveilance by officials. One plantation of young trees was found infected and was completely destroyed with the consent of the owner. Three other instances of infection in nurseries have been discovered and everything that could carry the disease burned up.

Organize Dairymen's Association. — Dairymen of Union and Essex Counties organized at a meeting held last week. The organization was effected thru efforts of E. R. Collins, of Westfield. About 100 dairymen from the two counties were present. Mr. Collins said that success of the organization lay in working together for one common cause, for improvement and uplift of all dairymen. He objected to the laws that permitted use of inspectors not thoroly qualified, and the law fixing the amount allowed for a cow condemned for tuberculosis at only $37.50, no matter how much the cow was worth. The County Board of Agriculture sent resolutions to the assemblymen of Union County and the state senator asking that laws favorable to the dairymen be passed. A reply from Mr. McNabb, state inspector of tuberculosis of cattle, was received stating that the governor was opposed to any legislation along those lines at this time. He advocated uniform laws regulating the dairy business. As it is at the present time there are as many ordinances as there are municipalities thruout the state, and it was a very difficult matter for dairymen to comply with these ordinances.

Fruit Bud Injury. — The continued warm spells thruout the state this winter have caused peach buds to develop unusually fast. This warm weather followed by cold snaps have in a great many cases killed a large number of buds. Reports from some parts of the state indicate that with some varieties all the buds have been killed and with other varieties from 30 to 70 percent of the buds are dead. A larger percentage of Elbertas perhaps have been killed than any other variety. Carmen have also been greatly injured in some localities.—L.

COUNTY NOTES

Steuben Co., N. Y. (W.C.) Feb. 28.—An ice storm came the 24th and was followed by a heavy blow and snow Roads are blockaded the worst of the winter. There will be little activity among farmers for some time. Hogs selling alive at 7½ cents a pound. Considerable changing of real estate and removals of tenant men.—C. M. Drake.

Cumberland Co., N. J., (S.W.) March 1.—The weather is quite wintery yet. Prices are rather high on most produce. Butter, 35c lb.; eggs, 24c; young fowls, 28c lb; good milk cows sell around $100; good horses, $200. Farmers are hauling fertilizers and some are cutting their seed potatoes.—Everett H. Sheppard.

CATTLE FEEDERS' CONVENTION

The annual Cattle Feeders' Convention will be held at the Pennsylvania Experiment Station, Wednesday, April 12. The winter steer-feeding experiments will be completed at that time. Seven lots of cattle have been fed various rations to determine best method of fattening. The beef breeding herd maintained on corn silage and cottonseed and linseed oil meal will also be on exhibition. Rations will be fully discussed and results tabulated. A full program has been arranged.

FARM MEETING CALENDAR

Penna. Cattle Feeders' Convention, State College, Pa.	Apr.12
American Jersey Cattle Club, New York City	May 3
Holstein-Friesian Association of America, Detroit, Mich.	June 6
American Forestry Association Reading, Pa.,	June26-27
American Assn. of Nurserymen, Milwaukee, Wis.,	June28-30
International Apple Shippers' Association, New York	Aug. 2
National Dairy Show, Springfield, Mass.	Oct.12-21

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Eldorado Oats
Best yielding oat in cultivation.
Send for descriptive price list.
Chas. N. Codner, Owego, N.Y.

Early Washington
SEED OATS
Early maturers and big yielders, 80 cents per bu. including sacks. Big Fours, 75 cents per bu.
The E. W. Armstrong Co.,
Monroeville, - - - Ohio.

Owner Very Old-Must Sell —650 acres; two dwelling houses; lot of big basement barns; stabling for 90 cattle; 2 silos; running water to buildings; 100 acres; dog-proof sheep fence; land lays good; very productive; hundreds of acres; meadow and plow land; $2.000 worth timber; all for $7.000; $3.000 cash; balance, long time at 5 per cent interest. Possibly the greatest bargain in the state. You will say so, too. Hall's Farm Agency, Owego, Tioga County, New York.

2 Year Apples 6 to 7 ft. $12. per 100. Thousands of Peach, Pear, Plum, Cherry, Quince and all small fruits at wholesale prices. Catalog free. JOHN W. FINN'S WHOLESALE NURSERIES. Dansville, N. Y.

Potatoes Bliss, Bovee, Carman, Cobbler, Queen, Green Mt., Ohio, Six Weeks, Rose, Hebron. 85 kinds. C.W. Ford, Fishers, N.Y.

Farmer Agents write for 1916 agency for Diddie-Blitsen Rods. Best Lightning Rod sold. L. F. DIDDIE CO., Marshfield, Wis.

PRICES CHOPPED

10000 NEW 1916 GALLOWAY SANITARY CREAM SEPARATORS

Special Proposition from Now till Grass—in addition to my new low prices. My way of opening **new** territory and making further sales, as one separator sold in a neighborhood **always sells** from one to twenty-five more. Every customer boosts—their statements coming from my lips would be called "exaggeration." Every **Galloway Separator** is equal to if not better than other separators selling for $75 to $96.---users say **"way ahead."** I only ask one thing—before you buy a separator of any make, kind or at any price, **get my big book**—pick out the separator you want, try it 90 days—**180 times**—at my expense. If you decide to keep it (you don't have to) I'll give you the choice of 5 open, fair and square selling plans and guarantee my separator for 10 years against defective workmanship and materiall A **$25,000 bank bond** backs every sale!

NOTE THIS BUILT-IN QUALITY

Heavy, high carbon steel gear shafts and bowl spindle; extra long bearings; strong, sanitary bowl, discs not fastened together; oil bath lubrication; big, roomy, seamless, pressed steel supply tank; both gear shafts and both spindle bearings supported by one solid casting; heavy sanitary tinware; low bowl speed reduces wear on bearings and gears. No raw, sharp edges in the bowl to cut up the globules of butter fat.

Guaranteed 10 Years

4 Sizes Skimming 875 to 950 lbs. per hr.

4 New Low 1916 Prices.

MY NEW 1916 250-PAGE BOOK FREE— Handsomely printed, beautifully illustrated in four colors. Tells all about my new 1916 Sanitary Cream Separators, how I build them; gives my 4 new low prices on 4 good sizes, also my 5 easy selling plans, cash or terms, etc, I'll also send my **special proposition on 10,000 Galloway Sanitary Cream Separators.** Drop me a postal today.

Separators shipped from Waterloo, Kansas City, Council Bluffs, St. Paul or Chicago.

Wm. Galloway, Pres., The Wm. Galloway Co.
191 Galloway Station Waterloo, Iowa
Cream Separator Manufacturing Specialists

Sturges Milk Cans

Accurate in Capacity

Each Sturges Milk Can is made to hold just so much and no more. Always agrees with the city sealer's measure.

Only highest grade steel plate is used in Sturges Milk Cans. That's why they last longer than usually expected. Carefully tinned, seams soldered smooth as a china bowl—easy to keep clean. Write for Catalog No. 43.

Sturges & Burn Mfg. Co.
508 So. Green St.
Chicago, Ill.
Established 1865

STURGES & BURN MFG. CO. CHICAGO

STOP! Look ahead—don't look backward after you build and wish that you had selected an All-Metal Silo—then it's too late.

ZYRO METAL SILOS GUARANTEED

Outlive their guarantee

ZYRO TRADE MARK **METAL SILOS**

All we ask is that you investigate before you spend your money. The ZYRO is 25 years ahead—made of Pure-Galvanized-Iron—airtight—insures big saving in silage waste—no shrinking, cracking or collapsing—no tightening anchor-wires or hoops—safeguarded against storms, lightning and vermin—made of NO-CO-RO METAL—rust-proof—costs less to erect, guaranteed to last longer—ornament to any farm.

Free Book Get our Free ZYRO Book—full of facts. Write today—no obligation. Ask us about ZYRO Corn Cribs and Grain Bins. **The Canton Culvert & Silo Co., Box 409, Canton, Ohio.**

Building Up a Dairy Herd

(Continued from page 1.)

records of their dams could be found for three or four generations back. I have in mind another dairyman who pays $200 for a bull calf each time he makes a change in his herd sire, but figures show that it pays him. In the cow-testing association of which he is a member his herd averages 140 pounds of butterfat a year more per cow than that of the average cow of the other members of his association. Figured at thirty cents a pound, this means $42 more per cow, or $672 more for his herd of sixteen cows. Since the bull is good for at least two years, this means that his $200 calf returns him about $1,344.

Why Purebreds?

Not long ago I visited a dairyman with a herd of thirty cows. At the head of his herd is a good Holstein bull. In a box stall in a corner of his barn was a purebred Jersey bull calf which he said he was going to use after the Holstein bull had outlived his period of usefulness. He said he thought that thru this system he would have a bunch of cows that would combine the good milking qualities of the Holsteins and the high testing qualities of the Jersey. The probable result, tho, will be that half or more of the products of this cross will combine the poor qualities of both breeds, viz., the low testing qualities of the Holstein and the lower producing qualities of the Jersey.

Many dairymen question the advisability of going into the purebred business. Personally I believe that when a man has learned to take proper care of his grade cows he is making a mistake not to make a try at the purebreds. One hears many peculiar arguments on this point. Some dairymen I have met say that if a purebred animal dies or goes wrong on them they are losing a more valuable animal. This is like the man who was offered two jobs of a similar nature. For one he was to receive one dollar and a half if he took it, and for the other two dollars per day. Strange to say he took the dollar and a half job. When asked for his reason he said, ''Well if I took the two dollar job and missed a day I would be losing more money by it.'' From a production standpoint alone, I believe purebreds will pay. In some records of which the writer has had supervision, 85 purebreds averaged 2,000 pounds of milk per year more than 200 grades in the same herds.

Keep Records

No matter if a dairyman has only a few cows, it will pay him to keep records, either thru weighing daily or weighing the milk and testing it one day a month and using this one day as an average for the month. This system has been found in cow-testing associations in this and other countries to come within about 2 percent of the cows' actual yields. If a daiyman has never kept records he will be surprised to find the improvement he will make in his herd not only in increasing production, but in breeding, feeding and care; all of which are essentials in starting and breeding up the dairy herd.

NATIONAL DAIRY SHOW BUILDINGS

The Eastern States Agricultural and Industrial Exposition Company is making rapid progress in preparation for this year's National Dairy Show, to be held at Springfield, Mass., Oct. 12 to 21. As soon as weather conditions will permit, work will be started on the largest coliseum in this country and about 10 other principal structures. Buildings will be located on a park of 166 acres. A fund of $750,000 has been raised to finance the show. An attendance of 1,000,000 is predicted.

DAIRY ADVERTISING

Make Quality Count

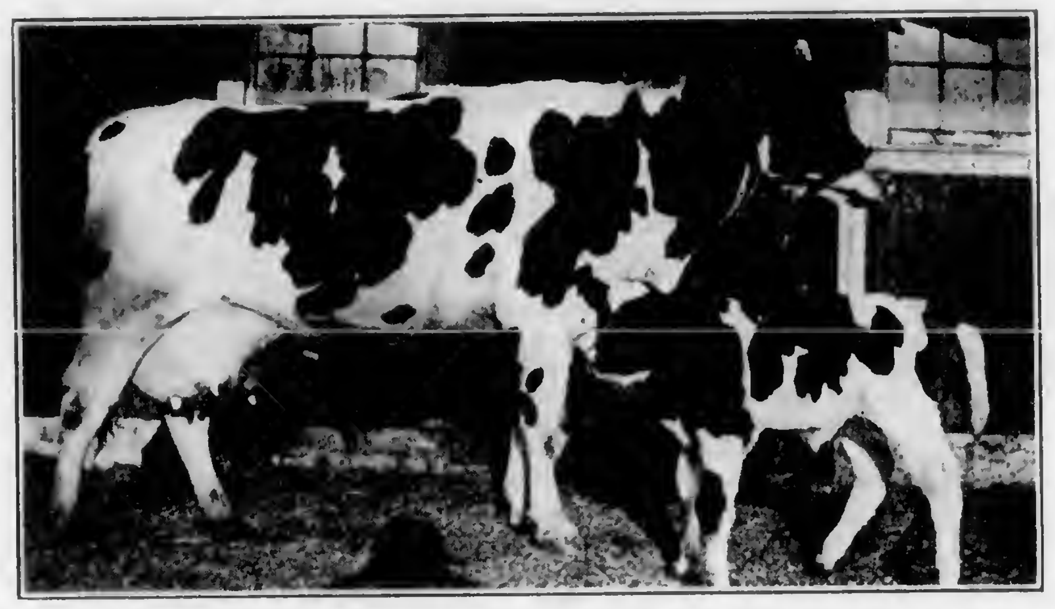
Among dairy farmers the complaint most often heard is that people do not sufficiently appreciate a clean, high-quality article in butter or milk to be willing to pay the cost of production. The dairyman says: ''I cannot afford to remodel stables, hire expensive help, keep things clean and then sell for the same price as my neighbor who has the cheapest things that will produce milk.''

To such a statement there is only one reply. ''Do more advertising.'' Any high-class advertised product no doubt costs more for production than many other brands but people have been educated to appreciate their quality, and willingly pay the extra price. Likewise, people have to be taught to know the the difference between wholesome, clean milk and butter, and that which is not wholesome or from diseased herds kept in unsanitary stables. Bacteria tests tell only part of the story and pasteurization does not cover all the sins. Very few kinds of food are so susceptible to environment as dairy products.

Some of the most important things that enter into the value of milk are: Cleanness, fat percentage and rich color, healthfulness and palatability. A clean product from clean stables and handled in a cleanly way always wins customers. Patrons should have a standing invitation to visit the plant from which they get their milk supply at any time or to send an inspector. Most business dairymen own a Babcock tester, and if they do not they can soon save the price of one by testing individual cows. With this the fat content of the milk can be found and if the information is of credit it will make the foundation for an interesting statement in advertising. Every farmer who wholesales milk should make his own test, otherwise he is depending on the honesty of a man whom, in many cases, he has never seen. The owner of Holstein cows can mention other merits such as wholesomeness and palatability.

The way one man in Chester County, Pa., handled a bad situation in a retail milk business will probably be of interest. His situation was such that he had to contend with the competition of one of the best milk producing centers in this country. In the nearest town the retail price was about five cents and at wholesale about four cents. This was two years ago. Most of these competitors kept Holsteins and had old bank barns or poor substitutes. Of course a laugh went up when this man began to sell milk from expensive Jersey cows at five cents. His help was more expensive than the average, and the stables and milk rooms were kept in perfect condition. Valley Brook Farm was indeed a live topic for the cracker barrel philosophers. Soon the price of Valley Brook milk was raised to six cents.

A few customers quit and a few complaints were made, but soon the demand warranted another raise. This time a circular accompanied the notice to each patron. On it were figures to prove the cost of producing a strictly clean and wholesome milk. Also there were concise statements about the importance of using rich, pure milk and economy in the end. Another circular was soon printed and sent to every house in town. At the top of the sheet was a picture of the interior of the stable and below the following questions: Do you get clean milk? Does it test 5 percent butterfat? Are the cows tuberculin tested? Are they cleaned each day? Does the stable have plenty of sunlight, a solid concrete floor, stanchions, and fresh water for the cows? Do the men wash their hands before milking, and use covered pails? Is the milk house separate from the barn buildings, and does it have pure spring water? Are the bottles, cans and all other utensils thoroly washed with boiling water and soda? Have you ever inspected the dairy and are you entirely satisfied with it? If you are not getting all these things, try Valley Brook Milk.



URMA DE KOL SEGIS KORNDYKE AND HER CALF, OWNED BY IRWIN H. MYERS, BUCKS CO., PA.

After these facts had been presented only a short time the price was again raised, making the price eight cents, without losing much business, and in a few months the supply was not sufficient for the demand. In the meantime the competitors had raised one cent, making the price of anything called milk, whether it was or not, six cents. This is a striking example of how people often have to be taught to appreciate true value. But the same method should not be used to sell above value.

Much of what I have already said applies to butter advertisement. Butter tells its own story better than milk. However, people are easy to interest in regard to its source. It behooves the farmer who expects to make butter in the future to keep his market in good condition because oleomargarine is encroaching more and more on the butter business. Oleo gets a hold in competition with butter among that class of consumers that does not know the essential differences. Butter makers must depend upon educating consumers to appreciate what good butter is.

On butter containers is the most convenient place to enlist the consumers' attention. Cartons with any statements desired printed upon them can be gotten from almost any dairy supply company. If only parchment paper is used, guarantee cards can be placed between the folds. A card about one and one-half by two and one-half inches and

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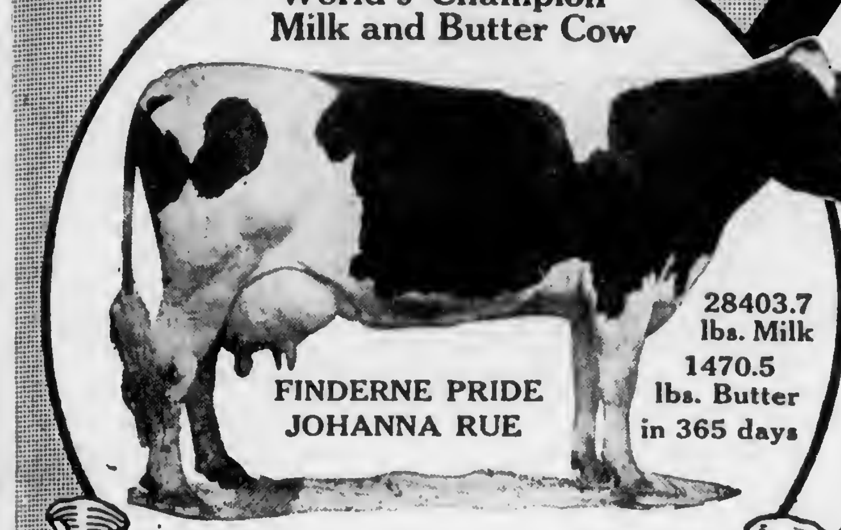
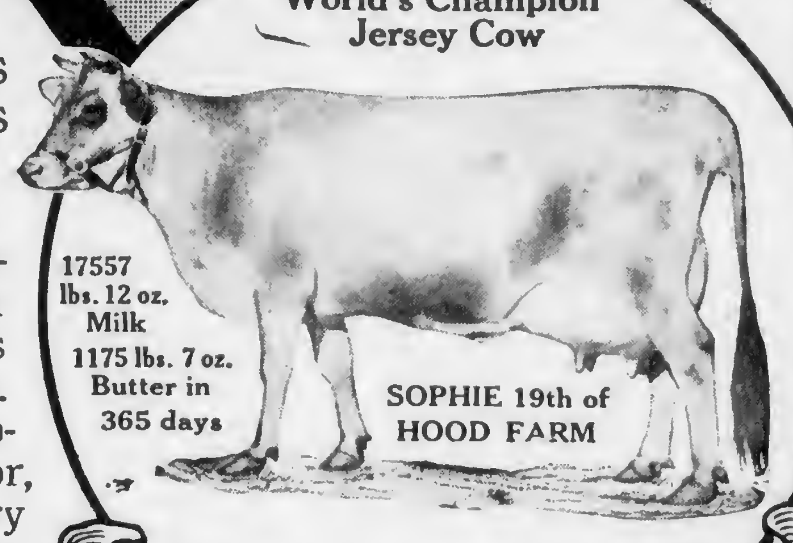
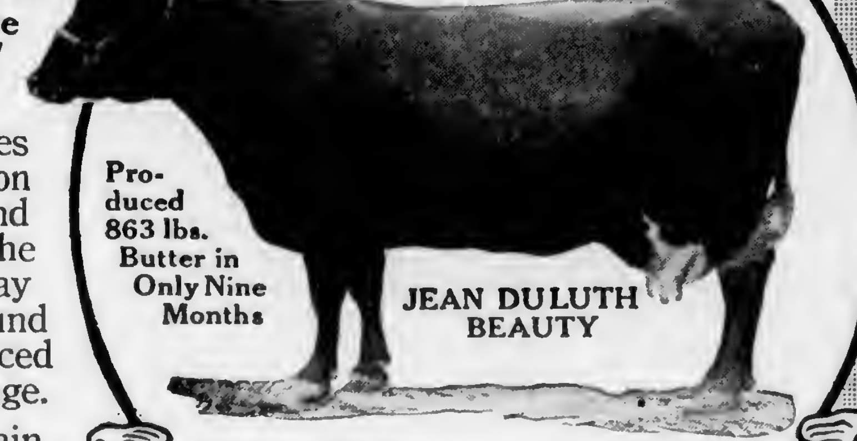
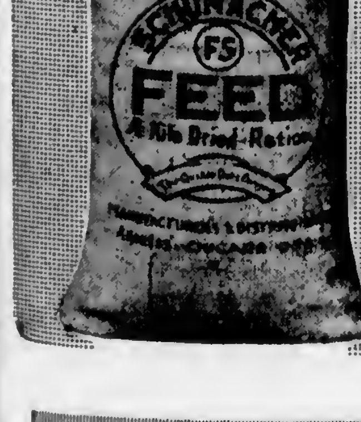








THE RECORD BREAKING-RECORD MAKING FEED FOR DAIRY COWS

World's Champion Milk and Butter Cow

FINDERNE PRIDE JOHANNA RUE

28403.7 lbs. Milk 1470.5 lbs. Butter in 365 days

Gives Schumacher Feed Much Credit

"We have made another world's record with our Holstein cow 'Finderne Pride Johanna Rue No. 121083.' I am glad to say that during her test she was fed mostly on your SCHUMACHER FEED, which in my estimation is a very valuable feed for dairy purposes."
(Signed) Bernhard Meyer, Finderne, N. J.

World's Champion Jersey Cow

SOPHIE 19th of HOOD FARM

17557 lbs. 12 oz. Milk 1175 lbs. 7 oz. Butter in 365 days

Here's What Her Owner Says About Shumacher Feed

"It will probably interest you to know that we have been feeding SCHUMACHER FEED to Sophie 19th, of Hood Farm, 189748. She finished her last record January 20, 1914, which makes her the Champion Jersey Cow of the world, and stamps her the greatest dairy cow living or dead. We consider SCHUMACHER FEED a splendid feed for dairy cows and a strong factor in increasing the milk and butter production."—Hood Farm, J. E. Dodge, Mgr. Lowell, Mass.

Performance alone has placed **Schumacher Feed** at the top. It has earned its recognition as the World's Champion Feed for Dairy Cows, because it has been such an important part of the grain ration of practically every World's record made in recent years. It has proved its ability to supply that power, energy and vigor, so necessary to keep the dairy cow "up and coming" every day in the year, not only in producing greater yields of milk and butter fat, but in building up and maintaining her physical powers as well. If dairymen such as owners of these famous cows will "stake" their reputation and chances on **Schumacher Feed,** you can "stake your bottom dollar" that **Schumacher Feed** will help your cows make better records for you. What is BEST for the World's Champion cows, surely is BEST for yours. **Schumacher Feed** is composed of finely ground products of corn, oats, barley and wheat, kiln dried and so skillfully blended that when fed on the following feeding plan to dairy cows it cannot be equaled.

SCHUMACHER FEED

And the Schumacher Feeding Plan

Feed as the grain part of the ration, three sacks of *Schumacher Feed* to one sack of gluten, oil meal, linseed meal, dried brewer's grains, dried distiller's grains, malt sprouts, Blue Ribbon Dairy Feed or other high protein mixture. When cottonseed meal is used, feed four to five sacks of *Schumacher Feed* to one of cottonseed meal.

For putting horses, hogs, calves and cattle in "top notch" condition ***Schumacher Feed*** will be found an ideal ration, because it takes the place of any grain ration you may be feeding, and furnishes a ground grain ration that is properly balanced—ready to feed with any roughage.

It saves the waste in whole grain feed and produces much better results. A trial will convince you.

Schumacher Feed is the most palatable feed mixture obtainable—a feature of vast importance in any ration. Your dealer will supply you with SCHUMACHER FEED. If he can't—send to us.

Write today for our new illustrated booklet, **"World's Greatest Cows and How They Made Their Astonishing Records."**
We send it FREE and POSTPAID.

World's Champion Ayrshire Cow

AUCHENBRAIN BROWN KATE 4th

23022 lbs. Milk 1080 lbs. Butter in 365 days

Would Not Be Without Schumacher Feed

"We had such good results with your SCHUMACHER FEED, fed our world's champion cow, Auchenbrain Brown Kate 4th, who produced 23022 lbs. milk, 1080 lbs. butter, in one year, that we have since fed it to all of our test cows."
Yours truly, Penshurst Farm, (Signed)
E. S. Deubler, Supt., Narberth, Pa.

World's Champion Red Poll

JEAN DULUTH BEAUTY

Produced 863 lbs. Butter in Only Nine Months

Schumacher Feed a Liberal Part of Her Ration

"We are so well pleased with the work done by Jean DuLuth Beauty and Jean DuLuth Pear that we are making SCHUMACHER FEED a part of the ration in both the Red Poll and Guernsey herds. We have over 35 cows on official test."
Jean DuLuth Farm, Duluth, Minn.

47

The Quaker Oats Company
Chicago, U.S.A.

Your Cows Yield as they Feel

Poor milkers are not accidents—they are usually backward because there is something wrong with their physical condition. You cannot expect such a cow to give a good milk yield until her sluggish organs have received proper medical treatment.

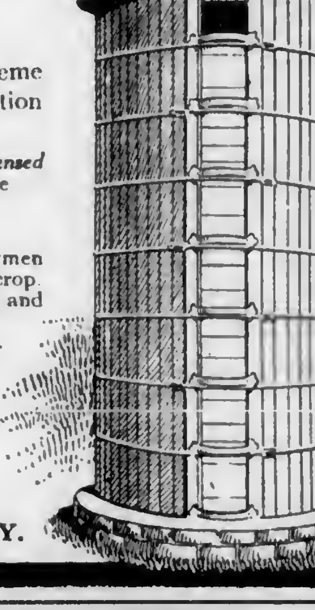
Kow-Kure has become the standard remedy in thousands of dairies because this famous cow medicine has great medicinal qualities that work upon and tone up the digestive and genital organs, making each perform its proper function.

You can prove for yourself the merit of Kow-Kure by trying a package on one of your poor milkers, and watch results carefully. Besides being a general tonic, Kow-Kure is especially recommended for the prevention or cure of such diseases as Abortion, Barrenness, Milk Fever, Scouring, Lost Appetite, Bunches, Retained Afterbirth, etc.

Dairy Association Company
Lyndonville, Vt.

Kow-Kure in 50c and $1.00 pack's
Bag-Balm in 50c packages.
At feed stores and druggists

FREE—"THE HOME COW DOCTOR"
This valuable free treatise on diseases of dairy cows ought to be in every farm library Send for your copy today.



HARDER SILOS

For 17 Years
America's
Leading Silo

Catalog Free

ENDORSED by leading dairy authorities for extreme simplicity of operation, massive durable construction and *perfect preservation of silage.*

Harder features have been copied everywhere by other Silos, *licensed under Harder patents.* So superior are Harder Silos that they are

Used by the U. S. Government

and by the most prominent Public Institutions and Private Dairymen in the Eastern States. The Harder gets the most out of the corn crop. It means healthier cows. It is the cheapest and easiest to install and the most economical to manage.

Heavy, non-conducting, steel-bound walls, rigid dowel construction, air-tight, convenient doors, safe ladder, storm-proof anchor—the most durable and profitable Silo on the market.

Will cut your feed bills in half and pay for itself within a year or two. Hundreds of Harder owners say this.

Write for catalog telling of new Harder features for 1916.

HARDER MANUFACTURING CO.
Box 18 COBLESKILL, N. Y.

"Success Ideal" Tile Silos

are Moisture-proof, Strong and Everlasting

Made of our vitrified hollow Clay Block, moisture-proof, frost-proof, air-tight. Cannot warp or rust; require no painting inside or out; no repairs, and practically last forever. Circulating air space in blocks from bottom of silo to top, make it cooler in summer and warmer in winter, and help

Keep Ensilage in Perfect Condition

Interlocking clamps and concealed iron rods bind blocks true to line, make construction easy and insure great strength and rigidity, whether full or empty. Continuous doorway; large entrance spaces.

We originated hollow block tile silos, and our first ones are still standing in perfect condition, without repairs, after 11 years steady service.

FREE BOOK telling how best to care for silage; and illustrating our line of Tile Silos. Send for it.

The Louisville Brick & Tile Co., Dept. D, Louisville, O.

SOME BIG BARGAINS
IN HOLSTEIN BULLS

We have never had better values to offer in Bulls than at present. If in need of a herd sire, write us at once.

STEVENS BROTHERS CO.
LIVERPOOL, N. Y.

SPOT FARM

HOLSTEINS $15.00
¾ heifer calves $15 each express paid in lots of 5. Reg. heifer $100.; bulls $25 to $100.; 8 reg. 2 year olds due in Sept. $180 each; grade cows $45 up. Carload grade yearlings and 2 year olds $30 each. 40 reg. cows, som with records 20 to 25 lbs. butter in 7 days bred to 31 lb. bull. Also 10 reg. Berkshire sows bred. JOHN C. REAGAN, Tully, N. Y.

HOW MUCH DOES YOUR MILK COST?

33 cents worth of UNICORN plus 26 cents worth of roughage made 100 lbs. Milk in Official Holstein Tests made by Bayliss Griffin, Sylvania, Ohio. 1 pound of UNICORN made 4½ lbs. of milk. Hundreds of UNICORN feeders are doing as well. YOU CAN TOO. - - - - -

UNICORN DAIRY RATION

is equally as profitable for tests or every day dairying. *Try it.*
FOR FACTS AND FIGURES WRITE,

Chapin & Co., Dept. P HAMMOND, IND. BOSTON, MASS.

worded as follows was successfully used by a farmer about twenty years ago:

> **GUARANTEE**
>
> Prints stamped D. H. W. are not creamery butter, but Dairy Butter, the product of one herd, cleanly and well kept. We do not buy milk, cream or butter to work up for our patrons. Our system insures Clean Butter and freedom from Tubercular Germs.

The man who used this guarantee card received at least 10 cents per pound more than the average producer of the same locality, making a good profit above the extra care needed in manufacturing and advertising. What I have said may be of use, but originality and a close study of conditions are always needed.—W. J. Watts, Clearfield County, Pa.

ECONOMICAL USE OF COMMERCIAL FEEDING STUFFS

As a rule on too many dairy farms, as well as on some live stock farms, commercial feeding stuffs are depended upon to supply nearly or all the grain ration. In my personal acquaintance, I know of many dairymen who grow only the roughage, such as silage and hay, buying large quantities of grain. When the purchased feed has been paid for, there has been a large slice taken from the gross receipts. Without doubt, more of the grain ration could have been grown on the farm, with a greater net profit, even if it had been necessary to dispose of a few head of cattle. There may be cases, where land is very high priced and exceptionally good market conditions exist, where such practice may be profitable, but for the average dairyman it is certainly not advisable.

We can grow the crops supplying carbohydrates, such as corn and mixed hay, cheaper than they can be purchased in the feed sack, and more of the protein crops, as clover, alfalfa, and soybeans than are commonly grown on the dairy farm, with profit.

At Mapleland Farm we have been trying to grow nearly all of the feed used, depending only upon the more concentrated protein feeds, such as cotton seed meal, oil meal, gluten, buckwheat middlings, dried brewers' grains for the dairy and on tankage and middlings for the hogs. We use these to supply the lacking protein after we have made use of our home-grown feeds. We try to select only the feeds that will supply us with the greatest amount of digestible protein for the price, at the time purchased.

Two of the greatest problems before the farmer today are cheaper protein for live stock feeding and supplying the soil with more nitrogen and humus. This can be met to a large degree by growing such legume crops as the clovers and soybeans more extensively. The production of these crops on the live stock farm should be given more attention. In purchasing feeding stuffs, only those which supply the greatest amount of digestible protein for the dollar expended, should be purchased. It is, however, advisable to use two or three different feeds to give variety. For instance, cottonseed meal usually is a cheap source of protein, but should be fed only in a limited quantity, and some such feed as distillers' dried grains or wheat bran added to give bulk. We have found buckwheat middlings a cheap and efficient source of protein, but like cottonseed meal is open to the objection that if fed alone, or in too large a quantity, frequently give bad results. Buckwheat middlings are not commonly obtained at mills or feed stores outside of the buckwheat-growing sections.

As the price of feeding stuffs fluctuates from year to year and sometimes prices vary at different places, no two or more feeds can be recommended, and the economical purchase of such feeds depends on the buyer. The purchase of feeding stuffs demands more attention than is generally given, in order to secure a balanced ration with the home-grown feeds and remain as low in cost as possible.

I have seen farmers buy some ready-mixed feeds, when some of the common by-products, such as cottonseed meal or gluten, would have answered better; or in other cases a feed high in carbohydrates was purchased in place of a high protein feed, which was needed. I knew of a feed dealer selling a brand of cottonseed meal which contained only 20 percent protein for $3 less than another brand which contained 41 percent protein, and many dairymen bought the cheaper brand and thought they were getting a bargain. The guaranteed analysis on the sack should determine what to buy rather than the name or brand.

The price of dairy products has not advanced in the same proportion as feeding stuffs, labor and materials during the past few years. To overcome these adverse conditions, more feed should be grown on the farm, especially those crops which supply a large amount of protein to more nearly balance the ration, and only such concentrated feeding stuffs purchased as are necessary to supply the lacking protein. — H. E. Moats, Mercer Co., Pa.

OLEO COLOR AND PRICES

Hon. James H. Maurer, President of the Federation of Labor, and member of the Pennsylvania Legislature for several terms, discussed oleo color and price as follows:

"For the past six years, or the three last legislative sessions of Pennsylvania, I opposed all proposed legislation which aimed to legalize the coloring of imitation butter by manufacturers or dealers. My objections are not based on any thought that coloring matter is unhealthful or that imitation butter is not fit for human consumption. My objection is solely an economic one. At present, imitation butter, in its natural state, sells for from 18 to 22 cents a pound in Pennsylvania, while the genuine dairy product costs 36 cents a pound. The purer the imitation is, the whiter it is. If the manufacturers and dealers in the imitation article were permitted to color their product, the imitation would be complete, so much so that nothing short of an analysis would reveal its component parts. This is, at least, true of the great majority of consumers.

"The imitation article, therefore, like any other imitation which closely resembles the genuine, comes in direct competition with it. Once we allow it to be colored, its prices will begin to soar dangerously close to the real article and, as a consequence, the consumer who is now buying oleomargarine or butterine, for 20 cents a pound, will pay the advanced price.

"One thing sure, the farmer never could hope to compete with the manufacturers of the imitation article. As a result, many of the dairy farmers would be compelled to go out of the dairy business and turn their farms to raising something else. And just as fast as this happened, the price of the imitation article will rise until finally the great packing companies will have a monopoly, then the consumer will pay more for the imitation article than we are now paying for the genuine. Besides, the imitation will, most likely, not be as pure as it is now, if colored, because the purer the whiter, and the consumers know it. When colored, a certain amount of impure, foreign matter may be used and cannot be detected by sight because of the coloring.

"On the other hand, if the farmers cannot find a profitable market for their milk and turn their farms to other products, it means the starving of their land, and in providing manures cattle are the life of soil. Therefore, looking at the question from every angle possible, I can see but two reasons why some dealers and manufacturers want a law giving them the right to color their product in imitation of butter: One is to charge more for their product, and the other to give them a monopoly of the butter market. Let oleomargarine and butterine and all other substitutes stand on their own feet and sell for what they are and not for what their manufacturers can make people believe they are."—Jas. H. Maurer.

FIXING VALUE OF COMMERCIAL MILK

Dr. L. L. VanSlyke, of the N. Y. Experiment Station recently discussed "Butter as a Basis for Fixing the Value of Commercial Milk." Among other things he said: Normal milk varies quite widely in composition. Fat generally determines its commercial value, but the present methods of selling milk are not always just to the buyer. Milk fat can be sold at a higher price than any other constituent of milk because people like it better. Protein and sugar in milk can be bought in the market for a much less price than in the milk. But there is no satisfactory substitute for milk fat known and the fact that people want and are willing to pay for it makes the fat the determining factor in fixing the commercial value of milk. The subject resolves itself into a question of arithmetic. When we know the fat content of milk as shown by test, we can determine its commercial value.

It would seem to be fair to pay for market milk on the basis of its fat content and non-fat content considered separately. First figure the commercial value of the fat and the skim milk solids, i. e., samples of the milk being separated and tests made. This is just to the consumer, but to work it out in actual practice is another consideration. Normal milk with low content of fat contains a larger proportion of solids not fat, so the actual value for food may be larger than the commercial value. The question of producing milk rich in fat is one for the breeders and feeders to work out.

It was brought out in the discussions that the cost of producing butter fat in a cow with high in-bred capacity for producing fat is less than with a cow with a low capacity; also milk rich in butter fat makes a better cheese to eat, but being more pasty and less firm its value to dealers or handlers may be less. Again, with market milk, the milk rich in fat is more palatable and the customers want it. It pays to please them.—J.

Dairy Ration.—Will you kindly suggest the proper combination of gluten, dry brewers' grains and some commercial feeds to be fed to dairy cows? I am also feeding corn silage and good lowland hay which has some clover in it.—J. A. C., Chemung Co., N. Y.—We believe that you will find it profitable to substitute some corn for one or the other stock foods mentioned. We would suggest a mixture at the rate of about 1 pound gluten, 1 pound dried brewers' grains and 2 pounds corn and cob meal. Feed at the rate of about 1 pound of this mixture per 3½ pounds of milk given by each cow per day.

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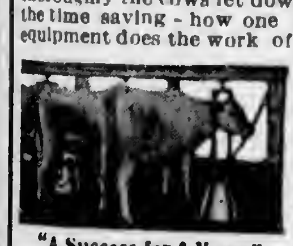

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We can probably send you the names of your nearest *Hinman* users - if you will give us the opportunity. Call on one of them - it will be well worth your while. Take hold and operate the outfit for yourself. See that it meets our claims for it - and your expectations. Note the simplicity and the efficiency of the original *Hinman* drive rod, individual pail and vacuum pump system. See how thoroughly the cows let down their milk. Notice the time saving - how one man with a *Hinman* equipment does the work of three hand milkers.

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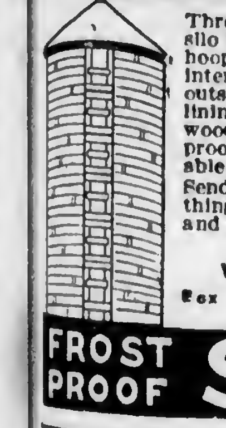

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Which will you buy a "Cream Thief" or a "Savings Bank" Cream Separator?

WITH a great many machines or implements used on the farm it doesn't make much difference which of several makes you buy. One may give you a little better or longer service than another, but it's mostly a matter of individual preference and often it makes little difference which one you choose.

Not so with buying a cream separator, however.

There is a big difference in cream separators.

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A cream separator is used twice a day, 730 times a year, and if it wastes a little cream every time you use it it's a "cream thief," and an expensive machine even if you got it as a gift.

But if it skims clean to the one or two hundredths of one per cent., as thousands and thousands of tests with a Babcock Tester show the De Laval does, then it's a cream saver, and the most profitable machine or implement on the farm—a real "savings bank" for its fortunate owner.

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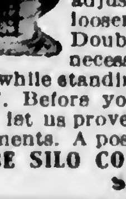
165 Broadway, New York 29 E. Madison St., Chicago
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER



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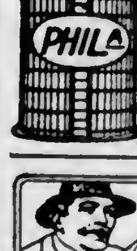

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This conviction took firm hold of two trainloads of Eastern farmers that I personally escorted to California last fall. They saw the land, talked with the people, and experienced California for themselves.

It was not a land selling trip—it was solely for investigation.

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Write me soon. Let me help you plan your 1916 trip. Reduced excursion fares the coming spring and summer will give you a chance to see the San Diego Exposition and agricultural sections of California at small cost. All-the-year-'round tourist fares also are available. Ask all the questions you want, and say: "Send Farmers' Special Book."

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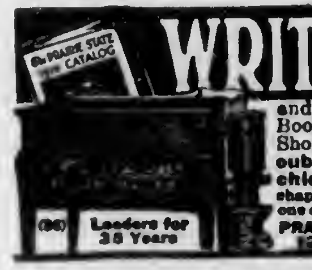

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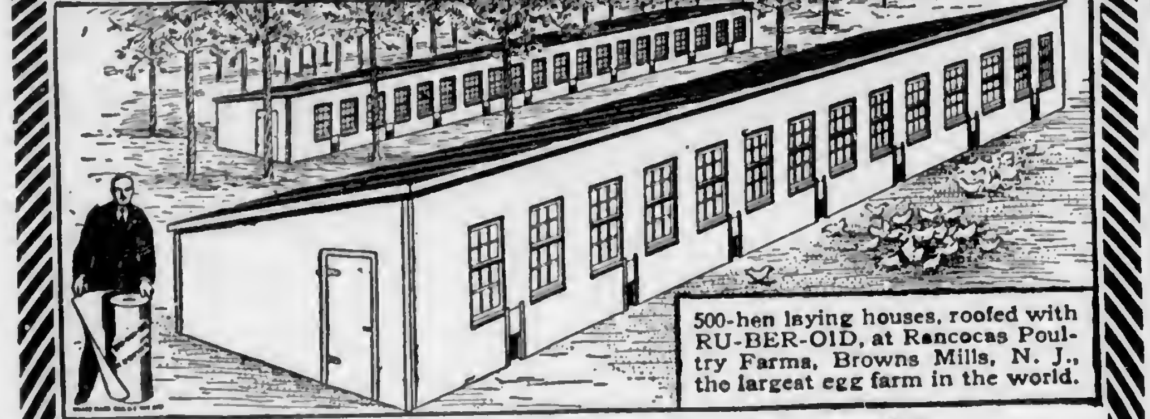

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(shown above) on every roll of the genuine. RU-BER-OID has been widely counterfeited. The U. S. Appellate Court has enjoined imitators from using the word "Rubberoid or any similar name as the trade name or brand" of their roofing.

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Poultry

DUCK RAISING

It is not generally known that duck raising is one of the largest branches of the poultry industry in the United States. There are a number of farms that market from 5,000 to 50,000 ducks and one farm that markets 75,000 head annually. They are marketed when 10 to 12 weeks old, which is the most profitable age to market them. They should be nearly full grown by that time if they have been properly fed and cared for.

There are a dozen or more standard varieties of ducks raised in this country. The white Pekin, White Aylesbury, colored Rouen, Black Cayuga, colored and white Muscovy, Indian Runner, Gray Call, White Call, Black East India, Crested White and Blue Swedish.

The first seven of these varieties are considered profitable to raise. The two varieties of Calls and Black East Indies are bred for the show room. The Crested White may be considered as almost purely ornamental, while little is known of the Blue Swedish in this country.

Of all the ducks for farm and practical purposes, none stand in higher esteem than the White Pekin. It is very valuable for raising on a large scale. It is a very timid bird and must be handled quite carefully.

The first Pekin Ducks to make their appearance in the United States was about the year 1873 and the importation was made by James Rankin of Massachusetts. They were imported from China where they have been bred for years. Mr. Rankin was often spoken of as the father of the Pekin duck industry in America. It was he who developed a market for green ducks in this country. Pekin ducks are marketed when they are ten to twelve weeks old and are called green ducks. At first he had to coax the dealers to handle them. After the public found how delicious a roasted green duck was, the dealers then could not get enough to supply the demand. Some years later he marketed as high as 20,000 annually.

The Pekin duck has a distinct type and is different from all others in shape and carriage of its body. By some it is credited with having a shape much like an Indian Canoe owing to the full growth of feathers under the rump and the singular carriage of the tail. The legs are set far back, which causes the bird to walk in an upright position. In size these birds are large, some weighing as high as 20 pounds to the pair when they are full grown. They are good layers and average from 100 to 140 eggs each in a season, depending upon the feed, care, etc.

The standard bred Pekin has a long finely formed head, a bill of medium siz of an orange yellow color that is perfectly free from any mark or color other than yellow.

The eyes are a deep leaden-blue color. The neck should be neatly curved; in the drake it should be large and rather long, while in the duck the neck should be of medium length. The back is long and broad, breast is round, full and very prominent. The body is long and deep, and the Standard describes the carriage of the body as elevated in front, sloping downard toward the rear. The wings are short, carried closely to the body. The birds cannot substain flight, a two-foot fence is all that is required to enclose them. The tail is erect. The sex feathers in the drake are curled and are hard and stiff. The thighs are short and large, shanks short and strong and in color are a reddish orange. Toes straight, connected by web and are a reddish orange in color.

The plumage is downy and a faint creamy white thruout. However, the breeders of show birds prefer the snow white plumage to the creamy white, as given in the standard. The standard weights are: Adult drake, 8 pounds, Adult duck, 7 pounds; Young drake 7 pounds and young duck, 6 pounds.

The Rouen Duck is a very popular duck thruout the country and considered one of the most profitable to raise.

The flesh is considered very delicate and the breed is acknowledged to be excellent for table purposes as it is easily fattened. The Rouen will be found a profitable bird to raise on the farm, being hardy, prolific, quiet in disposition and of beautiful plumage. Their eggs are not as large as the Pekins. They will lay about the same number.

The standard bred Rouen drake has a long, finely formed head, with rich, lustrous plumage; bill long and broad, wider at the extremity than at the base, of greenish yellow color, with black bean at the tip; the neck is long, slender, and neatly curved, covered with the same lustrous green plumage as the head, which is interrupted by a distinct white ring. The back is long, the upper part being ashy gray, mixed with green and running into a rich lustrous green on the lower part of the rump; the shoulder coverts are gray, striped with fine wavy lines of brown. The breast is broad and deep and purplish brown or claret color, free from gray feathers; the claret color should extend down as far as possible toward the legs. The body is long, deep and broad, the under part and sides are a beautiful gray, which grows lighter near the vent, ending in solid greenish black just beneath the tail. The wings are short and carried closely and smoothly against the sides; in color the wings are a grayish brown, laced with green and marked with a rich band of purple. The tail feathers are hard and stiff and are of an ashy brown in color. The thighs are short and stout and of ashy gray plumage: the shanks are short and strong, and in color orange with brownish tinge. The toes and webs are of the same color as the shanks.

The head of the Rouen duck is shaped like the drake, but of different markings. It has deep brown plumage and two stripes of light tan extending from the beak to behind the eyes; bill long, broad and somewhat flat, brownish orange in color, blotched with a darker shade upon the upper part and ending in a black bean at the tip. The neck is neatly curved and long and slender, light brown in plumage penciled with a darker shade of the same color; unlike the drake, there is no white ring on the neck. The back is long, of a light brown color rightly marked with green; breast full and round and of a dark brown plumage penciled with light brown; body long deep and broad and under sides of plumage being light brown, each feather penciled with rich brown to the point of the tail. The wings are short for the size of the bird and are carried closely against the side of the body. The wings are a light brown, intermingled with green, with bars of purple with white, the color being distinct. The tail feathers are stiff and of a light brown color, distinctly marked with pencilings of dark greenish brown tail coverts are brown, penciled with the same dark brown or greenish brown as the tail. The thighs are dark brown penciled; shanks, toes and webs are orange.

Standard weights are: Adult drake, 9 pounds; adult duck, 8 pounds; young drake 8 pounds; young duck, 7 pounds.

(To be continued next week.)

MILK FOR THE CHICKS

Milk and some of its products make very desirable additions to the rations of young chicks, but like many other good things must be used in moderation.

Sweet milk as a drink for young chicks is excellent and where it is the intention to market the chicks as broilers will be found a valuable food owing to its fattening effect and also the very desirable flavor which milk feeding imparts to the flesh. In supplying the milk, absolutely clean and sweet smelling containers are a necessity, if trouble is to be avoided. Milk will quickly foul a pan or fountain and unless these receptacles are thoroly scalded daily, bowel disorders will result.

Milk or curds have proven to be very good for moistening mashes especially that of young chicks and birds being fattened. Mash mixed with curds seems to be preferred by the chicks to the sweet milk. Mash moistned with water is not nearly as quickly consumed as that mixed with curds or milk.

Well drained cottage cheese is greatly enjoyed by the chicks and can be fed twice a week to advantage. It is a good plan to feed it just as it is in a crumbly state. The whey left from cheese making is of doubtful value for moistening the mash as it will frequently cause disorders.

Where milk is allowed as a daily drink or used regularly in the mash, the meat food should be reduced about one half. Milk can be substituted for about one half of the beef scraps, but cannot be used to the exclusion of meat foods with good results. Water must also be supplied to the chicks having milk to drink, as the milk does not satisfy the chicks' thirst.

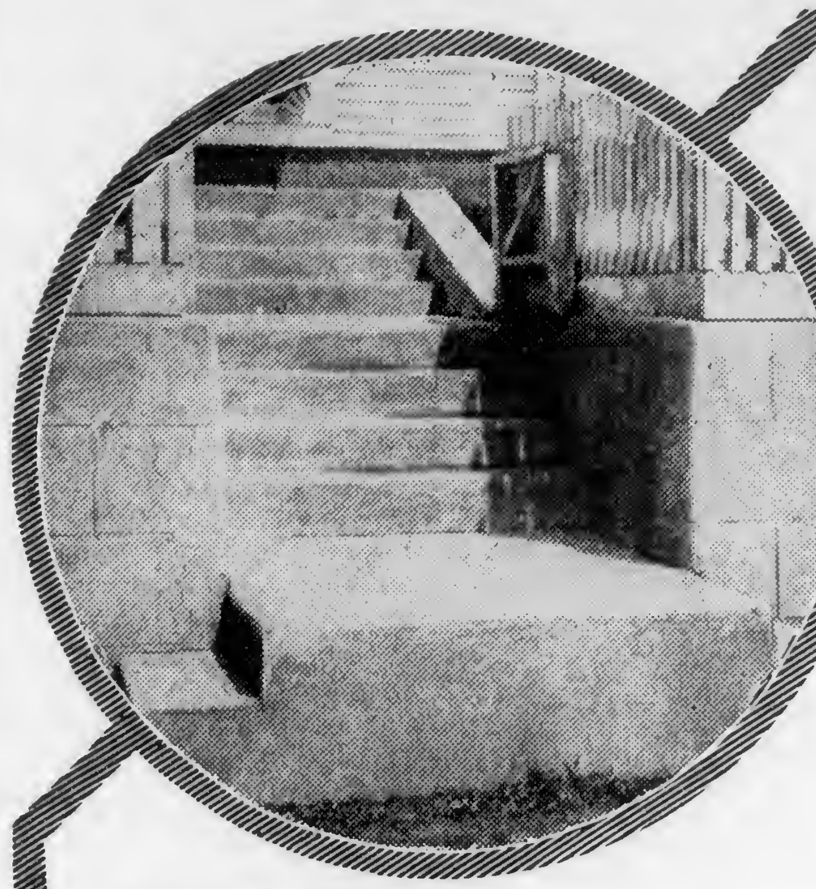
Milk, good as it is, should, however, be fed in moderation. If milk is allowed as a drink regularly then the mash should be mixed with water, or if the cheese or curds are used in the mash, the milk should only be allowed as a drink two or three times a week. If bowel disorders occur it is well to discontinue the milk for a time, as there is such a thing as making the ration too rich.—J. R. K.

LEG WEAKNESS IN CHICKS

There is great diversity of opinion among poultry authorities as to the cause of leg weakness in young brooder chicks. Many are of the opinion that over feeding and forced growth are the cause and that the cure is careful feeding and drugs, but personal experience has proven that such is not always the case.

It has been our experience in brooding hundreds of chicks yearly that the one and only cause of leg weakness is keeping the chicks off of the earth. Chicks confined to the house and not allowed the run of the yards have invariably gone down with leg weakness, no matter how careful was the feeding. The trouble does not usually occur until after the chicks are two weeks old, generally making its appearance rather suddenly. I have seen chicks so badly affected that they were walking on their knee joints and in a week's time after being allowed on the earth recover the use of their legs; however, those badly affected are usually left knock-kneed for life.

Sods or earth on the floor of the pen do not have the desired effect—it is the contact with the earth in its natural state that is needed by the chicks. Earth floors in the scratch pens have been found helpful, but even they do not entirely overcome the trouble owing perhaps to the earth becoming hard and dry.



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Allowing the chicks the freedom of a yard for an hour a day will avoid the trouble. This can be arranged for even in the most severe weather by erecting a protection from the wind and leaving the chicks out at the time of day when the sunshine is greatest.

This experience with leg weakness has been repeated for a number of seasons with the same results. Another proof is this—how often do we see a hen, allowed to range with her chicks, have chicks go down with weak legs? —J. Raymond Kessler, Chester Co., Pa.

STARTING LITTLE CHICKS

Now that the time for setting eggs and raising chicks is here, the problem is to get good paying hatches, and start the chicks successfully.

Both incubators and hens will be put to work, the incubator to hatch by means of artificial heat, which must be controlled by hand, and the hen to hatch by natural heat, her surroundings also attended by the hand and judgment of the owner. Both methods of hatching the chicks require care. We have followed both ways successfully. If one has plenty of fresh, fertile eggs with which to fill the incubator, and follows the directions that go with that particular machine he stands a chance of bringing off a large number of chicks earlier in the season than could be hatched with hens, for the reason that hens do not usually become broody so early that a number can be set at a time.

STUDYING POULTRY.

Those who attempt hatching with the incubator should provide themselves with some plan for keeping the chicks dry and warm as this is absolutely essential to success. While the chicks that are hatched with hens can stand it to run out when the weather is quite severe, they have the mother hen to run to for warmth, and in this way do not expose themselves long, as they can warm up quickly and run out again, thus securing warmth and exercise necessary to their well being.

It is different with the little fellows hatched in the incubator, for while they will do nicely when kept warm by artificial methods as soon as they show a desire to run to hover, they will soon chill and become stunted or die if neglected the least bit.

When setting eggs under hens while the weather is cold, have good nests made so as to keep out all air drafts and conserve the heat from the hen's body. A good deep box or a roomy keg will do for this purpose. First line the box with several layers of paper. Dry sawdust or coal ashes will help to hold heat and keep out the cold; after lining the box with paper, put in a four- or five-inch layer of sawdust or ashes, hollow out a place for the hen's body, then pack down well and add the chaff, fine straw or whatever is to be used for nesting material. This will make a nest that will enable the hen to keep the eggs warm in zero weather if she is set where she will be free from drafts.

When setting hens in common nail kegs, we proceed in the same way but use less of the filler and nesting material, especially if the hen is large, as the keg is not very roomy. A small board about three inches wide and long enough to keep the keg from rocking the least bit, is nailed across lower front part of the keg to also keep the nesting material from working out. One advantage in the keg nest is that it can be closely covered with old carpet or blanket over the top, sides and back. We sprinkle a small handful of sulphur underneath the chaff to keep the hen and nest from lice. No lice must be allowed to gain access to the nest.

It is best to have a room in some out building for the setting hens, and it should be dry and light, and provided with a dust bath in which should be placed some sulphur. We set as many as we can move successfully in this room and shut them in, always providing the hens with water and grit. We feed corn and oats, just enough to keep them satisfied, but do not overfed, as this causes uneasiness and the hens are liable to soil the nest and spoil the eggs. When the hens have set a week we test out the infertile eggs, if any, as in this way the fertile eggs have all the heat during the remaining two weeks, and there is no danger of a rotten egg being broken and soiling the nest of fertile eggs, an occurence greatly to be deplored as it necessitates the washing of the eggs after which they never hatch quite so well, and in some instances but very poorly indeed.

Care of Chicks

When the chicks have hatched we do not disturb them for about twenty-four hours. The shells are removed from the nest as the chicks hatch, to make room in the nest and to prevent half shells from slipping over an egg and smothering a chick, as sometimes happens if the "pipped" placed in the shell becomes covered. It is best not to feed the chicks until they begin to pick the mother's bill and search for food. They should have a little fine sand to pick at about the first thing. We always give the mother hen a handful of corn when the chicks are about done hatching, allowing her to pick it from the hand, so as not to disturb the nest. She is very hungry at this time, and if fed will remain quietly on the nest until the chicks are strong enough to take off.

Dry fine bread crumbs, or dry bread soaked in sweet milk then squeezed dry, and finely chopped hard boiled eggs are always good for the first feed. After the first few days we feed table scraps, chopped onions or onion tops, and corn bread made as Johnny cake moistened in a little sweet milk. Never give any sloppy feed, and do not leave any feed with them after they have eaten enough, for when they are shut up and food remains by them uneaten they do not relish it when they are ready to eat.

Bran is good for the chicks to pick at. It is a splendid growing ration given with other feed. It should be put into feed hoppers and placed where older fowls can not get at it. Always provide the chicks with sand and pure water.

Wire netting should be used freely about the chick runs. It can be quickly moved about from place to place and is a great protection to the chicks against depredations of the older fowls. Much trouble is prevented if chick fence is made chick-proof.—C. B. Williams, Seneca Co., O.

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Registered Holstein bull calves, by son of a 23 lb. cow, and from dams of good breeding. Price $30. J. B. WINKELBLECH, Lewisburg, Pa.

Holstein bull calves for sale; grandsons of the $50,000 bull, King Segis Pontiac Alcartra No. 79602. WILLOWHURST FARMS, R. G. Williams & Sons, Canton, Pa.

Live Stock

BETTER STABLE CONDITIONS REQUIRED

In a live stock market review letter, recently published in the Lancaster New Era, Lieutenant Governor, Frank B. McClain, an experienced cattle buyer and authority on live stock matters, comments on the need of better stabling conditions as follows:

"Buyers do not want to take Lancaster county fat cows or bologna cows at any price, claiming that their losses in the number of "home" cows condemned in the carcass after inspection makes purchase of them prohibitive. Packing houses that have Federal inspection have reached the point where they won't touch Eastern Pennsylvania cows, and their killing sheets seem to indicate that of these "home" cows, fully 25 percent of the "bologna" variety are condemned in the carcass as unfit for human food, and that even among Eastern Pennsylvania fat cows that show no outward sign of internal disease, fully 15 percent go "to the tank."

"The reason why Virginia cows and Western cows and even Northern Pennsylvania cows have the preference is because in the carcass but very few of them show evidence of tuberculosis. The explanation of the healthier condition of this class of cows is that they have more outdoor life in daytime thruout the entire year, and at night time, in the winter, are not housed in air-tight barns. Veterinarians and doctors skilled in tuberculosis are practically unanimous in declaring that the Eastern Pennsylvania practice of locking domestic animals in barns at night, with no provision for ventilation, or, at the most, poor provision for ventilation cannot fail but promote tuberculosis in the bovine family. Our home people must begin to give some attention to this, otherwise they will find it very difficult to dispose of their cows after the "milking" life of these animals is ended.

"We have previously called attention to the number of Eastern Pennsylvania stall-fed cattle that were being condemned in the carcass, because of tuberculosis infection at points where rigid state and federal inspection was maintained, notably the large slaughter houses of Philadelphia and New York. The writer is no alarmist, but knows whereof he speaks, and once more calls the attention of Eastern Pennsylvania farmers to the necessity of different housing conditions for their cows and steer cattle, and if better housing conditions in the matter of ventilation are not provided, the "freight" will have to be paid by the person who refuses to recognize this necessity. Dealers and butchers will be compelled to agree only to purchase cows and indoor-fed steers with a guarantee from the farmer or feeder that the animals will pass the inspection which the federal and state governments impose on meat foods.

"Today (Jan. 24, 1916) at the Stock Yards, the Inspectors of the Pennsylvania State Veterinary Department, acting under orders from headquarters were unusually busy in "tagging" cows as "suspects," because of their run-down physical appearance. Under the law such "suspects" must be slaughtered subject to inspection in the carcass.

"It therefore behooves the farmer to give some attention to better barn ventilation as a preventive of tuberculosis among his cows and steers, otherwise, and we say it with all seriousness, he will find it expensive when he comes to dispose of his live stock, particularly his cow stuff."

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2.	10,580 "	22.05 "	$85.
3.	12,700 "	23.26 "	$95.
4.	17,030 "	25.15 "	$200.

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170 Registered Holsteins 170

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Registered Holsteins Desirable calves for sale at prices that are right. Satisfaction guar't'd. Ideal Farm, Conyngham, Pa.

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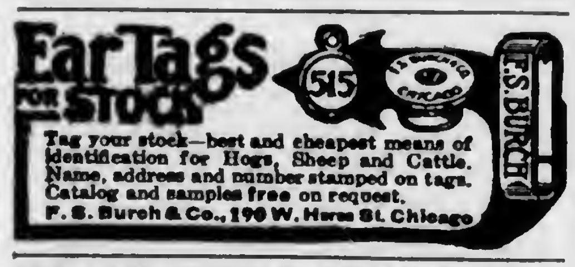
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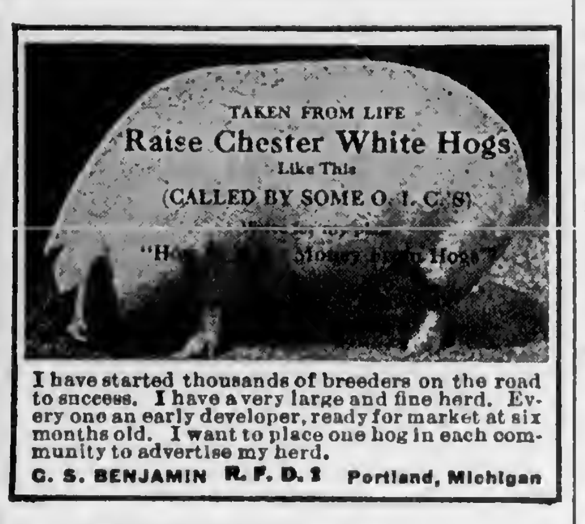
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H. C. & H. B. Harpending, Box 45, Dundee, N. Y.

Care of the Farm Harness

Have it Ready for Spring Work

The condition of the work harness is frequently overlooked except when actual need occurs. That need may come in the midst of rushing hay harvest. A trace chain breaks, causing exasperating delay and possibly a trip to the blacksmith's shop. Or some cold wintry morning a fractious animal pulls back on the hitching rope. The snaffle bit (somewhat worn) breaks in two—the bridle slips and a nasty runaway is the result.

It is entirely possible that both of these accidents could have been prevented if a little forethought had been used during the slack season. Overhauling the harness is a job that should come regularly every year, and should be as carefully and thoroly done as is the housewife's housecleaning. It will pay the whole year thru but especially will it save vexation and delay during the rush months. Of course the ideal way would be to have the harness rubbed down and polished daily or weekly, and every brass ring burnished like a fancy truck-team of the city. But few farmers can have a special stable man, and no one should ask the regular help for fussy extras on top of a hard, busy day. What we want is the heavy work harness kept whole and strong in every part, and preserved to last as many years as possible.

For this harness overhauling have, if possible, a room that can be heated for a week or two. It is more comfortable for the workman, and an open fire place or oil stove in an out shed is all that is necessary. Have convenient a tub, hot water, laundry soap, and a scrubbing brush with good stiff bristles. Farm work harness is seldom out in the heavy rain and in a year's time gets thickly covered with sweat, dust, and grease. This must be removed before oiling. Harness that is frequently soaked from exposure to all kinds of weather needs oil at frequent intervals, and little washing.

Work on one set of harness at a time and take it all apart. Undo every strap and every buckle. Have the water as hot as your hand can bear it. It must be hot to remove the dirt, yet if the water is over-heated and harness soaked too long, the leather is seriously injured. Scrub well with soap until clean, and then hang to dry. A pole or wire hooks supported from the ceiling are very convenient. The length of time for drying will depend on the temperature of the work room. Warm air will dry the leather sufficiently in a few hours. In a cool room, over night is about right. In order to take the oil properly the leather should be dry to the touch, yet still soft and pliable. Be careful that it does not become overheated or too dry or the leather gets hard and brittle and all the oil in the world will not put life into it again.

Any kind of animal oil is suitable for preserving and waterproofing harness or leather; never use a mineral oil in any form. "Neats-foot" oil is considered the best on fine harness where the leather is in good condition. However, on harness that has had hard service, something to add color is desirable and a black harness oil comes purposely. An experienced harness maker recommends to his customers a mixture of half neats-foot and half black harness oil, and this is what we use. Have the oil warm and rub on each piece of leather with a soft rag. For long heavy pieces, like traces or collars, it is almost necessary to lay them on a long board, 5 or 6 feet long, and 1½ feet wide. The same board should be used year after year as the wood absorbs a quantity of oil and it is wasteful to soak a new board each time. Rub in all the oil the leather will absorb, taking special care where harness is double thick, as around buckles. Hang up to dry over night and then if the leather is not soft and pliable give another light rubbing with oil. Old, dead leather that does not respond to the treatment and still seems brittle and stiff should be thrown away. Order a new piece from the maker. Watch especially the bridles and lines, for these are essentials and may cause trouble some unexpected time. It does not pay to buy cheap leather. When it gets wet it stretches and then soon breaks.

Now put your harness together, using a clean dry cloth to wipe off surplus oil; and polish up metal rings and buckles. It will be found that some "keepers" (guards over ends of buckle straps) are shrunken and stiff. A wedge-shaped piece of wood pushed in will remedy this. Three sizes of wedges will usually be found sufficient for all kinds of harness. All the time you are handling the harness keep an eye open for weak spots—a thin place in a rein, stitching ripped, ring worn, bit weak, broken buckle, weak link in a trace chain, etc. Open links for repairing trace chains should be kept on hand at all times. The local blacksmith can make them to your order. Also it will be convenient to have at hand an assorted lot of belt-rivets for emergency repairs. Sewing takes time, skill, knowledge of the business and some equipment. For the average man it is almost impossible to do any fancy repair work, especially on collars. Have the local saddler do it. It will be strongly and safely sewed and the work is not expensive.

If you do decide to try home sewing, some essentials are several sizes and styles of awls, needles, thread, wax and a harness clamp; or some homemade contrivance similar to go in a bench vise. Another very serviceable home-made clamp may be constructed from two pieces of wood shaped somewhat like the staves of a barrel. These pieces are dressed off at one end so that they will fit together like the jaws of a vise, and the opposite ends may be hinged together or they may be fastened firmly to the sides of a base block. A short distance from the clamping end a screw, a bolt, a leather strap or some other simple device may be used to draw the jaws tightly together.

After all this overhauling it is impossible to put a set of harness together just as it was before. Therefore before using it see that it is properly fitted to the horse; breeching and backstrap adjusted and bridle just right to be comfortable. Have a leather punch handy to make new holes where needed, and the chances are that you will have a better fitting harness than before.

Nice driving harness should always be kept clean. Wipe off dust and mud every time it comes in and for polishing and preserving rub lightly with any good harness soap. Also give it a general over hauling at this time. For fair leather use plenty of white saddle soap, and frequently, so as to keep it soft and pliable. Do not use any oil on fair leather unless you are willing to have it become dark in color.—Robert F. Brinton, Chester Co., Pa.

BREEDING TERMS

Pedigree—Thoroughbred—Registered

Will you kindly discuss best definitions or tell what is meant by the terms pedigreed stock, thoroughbred stock, registered stock, etc? How and where may I register Berkshire pigs? C. A. C., Monmouth Co., N. J.

These breeding terms are very frequently misused. There is a carelessness in the use of the words that frequently leads to confusion. The term "thoroughbred" as applied to animals of pure breeding is perhaps the most frequently used, and in that sense is used incorrectly. Thoroughbred is a specific breed name applied to a breed of horses originated in England. It is as much a breed name as Percheron, Clydesdale, etc. It is improperly used to denote an animal or animals of pure breeding, or "purebreds." A "purebred" animal is one bred purely or exclusively in a single breed of the species for many generations. It carries no blood of the species outside of its own breed. For this reason it is frequently referred to as a "full-blood" or a "pure blood." The latter terms are in common use and are more nearly correct than "thoroughbred," but "purebred" is the correct term. A purebred Jersey or a purebred Berkshire, then, is an animal in whose veins there is only the blood of pure Jersey or Berkshire ancestors for many generations back. Cross a purebred animal of any breed with a purebred animal of another breed, and the progeny is a "grade." Cross grades with grades, or animals of non-descript breeding and the progeny is a "scrub".

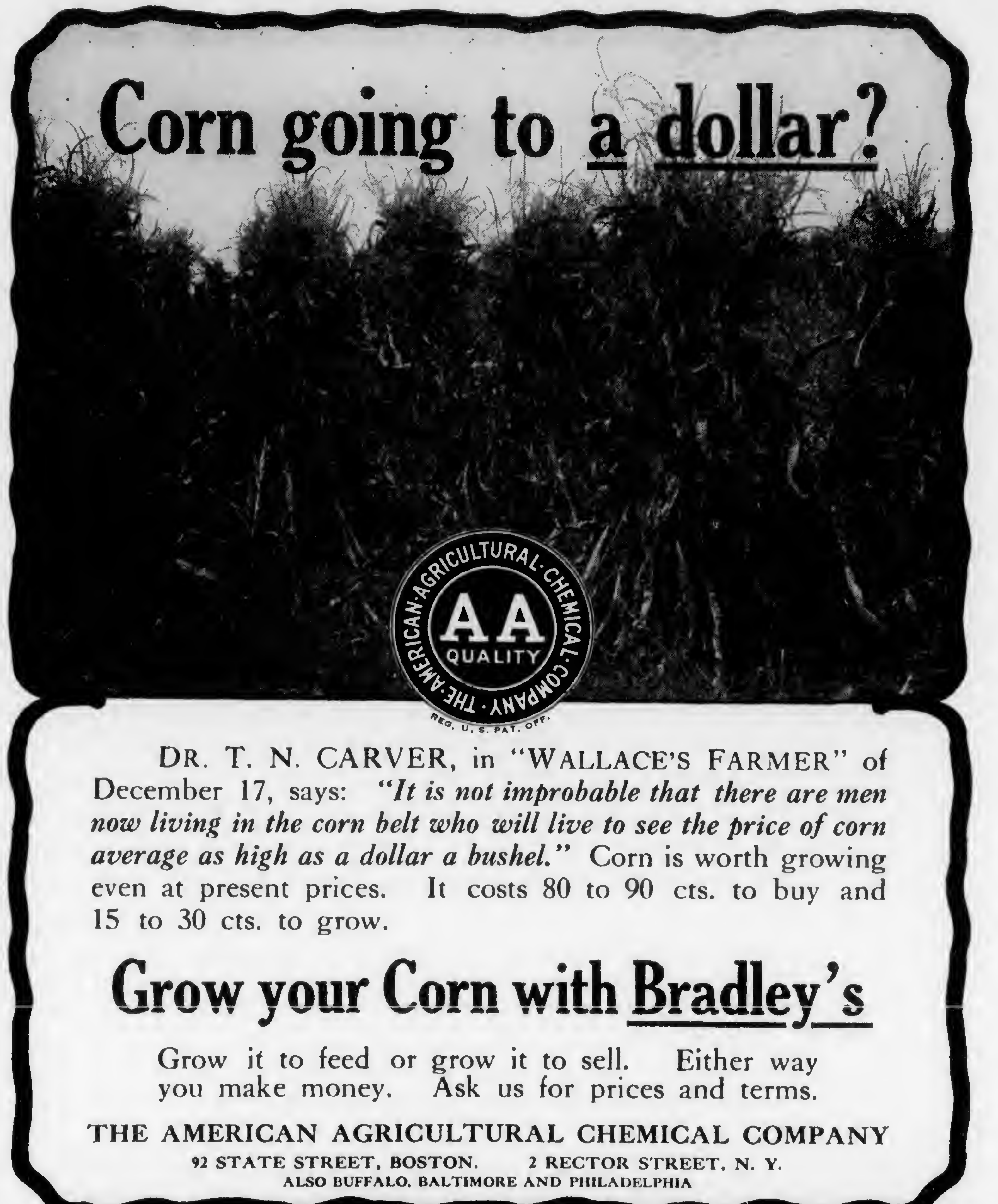
A pedigreed animal is a purebred animal whose ancestors have been registered with the breed association and whose record of breeding has been kept in the books of the association. Each breed has a national association that records and numbers all purebred animals of its breed upon receipt of registration fee and proof of purity of breeding. The proof of breeding takes the form of registration names and numbers of the ancestors of the animal for three, four, five or more generations back. A chart of such names and numbers is called a pedigree.

A registered animal is one recorded in the books of its breed association. Registration is proof of pure breeding and necessary to issuance of official pedigree. Registration is optional with the breeder, but the progeny of an animal can not be registered unless the animal itself is registered, so the wise breeder registers all animals kept for breeding purposes.

To register Berkshire pigs, address American Berkshire Association, 510 E. Monroe St., Springfield, Ill., and ask for registration blanks and requirement of registration. Such requirements vary in detail with the different associations. Full information can be secured by addressing the secretary of the association interested in.

Pig Ration.—Will you kindly suggest a good ration for growing pigs? I have corn and will have some skim milk for them all winter. J. S. Wyalusing, Pa.—If your supply of milk will permit we would advise feeding about 3 pounds of milk for each pound of corn fed. We believe you will also find it profitable to feed animal tankage to the amount of about one-tenth of the ration. That is, feed 1 pound of tankage for every 10 pounds of corn and milk.

Pasteurization of Milk.—Bulletin No. 342, of the U. S. Department of Agriculture, discussess the present status of the pasteurization of milk. The discussion covers the meaning of the term pasteurization, value of pasteurization, extent of pasteurization in the United States, methods used, cost of the process, bacteria that survive pasteurization, modern theories and the necessity of pasteurizing. The bulletin is free upon request to the above Department, Washington, D. C.


Corn going to a dollar?

DR. T. N. CARVER, in "WALLACE'S FARMER" of December 17, says: *"It is not improbable that there are men now living in the corn belt who will live to see the price of corn average as high as a dollar a bushel."* Corn is worth growing even at present prices. It costs 80 to 90 cts. to buy and 15 to 30 cts. to grow.

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DETROIT IS THE PLACE TO LEARN

44 Automobile Factories. They all know and endorse our school. Students can go through them, including Detroit Electric Service Department, without extra charge. Remember, ours is the Old Reliable School, in the heart of the Automobile Industry. Start course anytime. Write for full particulars, guarantee and copy of "Auto School News" and new pictorial catalog—just out—ALL FREE. Or better still, jump on a train and come to Detroit, as hundreds have done. Learn the automobile business in Detroit and learn it right.

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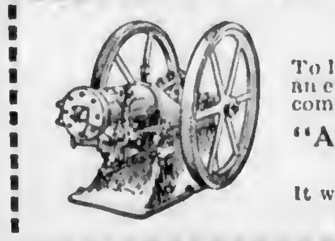
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Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., March 6, 1916.

The white potato market was more active during the past week than at any other time in the past ten weeks. Receipts dropped to an average of about 35 carloads daily, which is considered very light offering. Pennsylvania stock is in much lighter supply and jobbers thruout the markets appear to be well cleaned up on their holdings. It is believed that under the continued light supply prices will make a further advance. Fancy Pennsylvania potatoes are selling at $1.18 to $1.20 and at jobbing are bringing as high as $1.35 per bushel. Maine Green Mountain potatoes are being sold at $1.15 to 1.20; New York State stock at 1.10 to $1.15 and Western at $1.00 to $1.05.

Sweet potatoes have arrived in rather limited quantities and sold well. Jersey stock cleaned up at 60 and 65 cents per basket and fancy stock in hampers brought 80 and 90 cents. Choice or medium grades are selling at 50 to 65 cents per hamper. Virginia sweets continue to move at $1.50 to $1.75 per barrel.

Vegetables

During the entire season there has been a continued good demand for good onions. Poor grades have kept the market stocked and prices low. Fancy Connecticut Valley onions sold at $2.50 per 100-lb. bag and York State onions at $2 to $2.25 per 100-lb. bag. Receipts have continued on an average of 20 cars daily.

Cabbage has made spectacular advances, rising steadily from $15 per ton for fancy Danish last Monday to $20 and $25 per ton today. There has been a constant demand for good stock with a very limited supply. Florida cabbage has advanced to $1.25 and $1.40 per hamper. Celery from the near-by trucking sections is very limited and sales are being made at 10 to 13 cents per bunch. Florida celery is in good supply and selling at $1.80 to 2 per crate. Carrots have advanced to $2.60 and $2.75 per barrel under limited supply. Beets continue at $2 to $2.15 per barrel but are only in fair request. Parsnips are dull at $1 per barrel and rutabagas at 60 cents per bushel.

Norfolk spinach has been hampered by the frosts and shipments greatly reduced. Spinach of good quality this morning brought $2.50 and kale $1.25 per barrel. Beans from the Florida section are in short supply and prices have advanced accordingly. Fancy green beans are selling at $3 to $4 per hamper and wax beans at $2.50 to $3.50 per hamper. Peas have advanced to $4 and $6 per hamper under a very limited supply. Lima beans ae moving at $3.50 to 4.50 per hamper.

Lettuce is in heavy supply but of poor quality resulting in low market prices. Sales are being made on the better grades of lettuce at $1.50 to $2 per basket, but most of the stock is of poorer grades and selling at 75 cents to $1.25 per basket. Peppers are in fair supply at $1.25 to $1.75 per carrier; eggplants at $1.50 to 2 per crate. Tomatoes are generally arriving in green condition and consequently neglected by the buyers. The few ripe and solid tomatoes sold at $2 to $2.50 per crate and choice at $1.50 to $1.75.

Fruits

Holders of apples are taking advantage of the favorable weather conditions and light receipts to move larger quantities of their stock. Reports show that exports of apples are over a million barrels below the record of last year. Sales of the last week showed an increase over the preceeding week with the market firmer under a better demand and movement. York State Kings sold at $2.75 to 3.50; Hubbardsons, $2.50 to $3; Greenings, $2.50 to 2.75; Baldwins, $2.50 to $3.50; Ben Davis, $2.25 to $2.50. Pennsylvania and Virginia apples sold as follows: Winesap, Stayman, $2.50 to 3.50; York Imperial, $2.50 to 3; Rome Beauty, $2.75 to $3.50; Ben Davis, $2.25 to 2.50. Second grade apples sold at $1.25 to 1.50 per barrel and were in heavy supply.

Poultry

The poultry market is quite firm, due to the limited arrivals of fancy stock. The market has cleaned up each day and prices have maintained a high level. Extra-fancy fowl sold today at 18 to 19½ cents per pound; smaller sizes, 16 to 17 cents; old roosters, 15 cents. Fancy broilers were scarce, most of the stock being coarse and poor. Jersey broilers sold at 24 to 26 cents and other near-by broilers, 22 to 24 cents. Middle West chickens sold at 21 to 22 cents. Near-by fancy turkeys, fancy young hens and toms, sold at 31 cents. Fair to choice turkeys sold at 25 to 30 cents and old toms at 25 cents. Spring ducks are firmly held at 18 to 20 cents and geese at 16 to 19 cents.

Shipments of live poultry are very scarce, due in part to the approach of egg-laying season. Prices on fancy fowls are at an advance of from 1 to 1½ cents per pound. Fancy fowl sold at 17½ to 18½ cents; roosters, 12 to 13 cents; fancy spring chickens, 19 to 20 cents. Live turkeys are held at 20 to 22 cents. Ducks sold at 18 to 20 cents; geese, 17 to 19 cents.

Eggs

There has been a decided advance in the egg market in the past week, followed by an equally sharp decline until today the market stands from 1 to 1½ cents below the quotations of one week ago. Fancy near-by extras sold today at 27 cents; near-by firsts, 24 cents; near-by current receipts, 23½ cents. Western extra firsts sold at 24 cents per dozen; firsts, 23½ cents; seconds, 21 to 22 cents. Fancy selected candled fresh eggs jobbed at 29 to 31 cents per dozen.

—Selmarad.

NEW YORK PRODUCE

New York City, March 6, 1916.

The general trade in butter continues fair and the market has a firm tone. Tone of cheese market is steady. No export business. The egg market opens weak and prices are lower. Little change in poultry prices. Apples in liberal supply but trade only moderately active. Demand for potatoes is moderate with little change in prices.

Butter. — Creamery extra, (92 score) per pound, 37c; higher score, 37½@38c; thirds to firsts, 29@35c; state dairy, 36@37c; packing stock, 20@22c.

Cheese.—Whole milk specials, 18c; daisies, 18c; skims, 12½@16¼c.

Eggs. — Fresh gathered, extra, 23½@24½c; firsts, 22@23c; thirds, 20@21c; dirties, 20c; near-by whites, fine to fancy, 29@30c dozen; ordinary to good, 27@28c; browns, 25c.

Dressed Poultry.—Fresh soft meated—Barrels, Philadelphia and Long Island, fancy, 3 to 4 pounds to pair, 40@42c; Philadelphia and Long Island, average, 3 to 4 pounds to pair, per pound, 28@30c; fancy roasters, 25@26c. Fowls, 16@19c; old roosters, 14½c; squabs, $2.25@5.50 dozen. Spring ducks, per pound, 19@21c. Turkeys, dry picked, 26@30c.

Apples.—These prices show the range from "B" to "A". Jonathan, bbl., $2@4; York Imperial, barrel, $2.25@3.25; Winesap, barrel, $2.25@4.25; Greening, barrel, $2@3; King, bbl., $2@3.50; Northern Spy, $2.25@4; Baldwin, bbl., $2@3.25; Hubbardson, bbl., $2@2.50; Ben Davis and Gano, bbl., $2@3; common, bbl., $1.50@3.

Vegetables.—Beets, per bbl., $1. Carrots, bbl., $1@2. Cabbage, Danish, ton, $10@20. Turnips, bbl., $1@1.25. Onions, yellow, $2@2.75 bag. Squash, Hubbard and Marrow, $1.75@2 bbl. Potatoes, Jersey, $2.50@3 bag. Long Island, $4 bag. Sweets, 60c@$1.10 per basket.

Country Dressed Veals:

Choice	@16½
Prime	15½@16
Fair to good	13½@14½
Coarse, heavy	13½@14½
Common	12½@13
Buttermilks	11 @12
Grassers	10 @11

YORK PRODUCE MARKET

York, Pa., March 6, 1916.

The mild weather last week brought in many county potatoes and the price fell accordingly. Many farmers fear prices will drop and are rushing potatoes on the market, which is usually the best way to send prices down. Some are selling as low as 75 cents per bushel. Eggs are not plentiful and still hovering around the 25-cent mark. Apples are plentiful of the ordinary kind and sell around 10 to 12 cents a half peck. Butter still maintains its price. Hogs 10½ to 11½c dressed. Corn is off 7 cents. Wheat has dropped 22 cents in two weeks.

Eggs.—25@26 cents per dozen.

Butter.—Country, 28@30c lb.; separator, 32@35c lb. Milk, 6 cents quart.

Vegetables.—Potatoes, 75c to $1.20 per bushel; 10@18c ½-pk. Cabbage, 4@7c a head. Lettuce, 5@10c head. Beets, 4@5c bunch. Radishes, 5@7c bunch. Onions, 4@5c bunch; 10@12c ½-pk. Lima beans, 25c quart. Soup beans, 10@18c quart. Lard, 12@14c pound. Turnips, 10@12c ½-pk. Sauer kraut, 8@10c quart. Spinach, 10c ½-pk.

Fruit.—Apples, 10@30c ½-pk; 75c to $1.50 per bushel. Pears, 12@15c ½-pk. Strawberries, 25c to 40c box.

Retail Grain Market.—Wheat, $1.16; corn, 90c; oats, 65c; rye, 90c; bran, $1.45 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.06; corn, 73c; oats, 50c; rye, 82c; bran, $27 per ton; middlings, $32 per ton.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., March 6, 1916.

Receipts for the week ending Saturday evening, March 4:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,114	6,164	7,609
Previous week	3,097	6,847	6,632

Calves. — Total receipts of calves for this week were 1,298 against 1,527 last week.

Beef Cattle.—The cooler, bracing weather showed its effect upon the general market situation, bringing about an improved inquiry. Every grade of cattle showed a slight advance. Sufficient arrivals of Southern, near-by and Western stock were in evidence. Bulls and cows that were choice realized full rates, but calves were dropped a fraction on top prices.

Best steers	$9.00@9.15
Choice	8.60@8.75
Good	8.15@8.40
Medium	7.60@7.85
Common	7.10@7.35
Bulls	5.50@6.50
Fat cows	5.00@6.50
Thin cows	2.75@4.00

Veal Calves.—

Exceptional lots	$11.50@12.00
Good to choice	11.00@11.25
Medium	9.00@10.00
Common	7.00@ 8.00
Southerns and barnyards	4.00@ 6.00

Sheep and Lambs.—A rather conservative undertone dominated the market, and while values were keeping quite firm buyers were only interested in absolute needs, shipments being moderate.

Wethers, extra	$ 8.75@ 9.00
Choice	8.25@ 8.50
Good	7.75@ 8.00
Medium	7.00@ 7.25
Common	5.00@ 6.00
Ewes, heavy, fat,	7.00@ 8.00
Lambs, extra	11.75@12.00
Good to choice	11.25@11.50
Medium	10.00@10.25
Common	8.00@ 9.00

Hogs.—There was a sharp advance in values under a strong closing and good absorption. Westerns, as to size and quality, $12.75@13.

City Dressed Stock.—Meats of all kinds that were choice and prime ruled steady to firm, hogs being a trifle higher and demand more active.

Steers	10@14
Heifers	9@13
Cows	8@11
Veal calves	14@16
Extra calves	17@
Southerns and barnyards	10@13
Country dressed	12@14
Extras	16@
Sheep	13@14
Extra wethers	16@
Lambs	17@18
Extra lambs	19@
Hogs	13@13¼

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., March 6, 1916.

Cattle.—The supply on sale Monday was 90 loads compared with 90 loads the week before. The market ruled fairly active on the tidy fat cattle at about steady prices, while the medium and weighty grades sold slow and 10@15c per cwt. lower. Best heifers sold active at firmer prices, while cows were stronger on all grades. Bulls active and stronger on all grades from bologna to choice. Fresh cows sold a little firmer on best while the common and springers were slow. There were 77 loads of cattle in supply today. Market active and higher on all desirable fat grades; others strong.

Good to choice	$8.60@8.75
Good, 1300 to 1400 lb.	8.25@8.60
Medium to good, 1200 to 1300 lb.	7.75@8.10
Tidy, 1050 to 1150 lb.	7.75@8.15
Fair to medium, 1000 to 1100 lb.	7.25@7.60
Fair, 900 to 1000 lb.	6.50@7.00
Common, 700 to 900 lb.	5.50@6.25
Rough, half-fat, 1000 to 1300 lb.	6.25@7.25
Common to good fat oxen	4.00@6.75
Common to good fat bulls	4.25@7.25
Common to good fat cows	4.25@6.50
Heifers, 700 to 1100 lb.	4.75@7.75
Bologna cows	3.50@4.10
Fresh cows and springers	$25@85

Calves.—Veal calves in fair supply and ruled steady all week at Monday's prices. There were 700 head of calves received today; market lower.

Veal calves	$8.50@11.50
Heavy and thin calves	5.00@ 8.50

Hogs. — The supply of hogs during the week has been light and with a good demand along with higher prices at western points our market ruled higher all week and closed 45@50c per cwt. above Monday's prices on all good weight grades. Today's hog receipts totaled 35 double-deck loads. Market 5c lower on heavy hogs; others steady.

Prime heavy	$9.55@
Heavy mixed	9.55@
Prime medium weights	9.55@
Best heavy Yorkers	9.55@
Light Yorkers	9.00@
Good pigs	7.75@8.50
Common to good roughs	7.75@8.40
Stags	6.25@6.75

Sheep and Lambs.—The supply of sheep and lambs during the week has been fair and the demand only fair; the market ruled steady on best sheep while lambs have ruled slow at a decline of 25@50c per cwt. below Monday's prices. Sheep and lamb receipts numbered five double-deck loads. Market strong on best sheep; other grades of sheep and lambs steady.

Prime wethers	$8.80@ 9.00
Good mixed	7.75@ 8.25
Fair mixed ewes and wethers	6.25@ 7.25
Culls and common	3.50@ 5.00
Spring lambs	7.00@11.60
Heavy lambs	8.50@11.60
Culls to choice yearlings	6.00@ 9.50

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., March 6, 1916.

Hay and Straw—Offerings of desirable grades of hay are light and prices are steadily maintained on this quality. Poorer grades are rather freely offered and are dull and slow to move. There is little call for straw.

Grains.—Wheat is still suffering from the recent speculative slump. There is a fair export demand but prices only hold steady at last week's quotations. There is only light trading in corn, but offerings of good quality are light and prices are mainly unchanged. The oat market is quiet but fairly steady. The feed market rules steady under moderate offerings and fair trade.

Hay.—No. 1 timothy, medium bales, $21.50@22; No. 2 do., $19.50@20; no grade, $10@14. Light mixed clover, $19@19.50; No. 1 do., $18.50@19; No. 2 do., $15.50@16.50.

Straw.—No. 1 straight rye, $13.50@14; No. 2 do., $12.50@13; No. 1 tangled rye, $11.50@12; do., No. 2 $10.50@11. No. 1 wheat straw, $10@10.50; No. 2 do., $9@9.50. No. 1 oat straw, $10@10.50; No. 2 do., $8.50@9.

Wheat.—No. 2 red, $1.16@1.19; No. 3 red, $1.16@1.19; rejected A, $1.13½@1.16½; rejected B, $1.12@1.15.

Corn.—No. 2 yellow western, 80@81c; steamer yellow, 78½@79½c; western, No. 3 74½@75½c; No. 4 yellow, 72½@73½c; ear corn, 78c per 70 pounds.

Oats.—No. 2 white, 52@52½c; No. 3 do., 49@50c; No. 4 do., 47@48c; standard white, 50@51c; sample oats, 44@45c.

Feed.—Winter bran, in 100-pound sacks, $24.50@25 per ton; spring bran, do., $22.50@23.

Flour.—Car lots, winter clear, $5.20@5.40; straight, $5.50@5.70; patent, $5.80@6.10. City mills, choice to fancy patent, $6.25@6.75; do., regular grades, $5.20@5.40. Rye flour, $5.25@5.75 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., March 6, 1916.

Hay.—Receipts continue exceedingly heavy but mostly of poor stock and clover. Very little good timothy arriving at present. Billings are easing up somewhat and it would appear that now would be a good time to get ready to ship a few cars of strictly No. 1 or good No. 2 and good No. 3 timothy. Clover hay not wanted and is almost unsalable. The same might also be stated of heavy mixed hay, altho light mixed hay is being disposed of at top figures. No. 1 timothy, $18.75@19; No. 2 timothy, $15.75@16.75; No. 3 timothy, $13@14; No. 1 light mixed, $15.75@16.25; No. 1 clover mixed, $14.75@15.25; No. 2 clover mixed, $11.75@12.75; No. 1 clover, $13.25@13.75; No. 2 clover, $8.25@11.25; No. 3 prairie, $10.75@11.25; No. 4 prairie, $8.25@8.75.

Straw.—Receipts of straw continue heavy and considerably in excess of demand, of which there is very little. Arrivals are hard to dispose of and looks like prices on this commodity are bound to rule lower. No. 1 oat, $7.75@8; No. 2 oat, $7@7.25; No. 1 wheat, $7.75@8; No. 2 wheat, $7@7.25; No. 1 rye, $8.75@9.25; No. 2 rye, $7.50@8.

Ear Corn. — Conditions unchanged; receipts continue heavy and in excess of demand. Market declining. Poor ear corn unsalable. Yards are choked with it with absolutely no buyers. New No. 2 yellow, 73@74c; No. 3 yellow, 65@66c; No. 2 high mixed, 70½@71½c; No. 2 mixed, 68@69c.

Oats.—Market in demoralized condition; plenty of oats lying around here at the different terminals also in the elevators with hardly any buyers. Market looks lower. No. 2 white, 46@46½c; Standard, 45¼@45¾c; No. 3 white, 44½@45c; No. 4 white, 42½@43½c; Rejected, 35@40c.

NEW YORK HAY AND GRAIN

New York City, March 6, 1916.

Hay and Straw.—The hay market is about $1 per ton higher. Arrivals continue light and there is sufficient demand to more than absorb offerings, so most harbor points are pretty well bare of stock. Exceptional sales are reported as high as $27.50 for best No. 1 timothy in large bales, altho $27 is the top for most offerings. On small bales of No. 1 timothy, $25 is reached without difficulty. There is a fair call for fancy light clover mixed, with very little to be had. Heavy mixed and the poorer qualities of clover are still slow sale, altho gradually cleaning up. Rye straw is scarce and firm. Oat straw is selling in small quantities at $10 per ton.

Grains.—Wheat prices are firm at an advance of from 8 to 10 cents per bushel over last week. The feature of the week was the bearish tendency in speculation. Many of the largest operators have sold out, many at heavy loss. The foreign situation as bearing on the wheat market is badly tangled, and no one feels safe in predicting the probable tendency in the immediate future. Progress of the new crop is not satisfactory. There is expected to be a larger percentage of winter killing than in any past three years. Transportation congestion is also hindering trade. Corn is irregular. Arrivals are mostly of poor quality. Oats are inclined to follow wheat in an upward tendency, but there is a heavy supply on the farms which checks price advances.

Hay.—Large bales—No. 1 timothy, $26@27; No. 2 $24@25; No. 3 $20@22; fancy clover, light mixed, $23@24; No. 1, $19@21.50; No. 1 clover, clear, $18@19.

Straw.—Per ton, No. 1 rye, $14.50@15; do., No. 2, $13@14; oat straw, $10.

Wheat.—No. 1 Northern, $1.47⅜; No. 2 $1.42⅜; No. 2 hard winter, $1.27⅝.

Corn.—No. 2 yellow, 82¾@83½c; No. 3 yellow, 80½@81c.

Oats.—No. 3 white, 48½@49c; No. 4 47¼@47¾c; ordinary to fancy, 48½@49½c.

Rye.—$1.01.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $23.00. Standard middlings, $25; flour, do., $29 to arrive. Red dog, to arrive, 140-pound sacks $33.50. Oil meal, $38@39. City feed, bulk bran, $23. Heavy feed in bulk, $24. Red dog, $33. Flour middlings, $32.50.

NEW YORK MILK MARKET

New York City, March 6, 1916.

For the first time this winter a surplus is beginning to show itself. The supply slightly exceeds the requirements of the market, owing to increase in production. Receipts last week showed an upward tendency, exceeding those of the previous week by 2,986 cans of milk and 908 cans of cream. The market value is approximately 3⅞ cents a quart for Grade B in the so-called 26-cent zone.

The receipts of milk and cream in 40-quart cans for the week ending March 4, were as follows:

Railroad	Milk	Cream
Erie	42,787	2,2
Susquehanna	9,583	15
West Shore	18,122	1,06
Lackawanna	58,390	1,47
N. Y. Central (long haul)	84,198	1,48
N. Y. Central (short haul)	22,420	1
Ontario	40,898	2,86
Lehigh Valley	41,459	86
Homer Ramsdell Line	3,675	3
New Haven	7,072	5
Pennsylvania	7,520	1
Other sources	1,205	2
Totals	337,329	10,3
Same week last year	323,546	11,6

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., March 6, 1916.

The butter market ruled firm on Saturday under light receipts and a fair demand. Receipts of solid packed stock are light. Prices are firm with a hardening tendency on high grades which are scarce and wanted. Ladles are in light receipt and firm. Prints are also firm with prices closely sold up. The cheese market is quiet but steady under moderate offerings.

Butter.—Solid packed creamery, fancy specials, 39c; extras, 37c; extra firsts, 35@36c; firsts, 33@34c; seconds, 29@32c; ladle packed, 22@24c; nearby prints, fancy, 40c; average extra, 38@39c; do. firsts, 34@36c; do., seconds, 30@32c; special fancy brands of prints, 43@46c.

Cheese.—New York, full-cream fancy, 18½@18¾c; fair to good, held, 17¾@18¼c; do., part skims, 11@16c.

ELGIN BUTTER MARKET

Elgin, Ill., March 4, 1916.

Butter was bid for today at 35c; no sales made. The 35 cents per pound is considered a good basis.

TOBACCO MARKET

The past week was not characterized by any special activity in tobacco circles. All values were fully sustained but the volume of transactions was small. Occasional crops were sold at previous prices and deliveries of larger amounts were made. Stripping is now almost finished. Local packers are busy with their purchases and they also report a very satisfactory inquiry and demand. Growers are now looking forward to the prospective crop and had it not been for the unusual continuation of winter they would have been plowing and otherwise preparing for the crop. There is great difference of opinion as to the probable acreage, growers generally holding that it will not be increased as compared with last year, while packers and others who consider a larger acreage to their benefit are positive in their claims that the acreage will be greatly increased.

The current movement of Mr. Kimbrough, the organizer, was given something of an impetus by the coming of W. A. Lewis, who is supposed to represent New York's financial interests. At a meeting attended by some fifty growers, the visitor made a lengthy address admonishing growers to stand together with the sole object of better prices in the future.

In the Ohio cigar leaf section some percent of crop has been sold and the demand continues good. Packers are steadfast in their claims as to deficiency in quality but these claims do not seem to be verified by the demand, etc., which is good especially for large factories. In Wisconsin some 90 per cent of the crop has been sold and the deliveries were heavy during the week. The Connecticut Valley crop, and especially the broad leaf variety, is moving slowly and is claimed that growers are greatly discouraged.—H. E. Tweed, March 6, 1916.

Household

WRIST WATCH HOLDER IN CROCHET

Please give directions for crocheting a wrist watch holder. Give material needed and size of crochet hook.—Mrs. A. E. Pifer, N. J.

Materials required: No. 10 steel crochet hook, and hard twisted crochet cotton No. 30, white or ecru as preferred.

Wind the cotton around two fingers 20 times, making a ring that will fit exactly the face of the watch. Single crochet closely around the ring, and close the end of the single crochets with a slip stitch. If the watch is large, add as many rows of sc (single crochets) around the ring as will be necessary to extend to the extreme edge of the watch case.

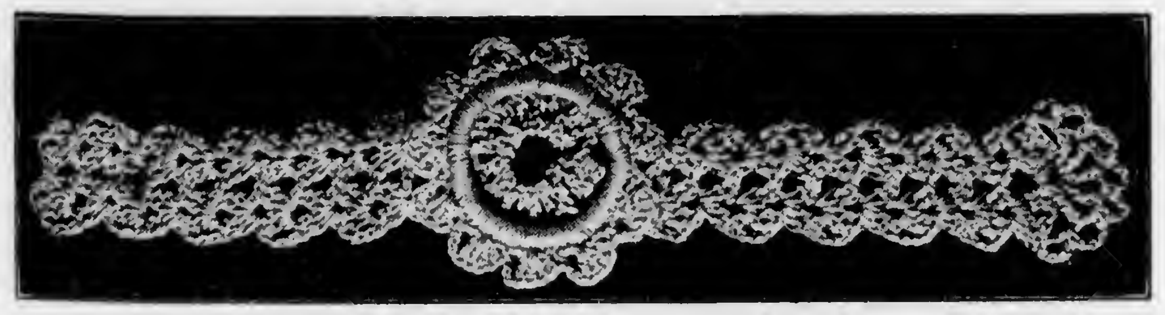
The scallop is made as follows: * Chain (ch) 3, skip 2 sc, then dc (double crochet) 4 in the next sc; skip 2, sc 1 in next stitch. Repeat from * to end of round.

To make the back of the holder, the cotton need not be broken. Make a chain of stitches, catch with 1 sl (slip stitch) in sc where scallop is caught with 1 sc, working at back of scallop. Repeat as many times as there are scallops. Fasten, then ch 5, dc 1 over 5 ch; * ch 2, and repeat with dc over next ch; ch 2, dc 1 over same five ch. Repeat to end of round, and close with 1 slip stitch.

Repeat this round if necessary to make the cover fit securely over the back of the watch. Slip the watch in, with the stem slipped thru a space beneath one of the scallops. Draw up the back of the holder with a chain draw-string, and tie firmly.

The band is made as follows: Ch 4, sl 1 in sc between scallops. Repeat once, then ch 3, dc 2 over 4 ch; ch 2, dc 2 over same chain. This forms a shell. Now form a shell over next 4 chain, ch 3 and turn. Make shell in shell twice; ch 3, turn and repeat to length desired; ch 2, * treble crochet (tc) 1 in space between shells; ch 2, and repeat from * four more times; ch 2, fasten in outer edge of last shell; ch 4, turn; * sc 1 over 2 chain; ch 4; repeat from * five times, then fasten.

Repeat for the other end of the band, omitting the last two rows. Sew on a snap fastener at the end of last row of the band. This will be concealed under the big shell made at the end of the first half of the band.



WRIST WATCH HOLDER IN CROCHET.

Heavy black silk crochet cord will make a handsome wrist watch holder, and is much daintier than the black leather ones.—Gracia Shull.

WHEN THE COAL STOVE FIRE GOES OUT

Nothing is more exasperating than to find on arising that the fire in the coal heater has gone out, due to our neglect to clean out the ashes and clinkers, or because we did not have a good fire burning when we closed the drafts for the night, or because the coal has not fed down properly. In any case the fire can be rebuilt more quickly and easily by taking a thin piece of wood (a shingle will do), which is just long enough to reach across the fire pot, and pushing it between the coal and the ashes. Closing the doors, one can thus clean out the ashes without disturbing the coal in the feed.

Then, with a little paper, broken berry boxes, nut shucks, pieces of bark or hard wood (no pine, for this will make too much smoke, which will puff out into the room), a fire can be quickly started which, by the time it has consumed the shingle, will have let the coal down and set fire to it.—Leda W. Chase, Tioga Co., Pa.

SIMPLE METHOD OF KEEPING ACCOUNTS

In your issue of February 12 is an article on keeping of farm and house accounts which I think is very good.

Feb		Income	On Hand	Expense
1	Balance from Jan		5.00	
1	Sugar		4.50	.50
1	Rice		4.30	.20
2	Eggs (Sold)	1.20	5.50	
2	Milk (Sold)	25.20	30.70	
6	Matches		30.60	.10
6	Overalls		29.75	.85
10	Coal		25.25	4.50
		26.40		6.15

We find Pennsylvania Farmer a real live paper and perhaps some of its readers would be interested in the following suggestion showing how we keep a simple account of both sales and expenses all on one sheet.

By adding the "Income" to the "On Hand" column and subtracting the amount in the "Expense" column from the "On Hand" column you always know what you have on hand by the last figures in the middle column, and the record shows amounts and items of sales as well as expenditures.—Carl Gering, Luzerne Co., Pa.

MAKING BREAD IN WINTER

Housewives who bake their own bread often have difficulty in keeping it from becoming chilled in winter. This is the way I meet this problem. After mixing my sponge at night I warm a cushion (one that I keep for this purpose only) and place it on a chair under my sponge, then wrap the pan with a thick flannel cloth, which keeps it from becoming chilled and helps to raise it nicely. When mixing the bread into a stiff loaf, I also wrap it up in the same manner which will keep it warm until ready to be made up into the loaves.

Before doing this I place my bread box (which is one of the best secrets of winter bread making) beside the stove to warm. Then I place my pans of loaves in it and cover with the bread cloth and several thicknesses of newspaper (I have my box lined with paper). My box is just a common store box, which measures 29x18x8 inches. This is large enough to hold 4 loaves of bread and if I have more than that I raise a loaf in my meat roaster or else I turn a crock over them on table until my box is empty; as the bread in it is always ready to bake first. I soon have it ready for the extra loaves. I also find my roaster nice to warm our bread or cake, which has become stale. I simply place the stale bread or cake in the roaster, cover closely and place in the oven until warmed thru. You can scarcely tell them from fresh. I hope my ideas may be of help to some one else.—M. McW., Mercer Co., Pa.

KITCHEN HELPERS

To keep dish towels white, give them occasionally the following treatment: Place them in a kettle, cover with cold water, add the juice of a lemon and some good soap shavings. Let the water come gradually to a boil on the back of the stove. Rinse in slightly blue, tepid water.

A teaspoonful of sugar added to the pot of cabbage, turnips, and beans, while boiling, is a great improvement to the flavor, we think.

Keep plenty of orange peel on hand. It gives a delightful flavor to many stewed fruits, as apples, prunes, etc., and when boiled with cocoa gives it a delicious aroma that many think delicious.

If you do not possess a mayonnaise mixer use a wide-mouthed bottle and shake it to mix the ingredients. Add oil and vinegar rather slowly, shaking between each addition, and vigorously shaking the whole for several minutes after all the materials are in.

If cream is too thin to whip, add the white of an egg and whip together.

Stale loaves of bread may be freshened by pouring cold water over them, draining quickly, and letting them dry out in the oven.

To save labor and time in preparing pumpkin or squash for pie or the table, cut the vegetable in two, scrape out the insides, place the halves in a pan containing a little water, rind side up. When done the peeling is easily removed, then it can be mashed, seasoned and prepared in any way desired.

When baking potatoes, grease them with butter before baking to make them beautifully brown and crisp and have a tempting glazed appearance.

If your oven is not large enough to let in several layer cake tins at a time, put one pan on the oven floor, then in the oven space left arrange cans smaller than the cake tins, and set your cake tins on these. The heat will reach all the pans almost the same.

When the linoleum on your kitchen floor begins to wear, put a light coat of varnish on it to preserve its life much longer.

The water in which macaroni has been boiled makes a nice thin starch for lingerie and infants' garments, also gives a pretty gloss to colored ginghams.

Here is a hint for boiled custard: Use a teaspoonful of flour per each cup of milk, mixing the flour with the sugar and adding beaten egg, then slowly adding the milk. The flour prevents the custard from wheying off so readily, rendering it smooth and creamy. —Mrs. Wm. Westcott, So. Car.

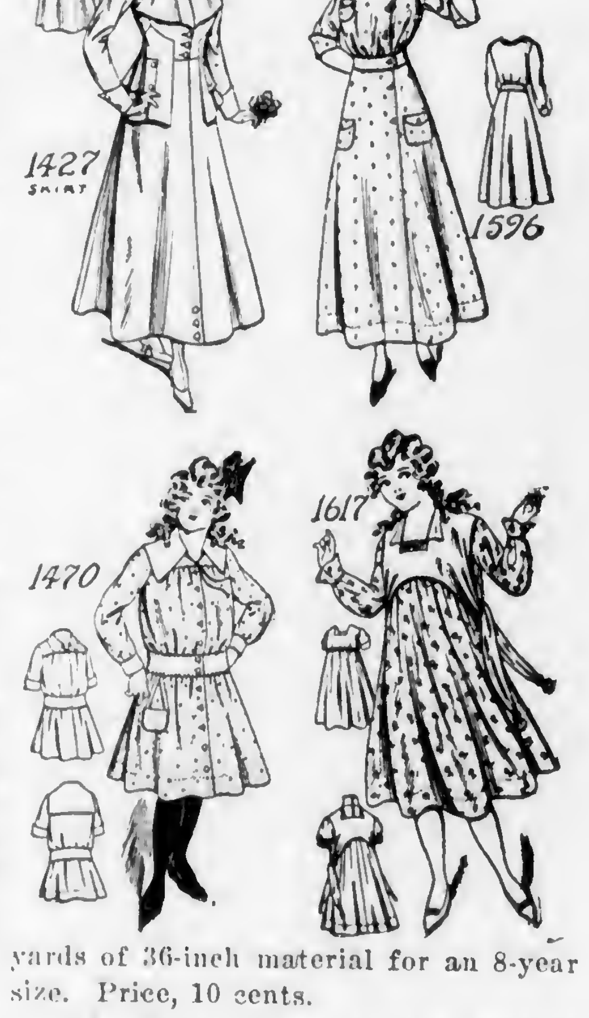
PENNSYLVANIA FARMER PATTERNS

Be sure to give the figures and letters of each pattern exactly as pirnted at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-63 So. Third Street, Philadelphia, Pa.

1623-1427.—Ladies' Coat Suit.—Coat, 1623, cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. Skirt 1427, cut in 6 sizes: 22, 24, 26, 28, 30 and 32 inches, waist measure. It requires 6¼ yards of 44-inch material for a medium size, for the coat and skirt. The skirt measures about 3 yards at the foot. This calls for two separate patterns, 10 cents for each pattern.

1596. — Ladies' House or Morning Dress.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 6⅜ yards of 36-inch material for a 36-inch size. The skirt measures about 3 yards at the lower edge. Price, 10 cents.

1470.—Girl's Dress.—Cut in 4 sizes: 6, 8, 10 and 12 years. It requires 3⅞ yards of 36-inch material for an 8-year size. Price, 10 cents.



1617.—Junior Dress, with or without Bolero.—Cut in 3 sizes: 12, 14 and 16 years. It requires 5½ yards of 30-inch material for the dress, and 2 yards for the bolero, for a 14-year size. Price, 10 cents.

160 ACRE FARMS IN WESTERN CANADA FREE

Three Hundred Million Bushel Crop in 1915

Farmers pay for their land with one year's crop and prosperity was never so great.

Regarding Western Canada as a grain producer, a prominent business man says: "Canada's position today is sounder than ever. There is more wheat, more oats, more grain for feed, 20% more cattle than last year and more hogs. The war market in Europe needs our surplus. As for the wheat crop, it is marvelous and a monument of strength for business confidence to build upon, exceeding the most optimistic predictions."

Wheat averaged in 1915 over 25 bushels per acre
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Prices are high, markets convenient, excellent land low in price either improved or otherwise, ranging from $12 to $30 per acre. Free homestead lands are plentiful and not far from railway lines and convenient to good schools and churches. The climate is healthful. **There is no war tax on land, nor is there any conscription.** For complete information as to best locations for settlement, reduced railroad rates and descriptive illustrated pamphlet, address

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IT means VALUE. Just to the extent that a car is standardized does the buyer's dollar approach the maximum of purchasing power.

Standardization means definite, proved quality, known manufacturing costs and reduced selling costs.

Of the million autos that will be sold in 1916, 75% will be standardized cars selling for less than $1000.00 each. This remarkable American achievement is the direct result of standardization.

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4 H. P. Cushman on a Binder. Same Engine Does All Other Farm Work.

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This is the one successful binder engine. Thousands are in use every harvest. **Fits any binder.** Engine drives sickle and all machinery. Since horses have only to pull machine, two horses will easily handle 8-ft. binder in heavy grain. In a wet harvest Cushman Engine **saves the crop**, as it keeps sickle going when bull wheel slips—it never clogs. **After harvest Cushman engine does all other work.** Very light weight and easy to move around, yet runs more steadily than most heavy engines, because of **Throttle Governor and perfect balance.** 4 H. P. weighs **only 190 lbs.**; when stripped for binder only 167 lbs. 8 H. P. only 320 lbs. Forced water cooling system prevents overheating. Equipped with Friction Clutch Pulley.

Iver A. Madson, Wheatland, N. D., writes: "I have six engines and the Cushman is the best. It does not jump like a heavy engine. On the binder it is a great saver of horse flesh. It will do all you claim and more too." E. W. Gasser, Sidney, Ill., says: "With a Cushman I cut 10 acres more a day with less horses. A binder will last 3 or 4 years longer with this engine." Ask for free Engine Book.

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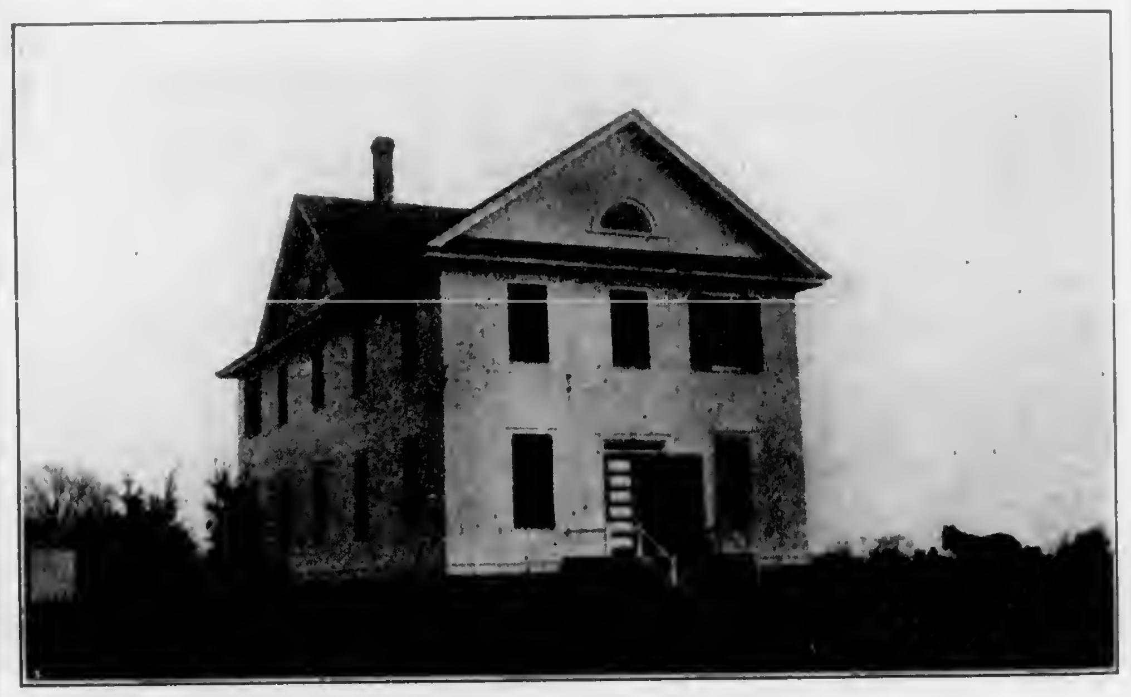
Help Wanted Young American man and wife to take care of calves and chickens. None but experienced persons need apply.
WHITE HORSE FARMS, Paoli, Pa.

Grange

Among the Granges

Elk County, Pa.—The board of directors of the Elk County Mutual Fire Insurance Co., met January 11, at the home of the Secretary Mr. George J. Markert, at St. Marys, and transacted such business as came properly before the meeting, chief of which was the election of officers and making the annual report to the State Insurance Department at Harrisburg. The final report makes a very good showing. The receipts for the past year were $1593.38 and the expenditures $1999.60, not including the last fire loss of the year which had not yet been settled at the time of closing of the books. As is the custom of co-operative insurance companies, each share holder protects his liability to the company by giving his note for a certain percent of the policy he carries. Thus in 1915 the amount of insurance carried in the Elk County Mutual Fire Insurance Company shows an increase of $89,000 and the amount of increase on notes at hand shows $5,785.75. This increase brings the total amount of insurance carried in this company to a grand total of $607,133 and the amount of notes to $35,121.57. A glance at these figures will show how well each policy holder is protected under the plan of co-operative insurance which is growing so rapidly in favor with the public thruout the country. The Elk County Mutual carries on its roll about 325 policy holders. It is subsidary to the Grange in that each policy holder must be a member of the Grange and that the directors are elected, one by each subordinate Grange. The company issues a quarterly report to the Pomona and State Grange. The rate of premium is based upon the actual fire losses for the year. This rate is fixed by the Directors and is levied in the form of percentage upon the amount of each policy holder's note. In the past year, with several heavy losses, the rate was 8 percent for the entire year. Even at this figure, the rate is much lower than could be secured with a regular insurance company for the overhead expenses are reduced to a minimum. The following officers were elected: President, Robert Miller, of Kersey; Vice President, Andrew Schreiber, of Dagus Mines; Treasurer, William Weidert, of Wilcox; Secretary, George J. Markert, of St. Marys.

The recently elected Directors of the Elk County Farmers Agricultural Fair Association met on the 15th of January in the Grange Hall, at St. Marys, and organized for the coming season. Officers were elected as follows: President H. J. Gregory; Vice President, G. J. Markert; Secretary, E. J. C. Grotzinger; Treasurer, Joseph B. Lenze, all of St. Marys. The other members of the directorate are J. H. Schreiber, of Kersey and Henry Markert, of Rasselas, (Wilcox postoffice). The dates for next year's fair were set at this time and the fair will be conducted from the 3rd to the 7th of October, both dates inclusive. Many other matters of minor importance were acted upon and a good start for the 1916 Fair was made. This association was formed in 1913 by some of the more progressive farmers and is another result of the good work done by the Grange in bringing the farmers together. In order to keep the fair strictly within the confines of those who make their living by farming only the common stock has the right to vote and this stock is issued only to those actively engaged in farming. The stock, both common and preferred, paid a 10 percent dividend the first year, and would have repeated the rate the second year had it not been for a litigation which cost the association a large amount of money. Consequently only 5 percent was paid the second year and last year, the third of its existence, 7 percent was paid. Thus it will be seen that the young concern is in a very good way for becoming a mighty good investment and already the stock is being sought by those who desire a good, safe investment.—A. B.



COLD SPRING GRANGE HALL, CAPE MAY CO., N. J.

Upper Bucks.—Pomona Grange No. 50 held their meeting at Chalfont on Saturday, February 19. The newly elected officers were installed by the Deputy. Thirteen new members were initiated and a short program followed. Mrs. Phares Weisel read a good paper on "Washington". Mrs. Elmer Haring recited.

Mr. Elmer Haring read a paper on "Life". Mr. Wm. Weammer gave a short talk on the State meeting, Farmers' Week and The Farm Bureau. Allen Zetty, one of the County Commissioners, also made a few remarks on The Farm Bureau. He said that the county has its share of the money ready and he hoped that a suitable man could be procured and work started by the first of April.

A visitor from Delaware County spoke for a few minutes, as did Mr. Smith, the deputy from the lower end of the county. All this, interspersed with music and songs, an excellent dinner and supper, made two very pleasant and busy sessions.

The next meeting will be in Richland Grange Hall, near Quakertown, May 16, morning and afternoon sessions.—M. J.

Cape May Co., N. J. Pomona.—This Pomona Grange met with Cold Spring Grange, No. 32 on the 19th of January and the Fifth Degree was exemplified in full form for the first time in Cape May County.

The meeting opened at 2 P. M. and the regular order of business was conducted. At the close of the afternoon session the newly elected officers were installed by F. E. Bates, assisted by Mrs. Wallace, of Tuckahoe. After the installation the members repaired to the big dining room where covers were laid for 200. The opening of the evening session was in charge of the Pomona Lecturer, after which the Fifth Degree was exemplified in full form, and a class of 14 members was initiated into the mysteries of this degree. The work was pronounced a grand success.

The only drawback to the occasion was absence of State Master Gaunt who was expected to be present. Worthy Pomona, sister Reese Risley, and her court were simply beautiful, standing amidst pine, cedar and holly, banked with luscious fruits. In richness of coloring and picturesqueness this was a picture that will long be remembered.

At the close of the initiation, Pomona escorted by the Master, lead the way to the banquet.—N. J. Granger.

FARMERS' INSTITUTE

Lower Lancaster County received a treat in the way of a farmers' institute, at Harmony School, Collins, Saturday, February 19.

Two sessions were held, afternoon and evening. Both were well attended, despite the extremely cold wather.

Much interest was shown and many questions were asked and answered.

With W. F. Stively, as chairman and Norman C. Maule, as secretary, the program was carried out. Music and recitations were sandwiched between the addresses.

Dr. Havner emphasized the importance and advantages to be gained by the farmers of a community co-operating and developing a particular breed of hogs, whatever that breed might be. The use of the self-feeder as a convenient and economical method of feeding hogs was explained.

For growing pigs he recommended plenty of exercise, plenty of water and a pasture of rape, clover, peas, or alfalfa during the entire growing season. Tankage furnishes the cheapest source of protein where milk or pasture is not available.

Prof. Borland explained the relative value of the different feeds, as applied to the dairy cow. He explained the computation of dairy rations; and figured out for those present, some feeding rations with the feed at hand and at present prices. This is a subject that is not well enough understood by many farmers; but with the aid of Bulletin No. 114, of the Pennsylvania Experiment Station, it would be comparatively easy.

Prof. Menges spoke of the present high prices of fetrilizers, potash being so high that it is unprofitable to use any. He complimented the farmers of Lancaster County on the fact that there was all the potash in the soil that they need. The only trouble was that it was not readily available. He encouraged the farmers that in the course of a few years there will be potash developed in different parts of the United States. He said that farmers farm for two purposes: Namely, to feed humanity; and, to improve the soil.

He classified the crops into soil exhausting and soil improving crops.

He said for every soil exhausting crop a farmer raises, he should raise a soil improving crop.

If this one important statement were carried out in practice by every farmer in Lancaster county, it wouldn't be long until there would be two blades of grass growing where but one grows now.

As soil improving crops he recommended cow peas, and all the different clovers. For very poor soil, he recommended the hulled white blossomed, sweet clover, plowed down before it went to seed.

F. S. Bucher, of the Lancaster County Farm Bureau, talked on "Farm Manure."—J. H. Haverstick.

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No man can safely invest a dollar in any car without FIRST seeing this new SERIES 17 Studebaker. Write for handsome catalog—and have your local dealer demonstrate the car.

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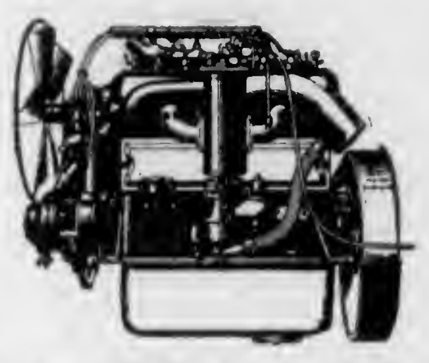

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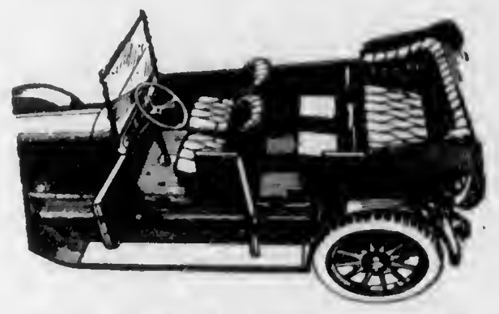


—it buys MORE Room—plenty for SEVEN full-grown people to ride in comfort—more room for driver and more in tonneau—DIVIDED and adjustable front seats.

—it buys MORE Beauty—a handsome car, luxurious in its finish and graceful in its long, smooth, flowing lines—genuine straight-grain, semi-glazed leather upholstery.

—it buys many NEW Conveniences—such as the gas tank removed from the cowl to the rear of the chassis—the new design, overlapping, stormproof windshield—the adjustable front seats—the more conveniently arranged instruments.

Four Cylinder Models

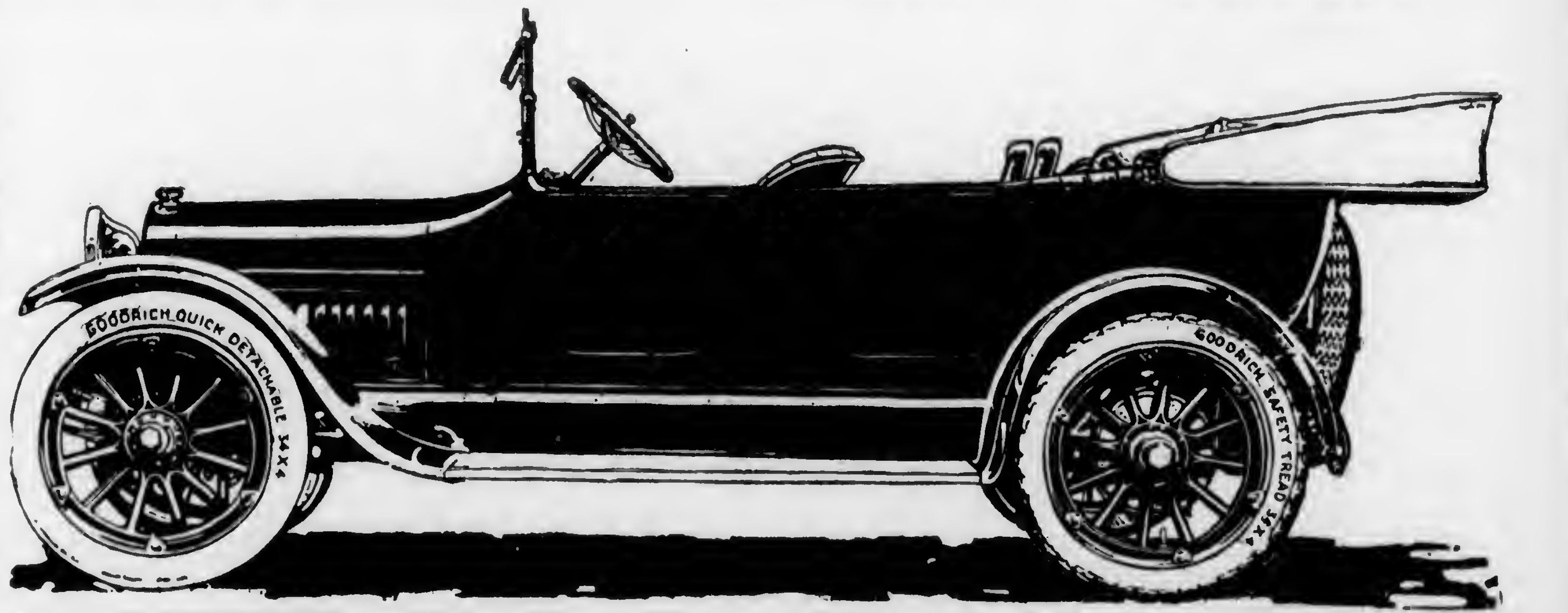
Touring Car, 7-pass.	$875
Roadster, 3-pass.	850
Landau-Roadster 3-pass.	1150

Six Cylinder Models

Touring Car, 7-pass.	$1085
Roadster, 3-pass.	1060
Landau-Roadster, 3-pass.	1350
Coupe, 4-pass.	1600
Sedan	1675
Limousine, 7-pass.	2500

F. O. B. Detroit

See them all in the car at your dealer's



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Complete Systems for as little as $39

We install all kinds of water systems, from those used on great country estates, or by railroads, municipalities, and factories, to the pneumatic Simplex System which we furnish complete at $39 for country homes.

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A splendid hopper cooled engine for general use, or in connection with water systems. 6 h. p. size only $94.

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REFLEX SLICKER $3
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Simply write a postal today. We will send you absolutely free these 158 beautiful full-color sample cards of paints for all purposes—residence, barns, floors, walls, varnishes, enamels and so on—and will quote you positively the lowest prices ever made on such fine quality, easy-spreading, long lasting paints.

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Free Box of Samples

DRAIN TILE

sent to your station charges prepaid. Delivered prices quoted on request. All sizes, 2 inches to 20 inches.

The E. Biglow Co., Box G, New London, O.

Hepsey Burke

By Frank N. Westcott

CHAPTER XXIII (Concluded.)

Mr. Bascom talked slowly and deliberately. He seemed to enjoy telling these people what was on his mind, yet he made no mistakes.

The meeting quivered with tense excitement. What did it all mean? If a chicken had sneezed the whole gathering would have been dissolved in hysterics, it was so keyed up with a sense of the impending disclosure of a deep mystery. As for Hepsey, she sat motionless, tho Jonathan believed that he caught sight of a tear glistening in its descent.

"Hepsey Burke had a right to call me a skinflint, because she knew what none of you knew; but because it was private knowledge she wouldn't make use of it against me—not unless she couldn't have done what was right any other way. And now I'm going to tell you what she knew:

"The rectory was my wife's property, and she intended it as a gift to the parish, for the rectory of the church. I was preparing the deeds of transfer, when she died—suddenly, as some of you remember," his voice made heroic efforts to keep clear and steady. "Owing to her death before the transfer, that house passed to our daughter; and what I intended to do was to buy it of her and present it to the parish. I delayed, at first for good reasons. And I suppose as I got more and more lonesome and mixed less and less with people, I got sourer—and then I delayed for meanness. It would have been easy enough for me to buy it of my daughter, and she'd have been willing enough; but as I saw more and more put upon me, and less and less human recognition—I was 'a rich man,' and needed no personal sympathy or encouragement, it seemed—I held back. And I got so mean, I couldn't make friends with the rector, even."

He paused, and from the half smile on his face, and the hint of brightness that passed over his expression, the audience caught relief.

"I guess a good shaking up is good for a man's liver: it cures a sour stomach—and as there are those that say the way to a man's heart is thru his stomach, perhaps it cures a sour heart. I got my shaking up all right, as you know; and perhaps that's been working a cure on me. Or perhaps it was the quiet ministrations of that little Mrs. Betty of yours"—applause—"or the infusion of some of the rector's blood in my veins (he let himself be bled to keep me alive, after I'd lost what little blood I had, as you probably have heard)"—shouts of applause—"or possibly what cured me was a little knitting-visit that Hepsey Burke paid me the other day, and during which she dropped some home-truths; I can't say.

"Before I decided what I would do about the rectory, I wanted to see what you would do, under Mrs. Burke's guidance, this evening. You've shouldered your share, as far as the rector's salary is concerned. Well—I'll add what I consider my fair share to that, fifty dollars. The arrears due on the mortgage is one hundred and twenty dollars. I shall hold you to your side of that bargain, to date. If you pay the rector the two hundred dollars due him on his salary, you will need to subscribe about another forty to make up the interest: that done, and paid to me, I will do my part, and present the rectory to the parish, in memory of my dear wife, as she desired."

He sat down.

Hepsey rose and called out in a clear voice:

"He's right; Mr. Bascom's dead right; it's up to us to do business first, and clear ourselves of the debt on a business bargain; then we can accept the gift without too much worryin'." And she sent a very friendly smile over to Bascom.

Again there was some cheering, in the midst of which Jonathan Jackson jumped to his feet beside Hepsey; and facing the room, with his arm thru hers, he shouted:

"Hepsey Burke and me will make up the difference!"

Another cheer went up, and Hepsey's face flamed scarlet amid the craning of necks and chaffing laughter—half puzzled, half understanding.

Sylvester Bascom rose to his feet, and there was silence. With assumed seriousness he addressed Hepsey, still standing:

"Mrs. Burke, so that it may be quite in order, do you endorse Mr. Jackson's authority to speak for you in this matter?"

Every eye was turned upon them; but Hepsey could find not a word, so flabbergasted was she by this sudden move of Jonathan's. Jonathan himself colored furiously, but stuck to his guns, and Hepsey's arm:

"Well, to tell the truth," he replied in a jaunty voice, "Hepsey Burke and me's goin' to be married right now, so I guess we'll combine our resources, like."

This announcement gave the coup de grace to any further attempt at orderliness, and the room became a seething chorus of congratulatory greetings aimed at Hepsey and Jonathan, in the midst of which Sylvester Bascom slipped out unnoticed.

CHAPTER XXIV

Omnium Gatherum

When at last the room emptied, and she was free to do so, Hepsey, accompanied by the possessive Jonathan, found her way over to the Maxwells. Before she started to tell them the results of the meeting she cast a glance of whimsical affection at her palpitating fiance.

"I'd best let him get it off his chest—then we'll get down to business," she laughed.

So Jonathan, amid much handshaking and congratulation told his victorious story—until, when he seemed to Hepsey to become too triumphant, she broke in with: "Now that's enough for you, Mr. Proudmouth. Let me say a word or two, will you? The meetin' wasn't called for you and me, and I want to tell about more important happenin's."

When they had heard of all that had been accomplished, Mrs. Betty got up and put her arms round Hepsey's neck and gave her such a hug, and a kiss on each cheep, that brought the tears to Mrs. Burke's eyes. And Donald, moist-eyed in spite of himself, took her hand in both of his, and expressed his feelings and relieved the tension at the same time by saying:

"Hepsey Burke, for all your molasses and the little bit of vinegar you say you keep by you, 'there are no flies on you,' as Nickey would put it."

At which sally Jonathan slapped his knee, and ejaculated:

"No! there ain't, by gum! There ain't no flies on Hepsey, if I do say it myself."

At which proprietory speech Hepsey wagged her head warningly, saying, as they left—"There's no downin' him, these days; I'm sure I don't know what's come over the man."

On their way home Jonathan was urgent for fixing the day.

"You said you'd marry me right there and then, if the meetin' came your way, now you know you did, Hepsey," he argued. "So if we say tomorrow——"

But tho Hepsey would never go back on a promise, she protested against too summary an interpretation of it, and insisted on due time to prepare herself for her wedding. So a day was set some two months hence.

Meanwhile, Sylvester Bascom's truer and pristine nature blossomed forth in the sunnier atmosphere around him, and after he had delivered himself of his feelings to the Maxwells, in a visit which he paid them next day at their nomadic quarters, he begged leave to put the rectory in full repair before he handed it over to the parish, and the Maxwells returned to it.

And he was better than his word; for, with Hepsey and Virginia accompanying her, he insisted on Mrs. Betty taking a trip to the city a few days later for the purpose of selecting furnishings of various kinds dear to the hearts of housekeepers—Hepsey absorbing a share of the time in selecting her "trousseau."

Meanwhile, in due course the rectory was made a new place, inside and out, and a few weeks after their return the transformed house, repainted inside and out, papered and curtained and charmingly fitted with new furniture, was again occupied by the Maxwells.

That the interest of the parish should for a while be concentrated on the doings at the rectory, and diverted from her own important preparations, was a blessing to Hepsey—for she continually declared to Mrs. Betty that, little as she knew Jonathan in his new manner, she knew herself less!

It was decided that the wedding should be in the church, and a reception held after the ceremony, for the bride and bridegroom, at the rectory—and that, in this way, the whole parish would celebrate, in honor of the auspicious occasion, and of other happy results of Hepsey's parish meeting.

The day before the wedding, while Mrs. Betty and Virginia were busily occupied at Thunder Cliff and the rectory, dividing their attentions between the last touches to Hepsey' wardrobe, and preparing confections for the wedding guests, Donald Maxwell was closeted with Mr. Bascom at Willow Bluff for a considerable time. It was known that the Senior Warden was to support his colleague, Jonathan, at the morrow's event, and it was presumed that the rector was prompting him in his duties for the occasion.

The ceremony next day at the church was a center of fervent and cordial good-will and thanksgiving, as Jonathan, supported by Sylvester Bascom, took to wife Hepsey, given away by Mrs. Betty, with Virginia as a kind of maid of honor, hovering near. It was well for Donald Maxwell that his memory served him faithfully in conducting the service, for his eyes were in misty conflict with his bright smile. Nickey from the front pew, watched his mother with awe-struck eyes, and with son-like amazement at her self-possessed carriage under the blaze of so much public attention.

There followed a procession from the church, and soon the rectory, house and garden, were filled with chattering groups, of all sorts and conditions, for the invitations had been general and public, irrespective of class or sect, at Hepsey's special request. There was a constant line of friends, known and unknown, filing past bride and bridegroom, with congratulatory greetings and cordial good wishes. There were speeches from delegations of various local bodies, and from local notables of various degrees; and there were wedding presents, out-vying each others, as it seemed, in kindly personal significance rather than in costliness. Among them all, and arranged by Mrs. Betty at the very center, the Vestry's gift to the bride stood easily first: a plated ice-water pitcher!

It was left to Maxwell to make the farewell speech, as the company crowded round the automobile, lent by the Bascoms, in which Hepsey and Jonathan sat in smiling happiness, ready to drive to the station, on their way for a week's honeymoon.

"Friends!" he said, in a voice that reached to the skirts of the assembled throng, "before we give a valedictory 'three times three' to the happy couple, I have to tell you of a plan that has been made to commemorate this day permanently—and so that Mrs. Jackson may not forget the place she holds in our hearts, and always will hold, as Hepsey Burke.

"It is Mr. Bascom's idea, and I know it will give lasting pleasure to Mrs. Burke—I mean Mrs. Jackson," he corrected, laughing, "as well as to all Durford, young and old. The beautiful piece of woodland, half a mile beyond Willow Bluff, is today presented by Mr. Bascom to the town, and we shall shortly repair there to watch the boys erect the tent now on the church plot, and which Mr. Jackson has kindly presented to the Boy Scouts."

"Gee," yelled Nickey, in astounded delight, and leading a cheer that interrupted the speaker for some moments.

Maxwell continued: "Mr. Bascom's generous gift to the town will be kept in order by the Boy Scouts, as their permanent camping-ground—and I daresay Nickey Burke will not be averse to occupying the tent with his corps, during the week or so that Mrs. Jackson is to be away. The place is to be called in her honor—'Hepsey Burke Park.' And now—Three cheers for the bride and groom."

The cheers were given with whole-hearted fervor, as the man at the wheel tooted, and the auto started on its way with the smiling pair, followed by the people's delighted shouts of approbation at the happy plan for perpetuating among them the cheerful name of Hepsey Burke.

THE END

THE CORN THAT WON THE CHAMPIONSHIP

This is the corn that won the championship. This is the boy that raised the corn that won the championship. This is the neighbor all forlorn, who, whenever he waked in the early morn, could hear the rustling of the corn, a-growing away, getting taller each day, on the opposite farm across the way, where lived the boy that raised the corn that won the championship. This is the way the boy replies—"To raise such corn, just fertilize—and plant good seed and tend it well, in fact that's all there is to tell," to the man that wanted to know, how the boy could make such large yields grow,—thrice as much as the neighbor all forlorn, who, whenever he waked in the early morn, could hear the rustling of the corn, a-growing away, getting taller each day, on the opposite farm, across the way, where lived the boy that raised the corn that won the championship.—Mel. Ryder.

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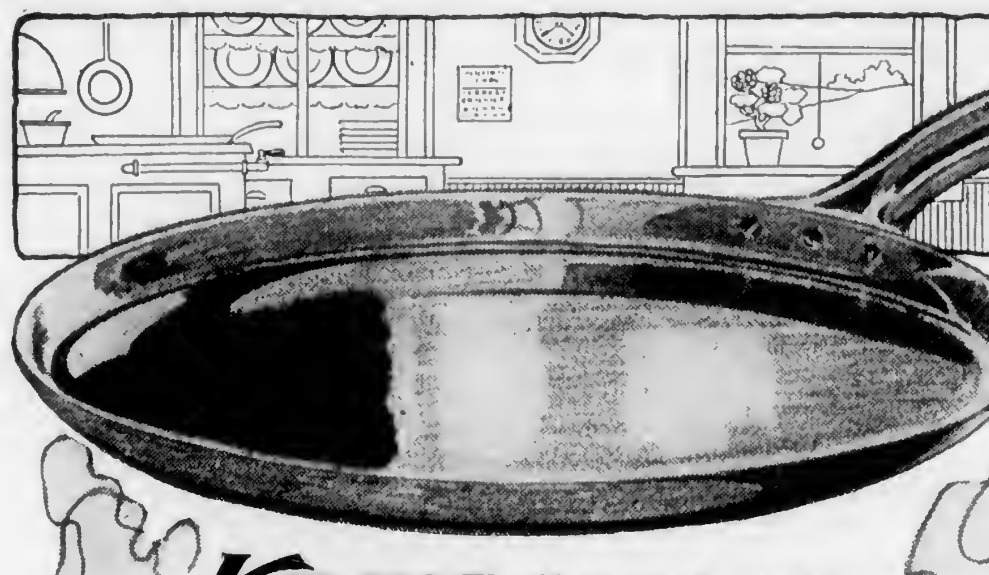

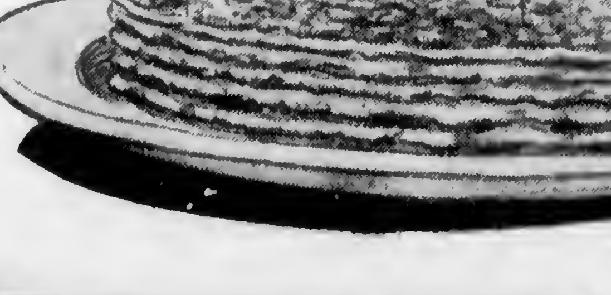

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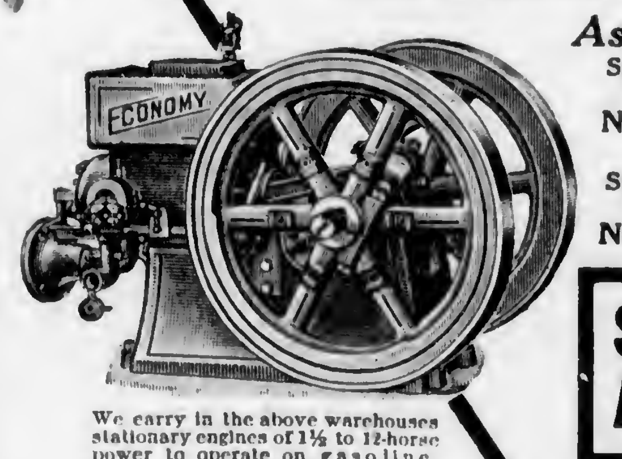

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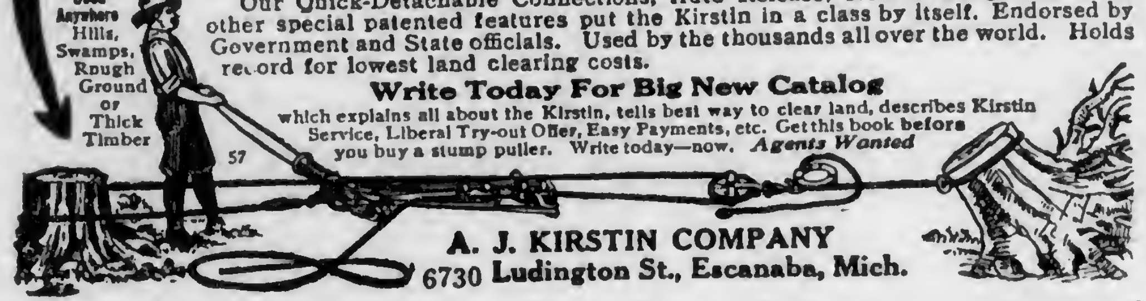

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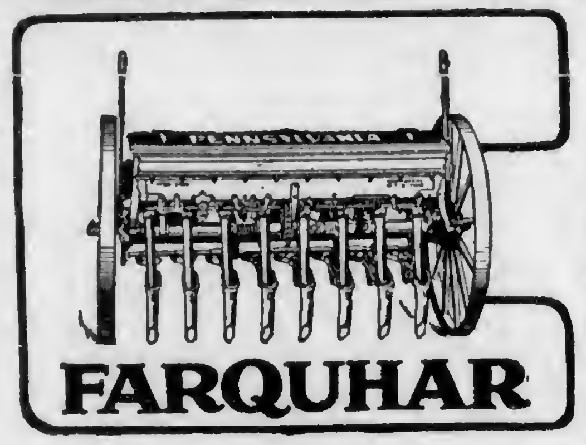

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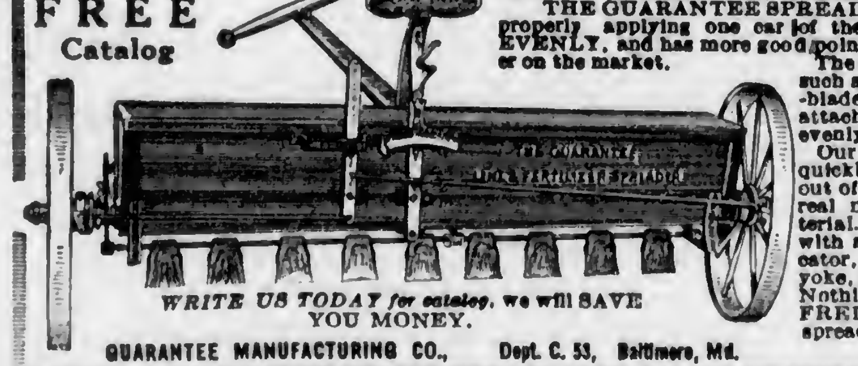

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Life Insurance Contracts and Their Uses--A

By Bruce D. Mudgett

Kinds of Contracts

The purpose of life insurance, as previously defined, is to guarantee the fulfilment of responsibilities left unsatisfied by premature death, and in this sense it is usually called pure insurance or insurance for protection. That is, it protects one against failure thru death to fulfill obligations. But responsibilities may remain unsatisfied and yet death not occur, for it will be remembered that a period comes in life when a man reaches the end of his productive capacity but still has need for income. On the average, it was said, this second, or earning period of life ends at the age of sixty-five and there follows the period of old age during which time a man must still provide for his own wants, those of a wife or possible dependents, and often a business as well. The income which satisfies these needs must have been earned and saved from former years. In caring for the complete span of life, therefore, protection insurance does not suffice; the life insurance company must be an investment institution as well; it must furnish a medium thru which men can save and invest money for use in later life. These two functions, protection and investment, are a part of the activity of every old line life insurance company today; and every contract issued contains one of these features or the two combined. These separate characteristics must be kept clearly in mind in discussing the policies offered to the public.

The standard contracts sold by the life insurance companies are of four kinds: (1) Term insurance; (2) Whole life insurance; (3) Endowments; (4) Annuities. There is, of course, an endless variety of policies issued, differing in minor details, but all can be classified under one of the above heads.

Term Insurance.—Term insurance is a contract furnishing protection for a limited time. Term policies usually run for periods of five years or some multiple of five, such as ten, fifteen, twenty, thirty, or even forty years. They have in the past been sold for a duration as short as one year, and one instance has recently appeared of a term policy issued at any age of the insured and extending to age sixty-five, the intention manifestly being to cover the entire "productive" period of life. These policies promise to pay the amount incured in event of death of holder before the expiration of the contract.

These policies have had an evil reputation with the insurance companies because they may expire and no payment thereby be made to the insured, it being claimed that the insured finds it difficult to understand why he has paid his premiums and gets no return. But it should be easy to explain that he insures his property against fire for a term of years, and at their expiration he receives nothing from the insurance company if he has had no fires. He has received the protection, for the company has stood ready, in the event of fire, to pay his loss, and it was the protection for which his premium was paid. The point is that there are times when a man wants protection against premature death for a limited number of years, at a time possibly when he is assuming unusually heavy responsibilities, and if these responsibilities can be cared for fully within ten years, there is no reason why he should insure for a longer period.

Whole Life.—Whole life insurance is merely term insurance for the whole of life. It is permanent rather than temporary protection. Since the cost of any policy depends on the size of the risk insured against, the term policy insuring against death for a few years only is sold for the lowest premium. The risk covered by the whole life contract is death at any time and the premium is computed on the assumption that death will surely occur by age ninety-six. Far more "protection" is furnished therefore by this policy than by the term contract and this greater protection requires a greater premium. The whole life policy provides for the payment of the face value whenever death occurs, and the payment will be made at age ninety-six if the insured survives that age.

Endowment Insurance. — Endowment contracts are of two kinds, pure endowments and endowment insurances. In the popular use of the term "endowment" the latter kind is ordinarily meant. Pure endowments are purchased to run for a stated term of years and the amount of insurance is paid at the expiration of this term if the insured is then living. If death occurs before the date of maturity, the policy expires and nothing is paid. This is the direct opposite of term insurance for with the latter, payment is made in case of death during the term, and nothing is paid in case of survival. Pure endowments are usually purchased by premiums paid annually during the term. They may thus be described as a speculative savings-bank account, for the amount of the insurance is accumulated by periodic payments over a term of years; but the speculative element enters, in that the accumulations are not received by the investor unless he lives out the term. To balance this disadvantage of possible loss there is a corresponding advantage since those who survive get a pro-rata share of the funds forfeited by those who died. It will readily be seen that, as term insurance offers the only type of pure insurance, so pure endowments furnish the only type of pure investment sold by a life insurance company.

An endowment insurance policy is merely a combination of pure endowment and term insurance. It is issued for a stated term of years and contracts to pay the amount insured in case of death at any time during the term or in case of survival to the end of the term. It is usually paid for by annual premiums for pure endowments are necessarily much higher than for term insurance, since at the ages when they are generally purchased many more people survive than die. Premiums for endowment insurances are equal approximately to the sum of the two premiums for the pure endowment and the term insurance elements of the policy.

Annuities.—Annuities are paid annually during the life of a person and cease at death. The more usual types of annuities are purchased at an advanced age in life and are paid for by a single cash payment. It will readily be seen that they represent the investment of a fund which has been previously accumulated, it being so invested that it is paid to the annuitant in the form of an income for the remainder of life. Its main virtue lies in the fact that the purchaser is guaranteed the income for so long as he continues to live.

Each of these contracts will next be considered with reference to specific uses which a man may have for protection or investment insurance.

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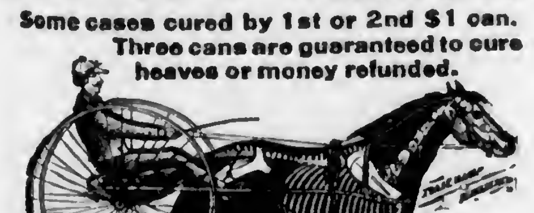

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W. F. YOUNG, P. D. F., 154 Temple Street, Springfield, Mass.

Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the cause in full; also the name and address of writer.. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Chronic Thick Leg.—I recently purchased a horse with a big hind leg. I would like to know if he can be cured permanently. I would also like to know if he can be worked while he is treated. How long will it take and can the shoe be left on him while he is being doctored? E. N., Middlebush, N. J.—Chronic thick leg is often there to stay, and no matter what you give or apply, very little impression can be made. However, by giving your horse 1 dram doses of potassium iodide, 3 times a day and wetting leg with alcohol and bandaging in cotton, you will obtain fairly good results. Do not purchase thick-legged horses expecting to effect a cure, unless the swelling be of recent origin and local.

Azutoria—Nervousness—Paralysis. — Is there any kidney stimulant better than acetate of potash to give when a horse has azutoria? Do you recommend a sling or not? I had a five-year-old cow that came fresh two weeks ago. She seemed to be frightened into spasms whenever a person came near her. She wabbled when walking and died in one of her spasms. L. P. G., Shirleysburg Pa.—For a prompt stimulant effect on the kidneys in case of azutoria, it is considered good practice to give an ounce or two of sweet spirits of nitre, then give acetate of potash or buchu. When a horse is unable to stand alone the sling should be used, in treating azutoria. Your cow suffered from spinal cord and brain trouble and could not have been saved.

Nodular Disease—Scours.—I have a flock of sheep. Two of them stand stretched out at times, keeping the fore and hind legs as far apart as possible. They occasionally cough. They are fed hay and oats, once a day. These two sheep are very thin, but the rest of my flock, except one, are in good condition. One of the flock is troubled with scours. My sheep are kept in barn at night and never turned out during wet weather. C. E. S., Markleton, Pa.—Mix together 1 part powdered sulphate iron, 1 part cooking soda, 1 part ginger and 3 parts ground gentian, and give each sick sheep a teaspoonful at a dose, once or twice a day. Give the ewe that scours ½ teaspoonful of ground ginger and ½ teaspoonful of powdered charcoal at a dose in feed, 2 or 3 times a day. For this one I would suggest a change of food. Keep her in where it is dry and where she is unable to eat frozen grass and filthy food. The less exercise she has the less likely her bowels are to move often.

Hide-bound Mare.—I have an 11-year-old mare that had a colt last May. Shortly before the colt was born she lost flesh and has never regained it. She gave birth to colt without trouble but since then she became very thin and weak. Her coat became dull and did not shed properly. She is now hide-bound, still giving a little milk and has good appetite. I worked her part of the time during the summer and fall, but she has not done anything since last November. I weaned the colt at five and one-half months. I had her teeth floated and gave her different kinds of condition powder, but they fail to help her. I fed her 2 quarts of oats, 2 quarts of ear corn and some wheat bran, 3 times a day, and am now feeding her 4 quarts of corn ears, 3 times a day and all the hay she will eat. E. L. S., Port Murray, N. J.—Give your mare 1 dr. fluid extract nux vomica, 2 dr. fluid extract cinchona and 3 dr. of Fowler's solution at a dose in feed, 3 times a day. She should be fed a greater variety of feeds.

Protruding Piles.—I have a filly, 8 months old, that is troubled with protruding piles. She seems to be affected on only one side of bowel, but appears to be perfectly healthy and all right every other way. I am feeding her 1 quart oats, some meal and very little roughage. G. H., Brodbecks, Pa.—Dissolve 3 oz. acetate of lead, 2 oz. of tannic acid in a gallon of clean boiled water, and apply to bunch 3 times a day. Her bowels should be kept open. This is best done by feeding food that has a laxative tendency. When she is ready to be turned out on grass, this little rectal tumor should be cut off, then the filly would be perfectly well.

Bruised Fetlock—Sidebone.—I have a mare, 9 years old. About two years ago I had her shod by a strange blacksmith as she interfered. It caused a little sore, but seemingly did not amount to much. I was a little careless and did not attend to it, consequently it left her with a thick leg. When I keep it greased and soften the scab on sore, it does not appear to hurt her much. This same mare also has a sidebone. I would like to know what to do for both ailments. C. F. M., Bangor, Pa.—Dissolve 1 dr. permanganate of potash in one half pint of water and paint sores, once or twice daily. Clip hair off sidebone and apply, 1 part iodine and 9 parts lard, 3 times a week. Lower her heels by shoeing.

Abnormal Female Dog.—I have a female fox terrier dog that has never been mated, but about nine weeks after she has been in heat her mammary glands swell and fill with milk, which makes her a little uncomfortable. D. P., Crawford Co., Pa.—In such cases, which are of course abnormal, the food supply should be cut down. Also milk her and apply camphorated oil to udder, once a day, until the milk flow ceases.

Spasm of Muscles.—I have a 3 year-old filly that I have started to work. After she perspires she stiffens in hind leg, trembles some and is inclined to lay down. After remaining down a few minutes she gets up, is apparently all right, but after traveling a short distance is likely to have the same kind of a spell. She is fed from two to four ears of corn and a quart or two of oats at a meal, with plenty of mixed hay. G. P. O., Newton Hamilton, Pa.—If she is fleshy, cut down her grain ration, keep her bowels open and exercise her daily. Give her 1 oz. cooking soda and 1 dr. ground nux vomica at a dose in feed, 3 times a day. Rub back and hind quarters with spirits of camphor and alcohol, twice a day.

Nasal Catarrh—Diseased Molar Tooth.—I have a horse that coughs some, discharges mucus from nose which has a foul odor. J. F. T., Lebanon, Pa.—Give horse a teaspoonful powdered sulphate iron, a tablespoonful of ground gentian at a dose in feed, 3 times a day. If one of the upper grinder teeth is diseased, which I think perhaps it is, have it extracted.

Giving Acetate of Potash.—I would like to know if acetate of potash is a proper remedy to give horses that require a kidney stimulant. If so, how much would it be safe to give a horse at a dose? H. D., Jacobstown, N. J.—Acetate of potash has a splendid diuretic effect upon the kidneys, and when given in repeated doses, give from 2 to 4 drams, and for single dose, 1 to 2 ounces It is always a mistake to continually give medicine that acts upon the kidneys. However, acetate of potash is a mild and safe kidney remedy.

Knuckling.—I have a mule colt coming two years old that is going forward on his front fetlocks. He has never been worked and never injured in any way that I know of. He is not lame, has plenty of life and is in good condition. J. V. E., Gettysburg, Pa.—Clip hair off and apply equal parts turpentine, aqua ammonia and olive oil, 3 times a week. Or, apply any of the comercial blisters that are advertised in this paper, twice a month.

Weak Fetlock Joint. — We have a horse that tends to cock over in both hind ankle joints. J. B. C., Cream Ridge, N. J.—Clip off hair and apply 1 part powdered cantharides and 4 parts lard, every two weeks.

COUNTY NOTE

Bucks Co., Pa. (S.E.) February 21.—Cold wave followed the sleet storm of a week ago. Roads very icy. Telephones badly crippled by sleet. Some hay being hauled, bringing $21 loose at Trenton N. J. Corn, 80c; potatoes, $1.25; butter 40c; eggs, 30c; pork, 11c; cows, $70 to $80. Four interesting Farmers' Institutes been held in county this winter. Cow-testing association just been organized to begin work March 1.—M. R Briggs.

APPRECIATES STATE NEWS LETTER

"Enclosed find renewal of my subscription for one year. Your Harrisburg Letter, by Hamilton, is alone worth the price of subscription, and your entire paper is much appreciated." Matthew Rogers, Mexico, Pa.

Look for the Red Ball and Demand "BALL-BAND"

Did you know that every year over eight and one-half million men insist on getting "Ball-Band" Rubber Footwear? They have learned that

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May All Be Kept for One Year on the Product of One Acre

It is hardly believable. Keeping seven cows for a whole year on one acre goes a long way toward reducing the cost of milk. Ross' Eureka Corn produced in one year on one acre 70 tons and 800 lbs. of the best quality of ensilage. Figuring at the rate of 50 lbs. of ensilage per day, which is a very liberal allowance, this amount will feed seven cows for one year and enough left over for 261 feeds. This enormous crop won our $50.00 gold prize.

We Offer $100.00 in Gold to the First Party Breaking this Record with Ross' Eureka Corn

Every bag or crate of Ross' Eureka Corn bears our trade mark—the man holding the stalk of corn. We do this for your protection, because there has been so much corn sold as Eureka which is not Ross' Eureka and does not produce the same result. **As ye sow, so shall ye reap. If you plant cheap seed, you must expect to reap accordingly.** Ross' Eureka is backed by a reputation of more than 25 years. We know before we ship our seed that it will grow under favorable conditions, as we test every variety before we send it to you. If it doesn't germinate, the fault is with the planting, weather or some conditions that cannot be foreseen.

Our Customers Tell Us That Ross' Eureka Corn Germinates nearly 100 per cent.

Ross' Eureka Corn was introduced by us about 25 years ago. It is a white, smooth-dent corn and grows the tallest, usually 16 to 20 feet, has the most leaves, is short jointed and, if planted thin, will yield two or three large, juicy ears to a stalk. Planting Eureka Corn is as good as an insurance policy to any farmer. It grows where other kinds fail, and the yield is tremendous. We do not ask you to take our word for this, but we will gladly refer you to any of our customers, some of whom are, no doubt, your neighbors.

Last season Ross' Eureka Corn was planted in every state in the Union except one, as well as in Canada. The seed which we are going to send you for 1916 is the best we have ever had. The success of the users of Ross' Eureka Corn in the past has created a much larger demand for this corn, hence if you want the genuine Ross' Eureka, you should send your order early. There will be no advance in price this year.

Ross' Eureka Ensilage Corn

Grows tallest—Has the most leaves—Greatest number of ears

The four heaviest acres of this corn in one year gave a total yield of 200 tons and 96 lbs., an average of 50 tons and 24 lbs. per acre. This is not much above the average yield for Ross' Eureka Corn if it is planted under favorable conditions. You do not need to plant your whole farm when you can fill a 200-ton silo from 4 to 6 acres with Ross' Eureka. The best money you can spend on the farm is for good seed. Poor seed is dear at any price, but good seed is always worth what you pay for it. Ask yourself what corn is worth per bushel that will produce 70 tons and 800 lbs. per acre over ordinary corn. We are not asking you to experiment. We are only asking you to buy seed corn from us that thousands of successful farmers from 47 states have bought from us and planted on their own farms, year after year, and have found it to be the cheapest and best corn they can buy. We grow other varieties of corn, such as Leaming, White Cap, Yellow Dent, Mastodon, King of the Earliest, Pride of the North, and Sanford White. We will gladly give you, any time, names of farmers in your state who have used Ross' Eureka Corn.

SHEFFIELD WORLD'S PRIZE FLINT CORN

still holds the record for the heaviest yield of flint corn—123.8 bushels of crib dry corn from one acre. If you grow corn for grain, plant Sheffield. No other flint corn equals it. It can be planted later and will mature earlier than any other kind. It will produce more good ears, well filled out, than any other variety. Look out for your supply of Sheffield before it is too late. Our supply of Sheffield stock will be carefully tested for 1916.

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The latest forage crop grows 7 to 8 feet. Stands up well in rainy weather. Similar to Japanese Millet, but yields double the amount. Cattle eat it eagerly, and it is a great milk producer. Only a few pounds required to seed an acre. Costs less per acre for seed and produces a bigger crop.

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Timothy, Red Top, Awnless Brome Grass, Canada Blue Grass, Creeping Bent, Crested Dog's Tail, English or Perennial Rye Grass, Fine-Leaved or Slender Fescue, Hard Fescue, Italian Rye Grass, Kentucky Blue Grass Extra Recleaned, Meadow Fescue, Meadow Foxtail, Orchard Grass, Red or Creeping Fescue, Rhode Island Bent, Rough-Stalked Meadow Grass, Sheep's Fescue, Sweet Vernal, Tall Fescue, Tall Meadow Oat Grass, Various-Leaved Fescue, Wood Meadow Grass; Clovers: Medium Red, Mammoth, or Pea Vine, Alsike, or Swedish, White, Crimson, Alfalfa. Any of the above may be purchased in any quantity or any special mixture which is prepared for meadows or pastures.

Our Worcester Brand Timothy, 99 50/100 pure—as pure as men and machinery can make it. Costs but little more than ordinary grades.

GENUINE GRIM ALFALFA

Grown in the cold northwest; stands our cold winter better than Western and Southern grown seed. The kind with the branching roots. Our supply is limited. Order early.

Bacteria for inoculating all of the legume crops.

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PENNSYLVANIA FARMER
AGRICULTURE THE KEYSTONE OF NATIONAL PROSPERITY
ESTABLISHED 1880
PUBLISHED WEEKLY

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Rural School Director's Problems.

By Prof. R. O. WELFLING, Potter Co., Pa.

Last spring I visited in rather a superficial manner some rural schools in New York, Vermont, Connecticut and Massachusetts. Between Greenfield, Massachusetts, and North Adams is a state road winding its way for a distance of eighteen miles across the beautiful Berkshire Hills, presenting to the tourist in its scenic beauty nothing less than an artist's dream. This road, known as the Mohawk trail, was built at a cost of $368,000, and I consider it a splendid investment.

I visited a number of rural schools along this road. Each one in its equipment and appearance was nothing less than a disgrace to that state. The cost of building the Mohawk Trail and the cost of maintaining their rural schools is a matter entirely out of proper proportion. It is one of those vivid illustrations which may be found on every hand that prove that the one-room school has not kept pace with other lines of rural advancement and with the progress of the times. Those who have had the management of these schools have failed to secure teachers properly trained and to give to these schools sufficient financial support. As a result, we have a rural school system that does not glorify country life.

The rural schools of one state are not much better and not much worse than the rural schools of any other of these states, and the rural schools of one county in Pennsylvania are not much better and not much worse than the rural schools of any other county in Pennsylvania. Model rural schools exist in spots only. Rural schools differ far more widely than do city schools and the difference between the poorest and best rural school in Pennsylvania is as great as the difference between the ancient reaping hook and the modern selfbinder. I make these statements and I wish to emphasize them so that I may not be misunderstood in what I am about to say. I have been asked to tell you how we have endeavored to solve some of the rural school problems in Potter County. We can simply touch upon a few important ones.

My adventure along the Mohawk Trail carried me back in memory eight years when I first began the supervision of rural schools. With respect to school spirit and general characteristics, Potter County is divided into three sections, representing very distinctly the spirit of the West, the Middle West and the conservative East. I remember very vividly one of the first rural schools visited. It was a cold, raw, blustery day and the entire school plant was splendidly in harmony with the weather. The teacher was "keeping" her first term of school. The school grounds were cheerless, treeless, flowerless, bleak and uninspiring. Outbuildings showed that no improvements had been made in years, with the exception of the ventilation in the woodshed. The outside of the building had been painted sometime during the Christian Era.

The seats and desks were made of pine boards. The blackboard consisted of a painted plastered wall, portions of which were missing. The walls and ceiling, too, had been papered, no doubt about the time the outside of the building was painted. Whoever was responsible for the work had gotten from the store all the remnants of wall paper. No two strips were alike; sometimes it took two different kinds of paper to make one strip. For years the children had been looking at this crazy patchwork affair. I later made inquiry and found that in spite of such an environment only one of the pupils had been sent to an insane asylum and none to a jail.

REVIVAL OF MUSIC IS ONE OF THE VITAL NEEDS OF COUNTRY LIFE, HULLS SCHOOL ORCHESTRA, POTTER CO., PA.

Similar conditions have been found by those who seek to investigate rural school problems. The sad thing about them is that they are not exaggerations. Sometimes school men find such conditions in good farming communities and often they have formed the conclusion that inasmuch as the farmer keeps his cows and hogs in more sanitary surroundings than the boys and girls have in the schools, therefore he loves his cows better than he does his children. You and I know better. There is nothing on earth that the farmer loves quite so much as he does his family, and there is no comparison between his love for his children and his love for his domestic animals. The fact that a man is a successful farmer is in itself proof sufficient that he loves his family. On just such farms do we find the ideal home life.

THE PROPER LABORATORY FOR A ONE-ROOM SCHOOL.

A man with wide experience in rural school work, an ex-county superintendent, said to me, "If I were a school director, I should vote to revolutionize things in our rural schools." If he were a school director, he would do no such thing. You can not go much faster than public opinion. Your schools are as good as the public demands, and if a director takes too advanced a step, his usefulness as a school director is eliminated. However, if the school director does not make an effort to educate his people so that they shall desire better things educationally, he is not fit for the office of trust to which he was elected and his entrance upon the duties of a school director was a calamity to the boys and girls of his district. School directors are to be leaders, not followers, and they are to win the approbation of their constituents not by a small expenditure of money but by good business investments; in investments that show one hundred cents on the dollar. True economy does not consist in spending a small amount of money but in getting the greatest returns for the money invested.

What a crime it is to enforce the compulsory school law where children are compelled to spend their school days at an institution where the environment is uninviting, harsh, treeless, flowerless, cheerless, immodest, vitiating! No true teacher and no true school director will minimize the power of environment. However one may believe in the dominating character of heredity, no one will deny that the right environment will translate all vicious hereditary tendencies to conform with the ideals as expressed in the child's environment.

Physical Improvements

My first campaign was to improve the physical conditions of our schools. I informed my teachers that the one thing I wished and expected done the first year was to secure for each rural school one good picture selected from the sixty-four listed in the course of study for rural schools; the picture to cost not less than one dollar. There were perhaps at this time not a half dozen good pictures outside of portraits in the rural schools of the county. Today there is not a one-room school in Potter County but that has one or more copies from the masters and in our 133 rural schools you will find 636 good pictures valued at $1,541.52. A thoro study is made of these pictures in the classes in language.

The thing which I expected happened. Many of these pictures seemed out of place on the dingy walls. There were elements of discord of which the pupils and teachers were conscious, yet in many cases they were unable to discern them. The cheap school room decorations soon disappeared. Good pictures called for neat school rooms. Today there is practically not a school room papered or painted but that the directors consult the superintendent in the matter. This has been my experience in this very important phase of school work. At first I would simply ask school boards to paint or paper the room. The color scheme was usually very

(Concluded on page 21.)

Glimpses of Pennsylvania Agriculture

By J. T. Campbell

A Visit with J. Stuart Groupe, Lycoming Co., Pa.

The heavens were leaking copiously when the big automobile pulled up in front of the comfortable hotel at Jersey Shore and the big smiling face of J. Stuart Groupe, in which was revealed a yet bigger heart, called a cheery greeting. In another minute I was comfortably seated in the machine and we rolled away over the hills and thru the mud six miles to a farm where folks really live at home in the fullest meaning of that well-worn phrase, and where the truest, sweetest things in life are enjoyed.

Here are folks who, some years ago, came out from the city to an old farm in the valley, and after years of effort and after having made many mistakes and lived them down, after falling and rising from every fall, they have stayed and won out.

That rainy, dull morning I found here one of the most genuinely comfortable and happy homes I have ever visited. Here husband and wife and children dwell together in sweet contentment, enjoying the fruits of their labors. In the big living room, in the recesses of a great fire place, a bright fire snapped and sputtered, driving away all thought of the damp and chill outdoors and flooding with soft flickering light the comfortable room with its pool table, its reading table, its books and papers and other things which indicate the joy and satisfaction of the life that is here.

CORN ON J. STUART GROUPE'S FARM IN OCTOBER, 1915.

When the rain had ceased for a little, I choked my big pedal extremities into a pair of rubber boots which were dug up for my convenience. I was gratified to find other folks whose boots are large enough for me to wear with comfort. We went out to see the farm of a city man who has compelled success under conditions which might have caused failure for many others. We followed the drive down thru the finest fields of corn I saw in Pennsylvania last season. The grain was ripe unto the harvest which had already begun. One of the striking things about the corn was its uniformity and maturity. Scarcely a nubbin could be seen and there were few green or late maturing stocks. And there were thirty-five acres of it, all seeming to be about equally good. Mr. Groupe explained to me how for years he had been selecting and breeding up this corn for maturity and uniformity and big yield, and the crop gave testimony to his patient, careful ability. Then we went to the storage house and saw some of the twenty-five hundred bushels of potatoes which grew on ten acres of land. Part of the crop had already been marketed; what could not be contained in the storage house.

HEAVY VEGETATION TO BE TURNED UNDER FOR CORN ON J. STUART GROUPE'S FARM, LYCOMING CO., PA.

We next visited the hog yards and noted the thrifty growing stock, meanwhile laughing as Mr. Groupe told of the mistakes and failures he made in his early experience in hog raising. This jolly man treats these mistakes as a part of the tuition a man must pay in the school of experience. As we walked over the fields I learned the story of this interesting and more than ordinary farm, which has been built up to its present state of productivity without the use of chemical fertilizers. Never a bag has been used on this farm since Mr. Groupe began farming it. But when I saw the remarkable growth of vegetation on the fields awaiting the plow to turn it into the soil, I had an explanation of the results. This vegetation, as it undergoes decomposition, lengthens the growing season by darkening the color of the soil, so that it absorbs more of the heat rays coming from the sun. It increases the water-holding power so that the plant food which goes into the plant in solution is always abundant. It makes the soil a better home for the bacteria which are Nature's great agencies in liberating the mineral plant food. And it probably does other work of which we know nothing as yet.

As an example of rational and profitable farming, Mr. Groupe's work is worthy of careful study. Formerly a good many beef cattle were fed on this farm, and some are yet kept to consume the course forage and work it up profitably for returning to the soil as manure. The main money crops are potatoes, corn and hogs, considerable corn being sold as grain since the era of high prices began.

Moderate amounts of lime are being used on the land and clover thrives here. I think the secret of Mr. Groupe's success in building up and maintaining his land in a high state of productivity is in the large amount of organic matter returned to the soil.

What is Hydrated Lime?

Its Qualities and Uses

Lime has come to be recognized as a necessity in good farming. Its use is constantly increasing and the results obtained indicate the need of still more general use (in the future). The action of lime in the soil and its effect upon vegetation are quite generally understood. Lime is being offered in various forms, each having its own particular qualities or characteristics. The intelligent use of these products, as with fertilizers or any similar commodity, calls for a more or less intimate knowledge of the composition and characteristics of each. We all know what limestone is. We know ground limestone, burned lime and the common air and water slaked lime. But there is less knowledge of what hydrated lime is or how it is produced. There is quite a common impression in some sections that any water slaked lime may be called hydrated lime, and some poor quality products have passed sale because of this misconception.

True hydrated lime is one of the most carefully and scientifically prepared forms of lime. New standards of specifications and new lime laws will do much to prevent the masquerading of low grade products for the pure product which has very definite qualities. The following brief description of how hydrated lime is manufactured, and the advantages it presents, applies to the standard brands recognized in construction, chemical and best agricultural uses. These brands are made under standard specifications and are the only grades that should be accepted as true hydrated lime.

How Hydrated Lime is Made

In the process of manufacturing hydrated lime, lump lime is first broken to sizes that will permit of ready slaking. Hydration consists of combining water with the lime to a point of chemical saturation; that is, giving just sufficient water to combine chemically with the lime—no more and no less. In the process of hydrating, the temperature of the lime and the water are accurately determined and kept under control at all times. The amount of pure lime present in the cracked lime is also accurately determined. Knowing these factors the process of chemical combination of water with the lime is under control and a uniform product is produced. The crude hydrate thus produced is then seasoned and tempered in large bins for a period of at least 24 hours. In this curing process there is a separation of the air in the fine powdery hydrate of lime and magnesia from the coarser particles of impurities and unavailable carbonate of lime.

In the up-to-date manufacturing plants these processes are carried out under the supervision of skilled chemists and experienced factory operators. The object is to secure a uniform product of thoroly pure lime of a known quality with the smallest possible percentage of unavailable material. A true hydrated lime prepared and produced in this way from pure lump lime has all of the impurities of the original lime removed except that small known percentage, and has substituted water for these impurities. This water in the best product is only sufficient to meet the requirement for complete chemical combination with the lime. Chemical combination must not be confused with physical combination. The first is the amount which the lime will take up in a complete chemical combination, the latter the amount which lime may be induced to take up in physical combination. The chemical demand can be computed exactly for any lime, and if this demand is exactly satisfied, as it is under best processes of manufacture, the product is left as a perfectly dry powder.

Special Qualities

This product, properly manufactured, has qualities not found in other forms of lime. From point of agricultural use, its availability thru ready solubility and its convenience in handling and storing are of first importance. A pure hydrated lime is of extreme fineness—like finest flour and entirely free from lumps. It is in the form of dry powder and in condition to go at once into solution. Thus every particle enters at once into its work of "sweetening" the soil and is at once available to the growing crop. Other and "slower" forms of lime may require one or two years, or even a full rotation period to become fully available. Hydrated lime is all available at once. This suggests the advisability of smaller but more frequent applications of hydrated lime as compared with other forms. Hydrated lime also holds its lime qualities in milder form so its initial caustic action does not injure plants, seeds, humus, etc.

Convenience in Handling

Pure hydrated lime has a number of qualities which aid in handling. It need not be piled and slaked, thus saving time and labor. As prepared by the best manufacturers, it comes in accurately weighed sacks with a specified quality in each sack. This permits of accurate allotment to the area to be limed and more uniform distribution. It can be applied as accurately as fertilizers or farm seeds. The hydrated lime, being in powder form, spreads well and easily. It works well thru a lime distributor or can be drilled into the soil with drill.

Being already slaked and in milder form, hydrated lime can be stored without fire risk. It does not deteriorate or cause trouble from air slaking or carbonating in shipment. It can be stored in a dry place for an indefinite period. For that reason it is practical to purchase it at any season of the year and in any quantity and store it for use as wanted. In addition to its soil uses it is used in mortar for plastering or masonry, and is a handy and effective disinfectant and deodorizer. The possibility of storing it for any or all of these purposes is a distinct advantage that appeals to many farmers.—C. A. S.

Queries and Comments

(This department is open to all of our subscribers. Queries and short comments are invited. Queries will be answered by best available authorities.)

Salt for Potatoes

"In Queries and Comments, issue of February 28, you gave a formula for potato fertilizer and advise the use of agricultural salt as a means of liberating potash. We use a mixed fertilizer, containing 5 percent of ammonia and 8 or 10 of phosphoric acid; no potash. We use about 1,800 pounds per acre in the row. I will also plow under about 10 loads of manure per acre. I thought of using agricultural salt, either sowed broadcast after ground is plowed, or, sow it on rows after the potatoes are planted. Would it injure the potatoes in coming up if sown on the row right after planting? How much salt would you advise? I want to use all I can without injury. Is not salt beneficial to the soil?" L. B. B., New Jersey.

In the first place we would suggest that you drill broadcast about 1,000 pounds of the 1,800 pounds of fertilizer and put the balance in the row. We feel sure that you will get better results than by putting it all in the row. As to the salt, its chief value according to the chemists is in liberating the potash already in the soil. You are not adding fertility by using salt as you do when applying manure, or commercial fertilizers. Dr. Lipman of your Experiment Station recommends as a soil amendment 150 to 300 pounds of salt per acre. We would recommend broadcasting it before planting and harrow it in. At the present prices we feel your proposition to use 5 percent of ammonia is rather extravagant since you will apply so much manure.

Complicated Promissory Note

"Would the following note be good in Pennsylvania?

$75.00 Marysville, O., Dec. 10, 1915.

On or before Nov. 1, 1916, after date, for value received I promise to pay to the X Corporation or order, the sum of Seventy-five Dollars with interest until due at 6 percent from date. After maturity this note shall draw interest at 8 percent. Payable at ————. This note is subject to the following discounts: ——— less if paid by ——— and 2-3 percent per month if cashed previously. This note is given for one thrashing machine. I agree that the title thereto, and to all repairs and extra parts furnished, shall remain in said company, its successors and assigns until this and all other notes given for the purchase price shall have been paid in money. If I fail to pay this note when due, or if said property is misused, or seized for my debts, the holder of this note may seize and sell the same at public or private sale, with or without notice, pay all expenses thereby incurred, and apply the net proceeds upon this note and other notes given for the purchase price thereof, whether due or not due, and retain all payments before made as rent for the use of said property. I expressly agree to pay any balance on this note remaining unpaid after such property is sold, or if the same be burned or otherwise damaged or destroyed after its delivery to me. The endorsers, sureties and guarantors severally waive presentment for payment, protest, notice of non-payment and diligence."

"If I sell a horse to a man on such a note, could I get the horse back as the note reads? Should the man be sheriffed, could I then go and take the horse away? Would this note bear interest from November 1, 1916 at 6 percent?" F. F. A., Nescopeck, Pa.

A note of this character, if made in Pennsylvania, would be enforceable in some particulars and not enforceable in others. If you sold a horse on such a note and the purchaser did not make payment as agreed therein, you could retake the horse provided that it was still in his possession. If, however, he had sold the horse to a bona fide purchaser, you would have no right to take the horse from such purchaser, nor would you have any right to take the horse from the sheriff if he had seized it in levying on the property of your purchaser at the instance of creditors. In other words, the general principle is that after possession of an article is delivered to a purchaser, a provision of the contract giving to the seller the right to retake in case of default is valid as between the contracting parties, but not as against third parties who have acquired a right to the purchaser's interest.

With reference to the rate of interest, the legal rate of interest in Pennsylvania is 6 percent and the person who signed the note would not be bound to pay any higher rate than that; he would, however, be liable for 6 percent, as an agreement to pay more than the legal rate does not prevent recovery of the legal rate. (This particular note appears to have been made in Ohio; if so, the legal rate of interest would be determined by the law of Ohio, even tho the signer of the note was a citizen of Pennsylvania.) —G. G. and H.

Cross Roads Farmers' Club

The next to the last meeting of the Club was a failure on account of a blizzard which had the right of way at that time. This was a sore disappointment to some of the fellows who had been counting on a big time, as the ladies were to be present and supper was to be served.

At the meeting reported herewith the important subject of "Good Seeds" was discussed. The Club had previously considered other phases of the production of good crops—the soil, soil moisture, cultivation, and fertilizers. The members realize also that even with perfection in all these things a good crop cannot be expected unless good seeds are planted.

COTTON GROWING IN A. S. LUPTON'S YARD, CUMBERLAND COUNTY, N. J. 1915. SOME STALKS CARRIED AS MANY AS 50 BOLLS.

The Chairman: "We have with us this evening, Mr. Watts from the other side of the river. He has had a great deal to do with advancing better methods in agriculture thruout the state and we will call upon him to discuss the importance of good seed."

Farmer Watts: "It has seemed to me that most farmers give too little attention to the question of seed selection. Even men who are not stingy in the use of fertilizers or labor in the preparation for seeding will frequently defeat their purpose by planting poor seed. It must be remembered that all seed will not grow and it is the part of wisdom to know whether that which is put into the ground and upon which the future crop depends has any life in it. Again, even a good crop of good seed has some specimens that are small and will produce only a weak germ which will not produce a profit. There are some diseases, such as oat and wheat smut, and scab on potatoes that can be controlled by proper seed treatment.

"Probably very few farmers give any special care to selecting seed for purity, yield, maturity or quality. Yet it is well known that products may be "bred up" quite as well as animals. The man who simply goes to his bins or granaries and measures up what he wants to plant cannot produce maximum crops. For instance, every one knows that there are many oat grains having small kernels even in the best crops. These small kernels will not produce big, healthy stalks. The same is true of wheat and other grains. Now the sensible thing to do is to so clean or screen the seed as to remove all imperfect grains as well as weed seed. In this way we can get a uniform stand.

"New and better varieties are being developed all the time and it is well to try some of them occasionally, not dropping the old necessarily until the new is proven, but certain varieties produce much more than others under the same conditions, and men are constantly at work selecting and breeding for quality and high production.

"No kind of seed varies more in production than garden seed. It pays to get the very best. It is regretably true that much of the seed on the market is simply a by-product of canning factories and from unsalable or immature crops. The difference in producing power of some garden seeds is well shown in a recent bulletin issued by the Pennsylvania Experiment Station.

"It is not possible at this season of the year to make the right selection of potatoes for seed, that can be done only at time of digging. But we can take proper care of what we have. They should not be allowed to sprout. The first sprout that grows is the one that will make the big crop. They should be kept in a cool place so as to retard growth until near planting time. Shoveling them over occasionally tends to discourage growth by bruising the end of the sprout.

"One of the big crops in Pennsylvania that could be much improved thru proper attention to seed is corn. It is safe to say that every acre of corn in the state could be made to yield more at the same cost and labor if every grain planted would grow and would produce a good ear. You will be surprised if you examine a field before harvest how many barren stalks there are and how many grow nubbins. Nubbins and barren stalks can be almost eliminated by careful breeding. Did any of you ever count the number of missing stalks or hills in a row? You will be surprised when you do. There is no excuse for the man who plants seed that will not grow. Every ear should be tested, and every ear that does not show that practically every grain will send up a good, strong sprout should be rejected no matter how nice-looking the ear is. How many of you test your seed corn?"

Three or four members raised their hands.

"How do you test your corn, Farmer Davis?"

Farmer Davis: "I pick out 100 ears and take a grain out of each one. I put these where they will sprout and can tell whether my seed as a whole will grow or not. If 90 grains show a good sprout I know that my corn is 90 percent good."

Farmer Watts: "Yes, but you can't tell which of the ears were the ten that would not grow. A better way is to take six grains from each ear, number the ear by fastening a numbered tag by a tack on butt of ear. Place the grains in a square of the same number in testing box filled with soil. In this way if square No. 8 shows a poor test, you know that ear No. 8 should not be planted. By this way Farmer Davis would be able to detect the ten poor ears and feed them to his pigs, and thus increase his crop by ten percent."

Farmer Flynn: "What treatment would you give oat seed for smut?"

Farmer Watts: "There are materials on the market for this purpose, or a good home treatment is made by mixing one pint of formalin in 36 to 40 gallons of water. Spread the oats out on a floor two or three inches thick and put the mixture on with a sprinkling can, stirring it until it is all moist. Cover for a few hours with blankets or sacks. Keep stirred until fairly dry and sow."

Farmer Wriglesworth: "Would it pay a farmer to take the trouble to select and breed seed for himself alone?"

"It would. And it would pay the community to pay extra for seed to a neighbor who could take up the work carefully and make a business of it."

The Chairman: "Time is exhausted even if the subject is not and the meeting stands adjourned. The next subject for discussion will be 'Feeds and Feeding.'"

No "War Prices" On Dibble's Farm Seeds

WE OFFER

2,000 Bushels D. B. Brand Northwestern Dry Land Grown Alfalfa Seed

above 99.50% Pure and free from dodder, the same high quality strain that has proved absolutely hardy on the Dibble Farms where we have 100 acres that have been called "The best 100 acres of Alfalfa this side of the Rocky Mountains."

10,000 Bushels Northern Grown Timothy and Clover Seed

D. B. Brand 99.50% Pure. Fancy Red Top, Kentucky Blue Grass, Orchard Grass, No. 1 Canada Field Peas, Winter Vetch, Soy Beans, etc. "The Cream of the Crop" **direct to you at Wholesale Prices.**

10,000 Bushels Heavyweight Oats

weighing 46 lbs. per bushel, the heaviest and most productive American Oat, grain bright as a new dollar and thoroughly recleaned as low as **85 cents per bushel,** in large lots. These are the oats that yielded **80** bushel per acre for Jacob Clark of New Jersey, **110** for Earl Dorn of New York, **117** for Thos. W. Rogers of Vermont, 90 bushels on John F. Murphy's Farm, New York, and just **"twice as much as other oats"** for Irving Farber, of Stark Co., Ohio, and which were pronounced **"Free from Smut"** by 50 farmers who grew them last year.

12,000 Bushels Tested Seed Corn

Pedigreed stock, Northern grown, hand picked, the highest grade obtainable. 90% germination guaranteed (average all samples tested to date above 95%)

Mammoth White Dent

"The King of Ensilage Corn" produces ears as well as stalks. C. G. Weeks, Surprise, N. Y., says—"The corn grew as high as 18 feet, 50 loads from two acres."

A. D. Bittner, Beaver Meadows, Pa.—"**Fed 20 cows two months from one acre.**"

R. B. Anderson, Guilford, Ct.—"Filled a 300 ton silo from 12½ A, **grew 12-22 feet high, ears hardened** by Sept. 28th."

F. J. Schurr, McDonald, Pa., reports—"Ears 12½ inches long, **two ears to a stalk,** filled a 16x32 foot silo from seven acres and **husked 300 bushels.**"

Improved Leaming, Early Yellow Dent

as low as **$1.50 per bushel** in 10 bu. lots.

Mammoth Yellow Flint

early largest growing, heaviest yielding Flint grown, produced 200 bushels per acre for George W. Adams of Massachusetts, 230 bushels on H. A. Medlong's Farm, Oswego Co., N. Y., 243 bushels from one peck of seed for Ora D. Blanchard of New Hampshire and W. H. Knox also of New Hampshire says—"**It grew 12-14 feet high, ears 10-18 inches long.**"

$16.50 for Ten Bushels

slightly higher prices for small lots and if you can use 25-50 or 100 bushels, will make you still lower quotations. Nothing better at any price and lots of corn sold at twice the price nowheres near as good.

Dibble's Farm Seeds are sold on a ten-days-money-back-if-you-want-it guarantee subject to any test you choose to make.

Dibble's Northern Grown Seed Potatoes

Full stocks, 15 best varieties, early, intermediate and late, including **Dibble's Russet,** Best late, round white now grown. Over 1,000 customers wrote us—"Russets were the best variety we ever grew"—Over 100—"They were blight and scab proof" and over fifty—"They outyielded other varieties grown along side over two to one."

20,000 Bushels

still in store saved from fields that were free from blight, where the vines grew green till killed by frost and the price is **right.**

We want you to become acquainted with Dibble's Farm Seeds. Send us your name and address on a postal card, say—"Send the samples and books" and we will send you by first mail for testing on your farm **Free, 12 packages of Dibble's Farm Seeds, Dibble's New Book on Alfalfa Culture,** the best, most concise and practical treatise on the subject ever written and **Dibble's complete Farm Seed Catalog,** the leading strictly Farm Seed Book of the year.

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Headquarters for Farm Seeds—Nearly 2,000 acres in the Dibble Farms.

SUDAN GRASS

I note on page 2-210, C. D. H., of Lancaster, inquires whether Sudan grass is as great a success in Pennsylvania as out west. I have grown Sudan grass for two years, and firmly believe it to be the greatest forage plant in the country today.

Sudan grass has great tillering power. The stems are about as thick as heavy oat straw, are very leafy, and often attain a height of 6 feet. It can be mowed twice in Pennsylvania if you do not want to grow seed. The seed ripens perfectly in Pennsylvania but must have the whole season.—W. H. Maurer, Schuylkill Co., Pa.

EXPERIENCE WITH SUDAN GRASS

My experience with Sudan Grass last summer on a two acre trial plot was sufficient to show me that the crop could be well substituted for some of the other annuals with equal or even more success, since it is a very thrifty plant, having a strong drouth resisting power.

Adaptability. — The plant made a good growth on a clay loam soil, containing a medium organic matter content and showing a slightly acid condition. The field was also heavily cropped for the two years preceeding the Sudan Grass with corn and oats. The soil was prepared about as for corn.

SUDAN GRASS PHOTOGRAPHED SEPT. 1. 1915.

Seeding.—The seed was sown about two weeks previous to the usual corn planting time. A part of the seed was drilled in with all the drill holes open and the remainder with every third hole closed. By the latter way the rows were far enough apart to permit cultivation. It received the same kind and amount of cultivation as is usually given to corn. A single row cultivator was used going thru the row but once at a time.

Use of the Crop.—The green forage makes an excellent dairy feed if used before the stem gets hardened. For hay it is a heavy yielder, nearly another time as heavy as timothy. The time of harvesting is between August 1 and 15. It requires about the same attention as timothy hay in the process of curing. The best yield was secured from the cultivated part altho the finer stemed hay was taken from the uncultivated area. My experience with it as forage feed made me conclude that it does not equal clover or any of the other common legume hays, but compares well with that of timothy and millet hay. It is therefore better adapted for a horse feed than for cattle.

A small area was left to go to seed. A picture will describe the plant better when matured with its panicle than I would attempt to describe with words.

For hay it can easily be cut with the mowing machine and when left to go to seed it can easily be cut with a binder.

I would like to hear some other farmers experience with this new grass.—A York Co. Farmer.

EXPERIENCE WITH SUDAN GRASS

Sudan grass derives its name from that country in North Africa, Sudan, whence it was imported. The Government found it a great drouth resisting forage plant and a very valuable addition to the sorghum family, altho in appearance it greatly resembles Johnson grass.

The various advertisements I read stated that Sudan grass yields, depending on location, from one to 8 tons of fine hay per acre, giving as many as four cuttings in some localities. Last spring I decided to try a small amount of this new forage plant, so I ordered some seed from Texas.

A portion of the seed was sown broadcast, together with cane seed and cowpeas. In the richest spots the Sudan grass grew 7 or 8 feet tall and was ready to cut with the cane. I find the stock relish it and eat it up clean. In food value it is claimed to rank as high as millet.

Another portion of the seed I drilled using about 5 pounds to the acre. On a part of the drilled seed I used fertilizer and none on the balance. The portion that had fertilizer grew rapidly and made much seed, while the part without fertilizer did not amount to much. Of course, I must admit that the past spring was entirely too wet for this plant.

Sudan grass seed is easily mixed so where one desires to save pure seed, much care must be taken to keep it separate from other sorghums. I observed that when some cows were staked on this new grass that it made the cows come up perceptibly in their milk. —P. C. Henry, North Carolina.

(Note.—More extended information regarding the culture of this grass is contained in Farmers' Bulletin 605, which is sent free on application to the Division of Publications, Department of Agriculture, Washington, D. C.)

FELDSPAR NOT A FERTILIZER

The U. S. Department of Agriculture published a bulletin some years ago telling of experiments then under way to test the availability of the potash found in feldspathic rock. After nine additional years of experimenting and observation they send out the following warning:

"Investigations made since the publication of this bulletin (No. 104) have failed to show that ground feldspar is of any general value for fertilizer purposes. The potash content in feldspathic rocks is in a highly insoluble form and to be made available for fertilizer purposes must undergo chemical treatment at high temperatures. In general, it may be said that most soils contain a considerable amount of potash in this insoluble form derived from the disintegration of silicate rocks, of which feldspar is one. The application of ground feldspar, therefore, in most instances means merely the addition of an ingredient already present in the soil in considerable quantity. Many processes for rendering the potash in feldspar available have been proposed but to be commercially successful under normal conditions a market must be found for the by-product, and up to the present time no satisfactory solution of this problem has been reached."

The Auction Method of Selling Fruit

By Dr. J. P. Stewart

As many of our readers doubtless know, the use of the public auction in disposing of apples and other deciduous fruits is now being tried fairly extensively in New York. This method of sale has been in general use on citrus fruits both in New York and elsewhere for many years, and it is the common method of selling all kinds of fruit in the principal markets abroad. There is therefore nothing particularly new about it among fruits in general, but the details of its operation and the principal points in its favor are undoubtedly sufficiently new to most eastern growers of both fruits and vegetables, to warrant a brief presentation here. This method of sale is also worthy of some consideration at this time because of certain important differences of opinion that have been circulating recently as to whether the method has any real value or not.

To sell fruit at auction, it is simply consigned to an auction company or to a similar receiver of fruit for this purpose. This organization receives and unloads the fruit; takes samples or "parts of a mark" to its salesroom; catalogs the fruit and advertises it in the trade papers; employs one of the two or three companies of professional fruit auctioneers to conduct the actual sales; records the sales in public, including buyer's name; reports sales in daily paper; extends reasonable credit to buyer; assumes all credit risks; delivers fruit; renders sales account, and sends check to shipper within 24 hours. The shipper is also allowed to withdraw the goods offered, if he so desires.

All this service is rendered for a commission of 5 percent, and a general charge of 10 cents a line for cataloging the different lots. There are no cartage charges except on the samples or "parts of marks" actually moved to the display room, or occasionally on the whole shipment in case it has to be moved into other quarters to avoid freezing. The total charge on the samples displayed amounts to about 16 cents per package.

In general, the chief advantages of the auction system seem to be as follows. (1) Probably the first and foremost advantage of the system is in the fact that it eliminates the possibility of fraudulent returns. The fruit is sold in public, to the highest bidder; the transaction is published, and both shippers and public are thus correctly informed as to the actual market prices at that time.

(2) The actuaion assembles the commodity and the buyers in one place, which is the fundamental requisite of a market. It therefore makes evident the true conditions of supply and demand at the time, and hence gets correct prices, regardless of whether the market is glutted or short. It thus relieves a glutted market more quickly than the less flexible method of private sales, and also probably gets top prices more quickly when the supply is short. This greater flexibility in price is very important in widening distribution and increasing consumption, especially during the glutted periods.

(3) The auction system places the buyers in competition, since only one lot is offered at once, while in the more common method the salesmen are competing among themselves, offering many lots at the same time, and the buyers are beating the prices down instead of bidding them up.

(4) The auction apparently offers better opportunities for advertising than the private sale, especially for the smaller growers. It also offers more certain rewards for honest and uniform packing, since the price for the whole shipment is determined primarily by the character of the sample package which is taken at random, and the whole transaction is open to the public.

As the writer sees it, these are the principal points to be made in favor of the auction method of fruit sale. This method is not entirely faultless. It can not secure more than the full market price for the kind of produce offered. In addition, and especially in the early stages of development, there will doubtless be times when the bidding is less active than the general conditions warrant, and hence some lots may be sold for less than they are actually worth at the time. But the presence of bargains in any line does not escape the attention of the buyers for any great length of time, and such depressions will therefore be corrected naturally without important delay.

In spite of its faults, however, there can be no reasonable doubt but that the inauguration of the auction system in New York this past fall effected a very important increase in the prices received by apple growers for good fruit all over the east. Some large growers have estimated this increase at as much as a dollar a barrel. However this may be, it is very evident now that the price to the grower was quite ample last fall, since very little of the fruit can yet be resold at sufficient advance to cover even the storage charges on it. The present situation can scarcely fail to react unfavorably on prices next fall, as the present losses on stored fruit will have to be recovered in some way. But in any event, we believe that it will pay the average grower to keep himself informed on the operations and development of the auction system, which should be able to secure for him the full market price for any fruit that he may have to offer at any particular time.

P. S. Further information on this subject may be found in the speech of E. W. Mitchell of New York in the forthcoming report of the Pennsylvania Horticultural Society which will be sent free to members. This report will contain reports of many other valuable addresses delivered at the meeting. The membership fee is $2.00 and may be sent to F. N. Fagan, Secretary, State College, Pa.

PRUNING THE GOOSEBERRY

Almost all farms have a few gooseberry bushes somewhere around the house, usually back in one corner of the garden, often hidden in the weeds and more or less neglected. With a little care these bushes can be made to yield quite a number of berries next year at practically no expense to the owner except that of a few minutes labor.

The gooseberry under natural conditions makes a very dense growth of wood at the expense of the fruit crop for the following season unless a portion of this wood is removed by rather severe pruning. A neglected bush will probably have as many or more berries on it than if heavily pruned but they will never develop to the desirable size, especially if located on the inner branches. It is the strong one-year-old branches that are wanted, not the new shoots or the old wood. Of course all of the new shoots must not be removed, merely the weak ones and those that

Don't Pot Your Trees

Spade-dug holes, like pots, confine and cramp the roots. Set your trees out in blasted holes. Stop the big percentage of early losses. Make them grow sturdy, hearty and fast. Cash in on your investment quicker by getting earlier yields.

Drawn from actual photo.—Note marked difference in growth between tree planted in blasted hole and tree planted in spade-dug hole.

Practical Proofs

E. J. Barker, Beech Bluff, Tenn., says: "I would not set trees without first subsoiling with explosives, even if it cost four times the amount."

J. C. Saylor, Penna., says: "Blasted trees the finest in the orchard."

O. C. Lanofield, Calif., says: "Planted 14,000 trees with dynamite—advanced value of land from $15 to $200 per acre in less than a year."

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lightens labor and increases profits. It loosens the earth, makes better rootage and provides increased nourishment for young trees. It rejuvenates old trees and makes them bear.

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Describes the use of Red Cross Farm Powder for tree planting, land clearing, subsoiling, ditching and many other things. Tells what this modern method has done for hundreds of orchardists and farmers. Write to-day for this interesting 188-page

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A FARMER'S GARDEN

Helps his wife to plan her table in busy times. Saves work and worry, saves buying so much meat, gives better satisfaction to the help. A good garden will be almost impossible in your busy life without proper tools. They cost little and save much hard work.

IRON AGE WHEEL HOES AND DRILLS

will sow, cultivate, ridge, furrow, etc., better than you can with old-fashioned tools and ten times quicker. A woman, boy or girl can do it. Can plant closer and work these hand tools while the horses rest. 38 combinations from which to choose at $2 50 to $12. One combined tool will do all of the work. Ask your dealer to show them and write us for booklet, "Gardening With Modern Tools" Free.

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Guaranteed To Kill Every Scale It Reaches. What?

"SCALECIDE"

or—your money back. Only 3 "Do's" and "Don'ts." It's also the best dormant spray for larvae, eggs of insects and fungi. Easily prepared, easily used. No burning, no clogging, but does do the work. 1 bbl. mixed 1 to 15 will spray as many trees until they drip as 3 bbls. lime sulphur 1 to 10. 10 years on the market. Nationally endorsed. Send for free booklet. "'Scalecide', the Tree Saver." Write today.

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It's Not Too Late to get an up-to-date sprayer for this year's work. Sit down now and write for catalog. It will be sent you *by return mail.* It shows 25 up-to-the-minute spray pumps—all types, both hand and power. Write, right now, to

The Deming Co.,
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DEMING SPRAY PUMPS

Set Plants QUICK No Stooping

An astonishing labor saver. Actually does three men's work easily. No lame back—walk upright.

Masters Plant Setter

Sets, waters, fertilizes and covers every plant. Transplant tobacco, tomato, cabbage, sweet potatoes, etc.—save tedious labor—get full stand—better quality crop. Saves cost every day used. *Guaranteed.* Write today.

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The "Berlin Quart"

The White Basket

That secures highest prices for your fruit. Write for 1916 catalog showing our complete line and secure your baskets and crates at WINTER DISCOUNTS.

The Berlin Fruit Box Co.
Berlin Heights, O.

VIGOROUS BERRY PLANTS

Millions of the hardiest of all Maryland grown varieties of standard and ever-bearing strawberry plants.

Vigorous plants that are bound to grow and produce big yields.

Send for free copy of catalog. It describes both strawberry and dewberry plants.

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Buy At One-Half Agent's Prices

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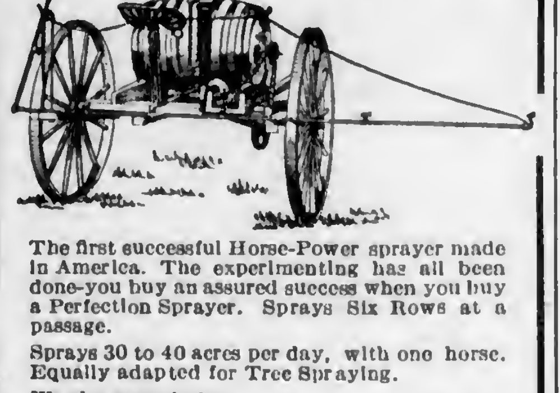

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are not desirably located. Our aim in pruning then, is to encourage the growth of a few strong shoots, cut back a portion of the old wood that is no longer fitted for fruit production, and thin out the bush as much as possible to allow the sunlight to enter.

This work can be done anytime during the dormant season that it is convenient, but it is best not to wait until the garden is being cleaned up in the spring ready for planting. Do the work now when time isn't so important and you will not be caught napping if there should happen to be an early spring. When the pruning is being done it is a good plan to clean away any bushes or weeds that may happen to be present for these take moisture from the gooseberries and may smother them so that they can not yield as they should.—F. E. Allison, New Jersey.

Asparagus Culture---III

By C. C. Hulsart, Monmouth Co., N. J.

Cultivation and Fertilization

When a young asparagus plant is set in the field its future usefulness depends almost wholly upon how it is cared for during the two following seasons. I have said that this plant is a gross feeder; this should not be forgotten. Neither should clean cultivation be neglected. If a young bed is allowed to become over run by weeds, or the asparagus bettles permitted to feed upon it unrestricted, the plants receive such a setback that the bed is never likely to be very profitable.

During the first season after plants are set allow growing crop like cabbage or carrots may be planted between the rows of asparagus. This fill-in crop often times pays for the whole cost of growing both. It is well to do this because the young asparagus plants do not need the whole width between rows. But only do this the first season. The asparagus will need all the space from the second season. Now remember those plants are down 7 to 8 inches below the level in an open trench. Most all young growers are too anxious to have this trench fill up soon. That is an error; the trench should not be allowed to fill, or be filled before August. The young plant is too small and weak to push each succeeding crop of shoots thru 7 or 8 inches of earth. Go slow in filling the trench. But every 7 to 10 days should see cultivation and at each one just a small amount of loose soil permitted to run down around the plants. As many hoeings as are necessary to keep soil loose and kill all weeds that the horse cultivator fails to remove must be given.

The shoots that appear from a young asparagus crown come periodically; when they do come they will be seen all over the whole bed within a few days. This new growth appears every 4 to 6 weeks. Each succeeding crop of shoots should be more in number per plant and of larger size. In order to make this as pronounced as possible a side dressing of nitrate of soda, or some form of nitrogen, should be given using upwards of 200 pounds nitrate of soda or its equivalent in nitrogen per acre. Personally, I have used this side dressing twice during the season with good results, but no side dressings should be given after mid-August, because when such applications are given late, and rains follow, the soluble nitrate forces a late growth from buds that should lay dormant until the following spring.

In the fall of the first season an application of manure should be given and a good place to apply it is in an open furrow on each side of the row of plants and that furrow plowed out as deep as is possible without cutting off roots. A half ton to every 100 yards of row is none too much, and when applied plow a furrow back over it. Now this manure is down where the root system can feed upon, and not be disturbed by cultivating implements. All after manurings should be midway between the rows and in an open plow furrow, covered as before. This method of manuring tends to keep the root system down below the teeth of cultivating implements where they should be. If fertility is applied on the surface, roots will find it and multiply there and later be torn off by cultivating implements. Furthermore, the root system of this plant has a tendency to work upwards, hence the grower's aim should be to keep it down. The life of the bed will be much longer, because when much of the root system becomes so close to the surface that it is destroyed by cultivation the crowns produce small shoots and sell for a small price.

In addition to the animal manures mentioned, an annual application of fertilizers is necessary, applied at the first working in the spring and plowed into the soil. A 4-8-10 formula is about as good as can be recommended. Use at least ½ ton per acre. I am afraid however that the 10 percent of potash will have to be omitted until after the European war is over. Be that as it may, asparagus needs potash and when it does not get it the crop will be measured accordingly. On cutting beds, at the close of the cutting season, an application of 225 to 250 pounds of nitrate of soda per acre aids in forcing along a strong growth and while I have no real proof to substantiate this statement, I believe this application of nitrate wards off attacks of the rust.

Where bleached grass is wanted, ridging must be done in order to have sufficient soil over the crowns to allow the cutting knife to cut the shoot sufficiently below ground to obtain the desired length. Where green "grass" is preferred, only a couple of plow furrows turned over the row is all that will be necessary. Green "grass" is cut only two or three inches below the surface. Green "grass", however, usually sells for a higher price per dozen bunches but takes more shoots to make a bunch, because while the shoots are growing tall enough above ground they are becoming smaller in diameter all the time. Where the bugs are troublesome they destroy many shoots before cutting.

A young asparagus bed one year from setting may be cut for four or five cuttings provided the plants are strong and are producing large shoots but if the opposite is the case it had better not be cut until two years old and then it may be cut for one month. After that, the entire season.

In my locality we begin cutting about April 20th to May 1 and stop July 1, making a season usually about 9 to 10 weeks. A crop is about 1500 3-pound bunches. Some seasons and some beds more, and some less. Prices are governed by supply and demand; each grower must solve that for himself. One point in favor of the crop is it brings in early money, something the farmer usually needs.—C. C. Hulsart.

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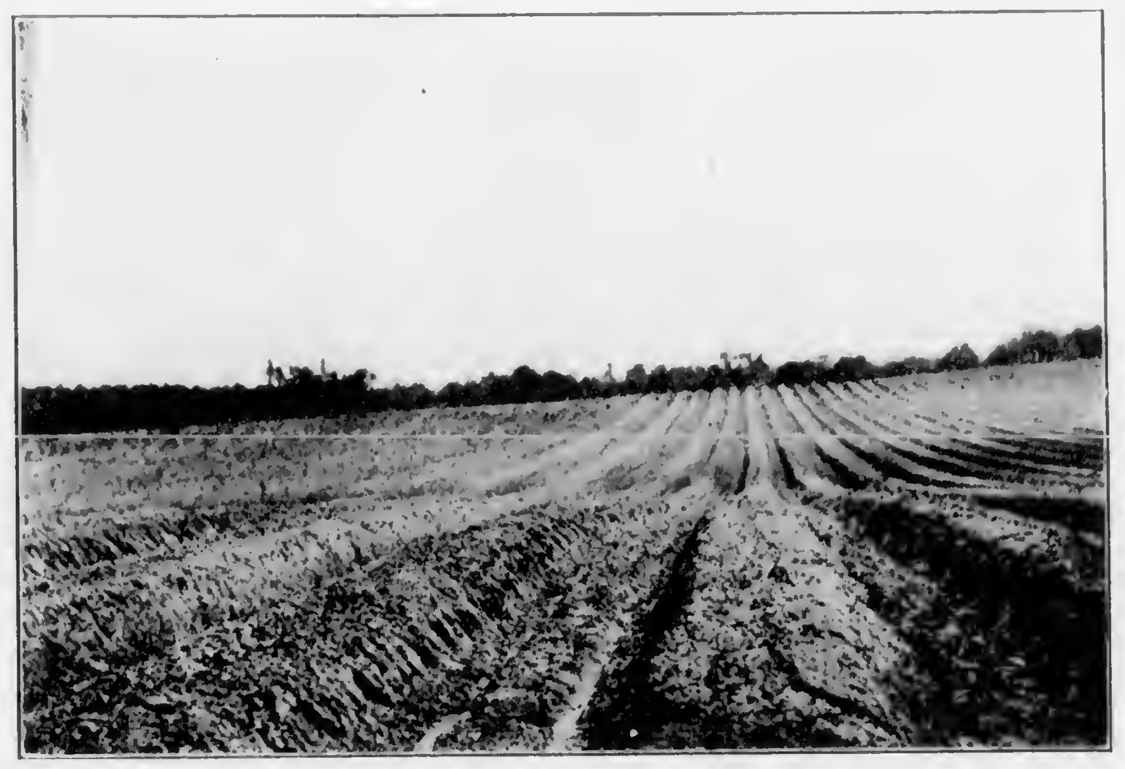
Lessons in Orchard and Farm

By H. M. Anderson, York County, Pa.

Every farmer's progress depends on the use he makes of his own experience and the experiences of others which come to his personal attention in various ways. Of course, one has a great deal more outside experience to guide him, but he is naturally more likely to use and benefit by his personal experiences for if it is fortunate it has made him money, and if it is unfortunate he has paid well for it and is not liable to be caught that way again.

For example, I will never plant another peach orchard anywhere near an old one where trees are dying of the yellows. I knew from the experience of others that peach yellows is spread by the harrow and other objects coming in contact first with diseased trees and later with healthy trees. But I know, personally, after losing forty splendid 2½-year-old trees which were planted across a private drive from an old infested orchard, that there are other means of spreading the disease. Every tree in the first row, several in the second, and occasional trees thruout the new planting are gone, and I think I took every known precaution except cutting down the old trees, before planting the new.



ASPARAGUS BEDS RIDGED FOR CUTTING.

Another unfortunate experience of the past season was the splitting open of about 400 bushels of Stayman Winesap apples. This began early in August and rapidly grew worse as the season progressed. It was, I think, due to the excessive rainfall followed by warm, sunshiny days, as it had never occurred here before. Plenty of fertility and cultivation may have had something to do with it, and I will try not to treat many of them so well next year.

Intensive Cultivation.—During the past season I have been more firmly convinced than ever before of the benefit of intensive cultivation during the growing season. I have known for years that it is absolutely essential to success in a dry season, and last fall I saw some of my neighbors spending extra time and energy enough in trying to find their potatoes and clear the land of crab grass to have given the potatoes several additional workings; and in the end they did not raise so many potatoes nor did they find all that they did raise. But it was in my tomato field that I saw the greatest effect of intensive cultivation. I grew 455 bushels per acre in a community where the local canning house books show an average of less than 100 bushels per acre this year.

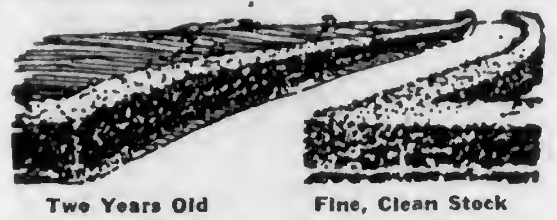
Fertilizer Problems.—The high price of commercial potash last spring led many of us to drop potash out of our fertilizer, and supply our nitrogen in the form of nitrate of soda with the hope and expectation that the nitrate of soda and intensive cultivation together would free sufficient insoluble potash in the soil to meet the requirements of the present. This hope has been realized and I for one would not apply muriate of potash at $100 per ton, which is considerably less than one-fourth of the present price. The nitrate, of course, will give better results if we make two light applications rather than in one heavy one, as it is immediately available and soon leaches out of the soil.

Planning Work.—During the past season I was most strongly impressed with the necessity of planning the farm activities to avoid the rush of work in October, November and possibly early December. This is particularly hard for those of us who grow large quantities of apples; but conditions can certainly be helped some. Personally, I mean to put more of my corn in the silo than I have done in the past, and, if possible, have the seeding and corn cutting well out of the way before apples are ready to pick. Then if we find that we must have much extra help for husking corn, we will try to get it early while the weather is good, while the fodder still has some life in it and the days are still long enough to do a fair day's work.

WHEN TO RIDGE ASPARAGUS

Some growers throw their asparagus beds into ridges immediately after the fertilizer is applied. It is a mistake to ridge the asparagus bed too early in the spring. It holds the growth of spears back for the sun's warmth can not penetrate so soon into the greater depth of earth. Then, a too early ridging gives the earth a much longer time to pack over the crowns when it should be maintained as mellow as possible.

When the furrows are opened in the spring to receive the fertilizer, the growth has not yet pushed upward to any great extent. After the fertilizer is applied, the soil is thrown back over the bed with a plow. This is sufficient protection from freezing. As soon as the soil and weather are warm the spears will begin shooting up. The first appearance of spears is not abundant but it means that the bed is awake for business. Now is the time to begin ridging. All visible spears are cut and the ridging plow run over the rows once. This first ridging is comparatively low but it is sufficient for several days longer, perhaps a week, when the process is repeated, bringing the ridges to the necessary height to give blanched spears of good length.—M. R. C.



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THE FUR BRINGERS

A new serial story starts in this issue. While totally different from Hepsey Burke, we believe that the Fur Bringers will prove fully as entertaining and fascinating. It is a stirring story of out-door life, full of adventure and human interest. Do not miss the first chapters in this issue. Reading them you will want to follow Ambrose Doane thru all the thrilling chapters to come.

ARE YOU READY FOR SPRING? A common question among neighbors in the fall is, ‘‘Are you ready for winter?’’ We ask, ‘‘Are you ready for spring?’’ because some day soon the busy season will open with a rush and there will be forty things that need doing at once. We name a few of them just by way of reminder: Oiling and repairing the harness; repairing, oiling and painting tools and machinery; making improvements in barn, stables, chicken houses, etc; ordering fertilizers, seeds, trees, and plants; testing the seed corn; getting the material for treating potato seed for scab, and oats for smut; trimming fruit trees and spraying for scale, etc.; laying in a supply of fuel for the cook stove; repairing fences, gates and walks. These are a few of the things that need attention, some of them on every farm, and by the time you have these attended to, we can think of something else.

GASOLINE PRICES The recent price advances on gasoline affect every farmer who operates gas engine power in any form from a feed grinder to farm truck or tractor. Representatives of the oil industry have claimed that the advance is due to heavy export demand. This claim, however, does not appear to be supported by government figures on exports. The Journal of Commerce quotes export data showing that exports of crude oil, gasoline and residuum were considerably less in 1915 than in 1913. Exports of gas oil, fuel oil and naphthas, except gasoline, were approximately twice as large in 1915 as in 1913. Total exports of gasoline for the last three years are given as 112,560,000 gallons in 1915, compared with 162,669,000 gallons in 1914 and 117,728,000 gallons in 1913. The Standard Oil Company and its former subsidiaries are said to still control about 60 percent of this export business. This control, making it possible to enforce the advance, is apparently a greater factor than the supposed foreign demand.

SOME CROP REPORTS AND PROPHESIES There seems to be quite an optimistic spirit prevailing among farmers over the outlook for the coming season which is quite different from the feeling prevalent last fall. The acreage in the staple crops will probably be about normal. It would likely be increased in many instances if it were not for the expected shortage of labor. The fertilizer situation has also a retarding effect on expansion. Indications are that farmers are carefully considering these phases of their business and are preparing to meet them as best they can. Better and easier methods are being studied, labor saving machinery is being bought, and arrangements are being made to start the spring work at the earliest possible moment. The Department Crop Report shows that about one half of the apples held in storage on December 1 have been disposed of. These figures show that, proportionately, apples packed in boxes have sold slightly faster than those in barrels. On March 1, there were 20 percent more apples in storage than were reported on March 1, 1915. This report does not cover the entire cold storage capacity, but are the figures reported by 410 concerns. The price of wheat runs from 18 to 25 cents per bushel lower than the same date last year. Oats, corn and barley are 8 to 25 cents below the prices of last year. It will be remembered that much was made last year of the estimated size of the corn crop, but late estimates show that only a little over 71 percent of the crop was of merchantable quality as against 84.5 percent the year before, so that the 1915 crop fell short of the 1914 crop by over 80,000,000 bushels of merchantable corn. In spite of this the average price for the United States is seven cents per bushel less than the year before. Potatoes remain in good demand, altho it is doubtful if the price goes any higher than it is at present. It would seem the part of wisdom for those who must purchase seed potatoes to do so early, as the demand will be great. Many potatoes of poor quality were stored last year.

THE RURAL CREDIT BILL Whether the rural credit bill now before Congress is efficient, or the best that could be devised or not, may be properly questioned but we do not grant that bankers are the ones sufficiently disinterested to give safe advice, or that they can consistently object to the government's giving certain classes special privileges. Every other great industry in our land has legal privilege to secure long-time loans in order to finance its operations. A speech before the American Bankers' Association contained these sentiments:

> ‘‘Primarily the exemption from taxation of the bonds and mortgages to be created under the operation of this plan is based on a desire to make marketable securities whose marketableness the supporters of the measure app [illegible] have grave doubts. To make these securities instrumentalities of the Government of the United States goes beyond the achievement of this desire. It converts the Government into a farm loan agency, with the obvious result—if not the purpose—of competing with all existing plans of making farm loans and of destroying individual initiative and opportunity. It creates a favored class, and the correction of the idea of favoritism will not be found in the repeal or modification of this provision, but in the gradual inclusion of other classes in other favors of similar import.’’

LIVE STOCK SWINDLE It is often said of shrewd crooks that they could make a fortune and live in ease and comfort if they would use their skill and ingenuity in an honest way in legitimate business. Live stock breeders in different parts of Pennsylvania have been the victims of a peculiar form of swindle in the past several years which suggests that there is a strong demand for an effective state organization of breeders. A Mr. H. S. Bomberger has made considerable trouble for stockmen and incidentally for himself by promoting a fake organization. First using the name of an organization that went out of business some years ago, he posed as an agent soliciting membership dues and a legislative fund to secure the enactment of certain state legislation which he represented as being favorable to the live stock interests of the state. He appeared in Berks County for a few days early last year. He was reported to have collected considerable money before the farmers became suspicious and started an investigation. The investigation showed that the ‘‘association’’ of which he was the supposed secretary existed only in Mr. Bomberger's fertile, tho distorted, imagination. They secured the return of all money paid over to him and let him off with the payment of costs. This lesson should have been sufficient to dispell his delusion that he was still secretary of a worthy organization, but his conviction that there was easy money for him in perpetrating the fake upon breeders in other sections appears to have carried him to new fields. He is now under indictment for similar operations in Westmoreland County. It is reported that he represented himself in that county as agent for the Pennsylvania State Cattlemen's Protective Association (which has never existed apparently except on his letter heads) and was soliciting subscriptions for membership. Such membership was to give some vague sort of protection to pedigrees of purebred stock and also secure laws to require the state to pay heavy damages for cattle killed because of the foot and mouth outbreak. The evidence brought out in the Westmoreland hearings is said to show that Mr. Bomberger has collected at least $13,000 in various parts of this and neighboring states. Farmers there are pushing the case and it is expected that he will not get away by merely refunding collections from local people this time. It is to be hoped that his methods may receive sufficient publicity to make it unsafe for him or any one else to continue them. It is interesting to note, however, that every legitimate privilege and protective measure which this man could reasonably offer are available to all who wish to affiliate themselves with the only bona fide breeders' association in the state. This association does not charge the spectacular prices demanded by Mr. Bomberger, said to range from $10 to $100 each, but it offers every breeder a chance to co-operate with his fellow breeders for legitimate promotion of his interests.

PROGRESS IN CONGRESS Congress has been in session nearly three months and as one veteran member expressed it, ‘‘is practically no nearer adjournment today than it was at the opening day of the session.’’ President Wilson early advised the expediting of business so as to bring about adjournment before the conventions in June. In his annual message the President laid stress on preparedness measures, none of which have been adopted; on the shipping bill, which has not yet even been reported; on independence for the Philippines, which has passed the Senate only; on extended citizenship to Porto Rico; on revenue legislation, which has not even been framed as yet, and on an investigation of the railroad problems. Congress has so far passed sixteen bills and ten joint resolutions. The Senate has on its calendar several bills that will be pressed for passage, among which are one for prohibition in the District of Columbia, one for a government armor plate factory, several conservation measures, and a rural credits bill. Among several important ones awaiting action in the House are the old immigration bill vetoed by presidents Taft and Wilson; the grain grading bill debated for weeks in last congress; the Cotton Futures act which was passed by last Congress but which was declared unconstitutional because it originated in the Senate instead of the House; the bill repealing the free sugar clause in the Underwood tariff, and the Rural Credits bill. Practically all the bills now on the calendar are really beside the question so far as the business recommended by the President is concerned. The adjournment date depends upon the time at which the appropriation bills may be passed, none of which have as yet been enacted. It is unfortunate that the traditional dignity which the public believes (?) hangs like a pall about the nation's capitol must be made questionable because some of the members insist upon playing peanut, partisan politics.

LEAVE THE SCHOOLS OUT OF IT To whatever extreme lengths the country may be carried in the agitation for ‘‘preparedness,’’ let it not enter the field of the public schools and desecrate that democratic institution by any system of compulsory military training for the school children. The proposition is being seriously considered in many states under the stimulus of the present excitement. The Senate of New Jersey passed a bill last week requiring that pupils of the high schools of the state be subject to military training. It has not yet passed the house of representatives and the people have a chance to use the postage stamp in protesting to the members of that body. Much is said in praise of the so-called Wyoming system which was conceived and introduced by an army officer but when the insignificance of the example is considered it becomes a joke. The entire number of high school pupils does not equal the number in any one of the several eastern cities, and the whole number of ‘‘cadets’’ in Wyoming is between 300 and 400. Aside from the question of its morality and ethics, the training of school children has not been found practicable in promoting ‘‘preparedness.’’ Even among the military nations of Europe there is not one in which it obtains. Germany and England abandoned it years ago. France sold its entire public school military equipment 25 years ago at a great financial loss because it did not promote efficiency in military discipline, but it did interfere seriously in the promotion of the real purposes of popular education. It is encouraging to note that the counsel of the wisest and most influential educators is against the prostitution of America's greatest institution, the public school system, to an end so antagonistic to its real purposes.

HARRISBURG NOTES

Special Revenues.—Announcement that the State Department of Fisheries proposes to submit a bill providing for fishermen's license, the income to be exclusively devoted to work of Department of Fisheries, has brought the administration face to face with an appropriation problem which has been looming up for several years. Until the revenue from automobile licenses was devoted by legislative enactment to maintenance of state highways there was little special voting of revenues. The foolish attempt to prevent use of money by the Highway Dept. attracted attention of advantages of the special fund. There appears to be a well-defined move to have revenues from sources controlled by various departments go to maintenance of those branches or extension of their activities. Pennsylvania has several sources of income from licenses quite apart from insurance and corporate licenses, and if the revenues therefrom were to be tied up it would make a hole in amount voted by the legislature. The department of agriculture is one of the largest producers of revenue from licenses and only draws its appropriations thru the general funds. It is contended here that the branch of government which controls fertilizers, seeds, lime, oleo, etc., is as much entitled to enjoyment of the ‘‘earnings’’ as the Game Commission is to the proceeds of hunters' license or fisheries would be to the fishermen's license proposed. All of which goes to prove that there is pressing need for thoro study of the state government right here, and that it is man's size.

Proposed License.—That the history of the enactment of the hunter's license will be repeated, as far as legislative debating is concerned when the fishermen's license comes along, is certain. There will have to be some important exemptions made, just as in the hunter's license. For instance, owners of land thru which streams run, owners of bodies of water, those who control streams not public and their families may all claim exemption. The proposition is an inviting one for discussion, but the fact remains that the Department of Fisheries, like the Department of Agriculture, is being called upon to expand its work, and needing more money and despairing of getting it from the general appropriations, plans to get its own source.

Stream Pollution.—While on this subject it is interesting to note that what the State Department of Health is doing to the cities and towns in the way of taking dangerous elements of sewage out of the waters of the state, the Fisheries Department has been endeavoring to do in regard to manufacturing plants and their wastes, a form of pollution which is increasing and which is as dangerous to cows as to fish. The Department of Agriculture, which is without a field force to inspect and correct such conditions, if it had the authority, has been watching the work of the Fisheries department with concern. Numerous complaints have been made in the last five years about pollution by chemical or other works of streams used for watering cattle whose owners live down stream from factories. The farmer, argue the people here, is as much entitled to be protected from the acids and other poisonous wastes as are the other folks who are protected from pollution of streams by his cattle. It would seem that extension of the state policy in regard to water inspection in a systematic manner would meet many requests.

Toll Roads and Normal Schools.—Two objects of more or less interest to the rural dweller, the toll road which takes his money and the normal school, which helps the country resident to broader fields, are now being discussed because of the efforts of the state to acquire them. The negotiations have been conducted on a scale limited to the funds in sight. Such a thing as a legislative program extending over a period of years, like a battleship building program, which would give the state control of all toll roads and all normal schools by, say 1925, would be better than the present piecemeal method, now the size of the appropriation depends upon legislative calculating with the state aid of the hospitals and homes, which should be supported more extensively at home, ever in mind.

Wants Court Test.—The action of a York county turnpike company in appealing to the superior court from the order of the Public Service Commission that it must put its road in good condition is a move to test authority of the state over toll roads. Most of the turnpike companies have special charters and the issue will be sharply drawn whether the commission has authority in the interest of public safety or policy to require certain things to be done no matter what a legislature may have enacted in chartering a turnpike in the ‘‘era of good feeling’’ well nigh 100 years ago.

How They Treat Horses.—Considerable interest is being shown here in the visit to be paid this spring to the battle fields of Europe by State Veterinarian C. J. Marshall for the purpose of investigating means used in shipping our horses to the countries at war, the methods of handling and working them and prevention of disease. The results will be published.

Ready for the Field.—The orchard demonstrators were here last week for annual special instruction; the soil experts have had their conference and the farm advisors are here now getting ready to go into the valleys of Pennsylvania with their special information. If questions asked at farmers' institutes are anything to go by the interest in these three subjects is great among the rural landowners and tenants, and there is big opportunity. It might be added that the recent attention given to fertilizing and use of home materials to a greater extent is bringing many letters to the Department of Agriculture.

Plans for State Show.—By the time this appears in print the plans of the State Department of Agriculture for a state corn and apple show will be announced. The plan is being developed by Secretary of Agriculture Patton. It is not the purpose to compete with the county fairs or the agricultural exhibits, altho state officials do think they should pay more attention to exhibitions of farm products than to amuesments for the crowds. The plan is to have the show here when the various agricultural organizations meet in January, and for the local fairs to send the best of their prize winners to this city. In this way a state-wide competition has been outlined. Governor Brumbaugh is heartily in favor of the idea and will urge its support. It is believed that the plan of having prize entries for state competition come thru county fairs will build up a spirit of co-operation. To facilitate exhibits, arrangements for cold storage after the county fairs have been held will be made, as it would require storage from about October to January. There would be prizes for fairs and for individuals. In addition, an individual competition open to every one may also be arranged. This mid-winter exhibition will be financed by men interested in agriculture and would pay its own way to a certain extent.

Should Spray Trees.—State Zoologist Surface is out with a suggestion that a law be enacted to require every owner of fruit trees to spray. This, he contends, would end the pests and save money, increase the fruit crop and bring in better prices.

Farmer's Liability.—Considerable interest is being manifested here in a hearing scheduled for Philadelphia on Thursday when John McSparran, Master of the State Grange, will ask for a ruling as to how far the exemption of farmers from employers' liability for compensation extends. The Bureau has ruled that horticulture, stock raising and similar allied branches, in which an employer may specialize, are under the act because it was the legislative intent to exempt only agriculture in its strict sense. The question now rises whether market gardeners and persons similarly engaged are not farmers. As the compensation act is enforced, more and more distinctions have to be made. This discussion will be of wide importtant to farmers. The opinion seems to be growing at the Capitol that before long farmers may be brought under the compensation act.—Hamilton, Harrisburg, March 13, 1916.

NEW YORK LETTER

To Fight Packing Bill.—The representatives of the leading fruit growers' association of the state met the committee on agriculture of the assembly this week in opposition to the bill amending the present apple packing and grading law. It affects the section relating to the penalties, and would make them only nominal. This feature is strongly opposed by the growers. The commissioner of agriculture as well as the horticulturists oppose any change in the law at present.

Health Propaganda.—A new avenue thru which the state health department hopes to reach the public with short talks on the prevention of disease is that furnished by the railroad companies of the state. They have given the health department permission to post health bulletins in their stations where people passing may be able to read them. There are about 1,000 stations where the bulletins can be posted. The first bulletin calls attention to the danger of communicating contagious diseases by coughing and sneezing, and warns against the use of common drinking cups, soiled towels, and the contamination of food by soiled hands. The second bulletin will consist of a large map drawn to show hospital provision for tuberculosis patients in the various counties. It calls attention to the fact that there are 25 counties in the state where no hospital provision has as yet been made. Hospitals have been voted in 12 more counties.

Apples in Storage.—The monthly estimate of apples in storage in western and central New York shows approximately 1,125,000 barels in common and cold storage, of which amount about 100,000 barrels are in common and the balance in cold storage. During January the movement was 375,000 barrels or about 125,000 less than on the corresponding month a year ago.

State Grange Committee.—A meeting of the state grange executive committee was held in Albany this week at which several matters of importance were taken up. Contracts for printing and editing the Grange Review were renewed and the new lecturer, Mr. Geo. Watson, of Wayne County, discussed plans for the promotion of his work the coming season. Mr. Watson is a graduate of the state agricultural college and has had wide experience in teaching and scientific experimentation. He was at one time professor of agriculture in the Pennsylvania State College, and agriculturist in the experiment station for 12 years. Doubtless he will feature the practical side of the lecture work in his relation with the 900 lecturers of the state.

Standing Committees of the State Grange.—The following are chairmen of the various standing committees recently appointed for the present year: Auditing, F. A. Hadley, of Franklin county; experiment station, C. F. Phinney, of Allegany county; woman's work, Mrs. Mary M. Mace, of Essex county; mileage, W. A. Howard, of Orleans county; legislative, S. J. Lowell, state master of Chautauqua county; common schools, H. F. Netherway, of Ontario county; rural health, W. N. Giles, of Onondaga county: Trustee to Cornell University, W. F. Pratt, of Genesee county.—D.

NEW JERSEY FARM NOTES

Pass Agricultural Bills.—The Senate during the past week passed Senator Gaunt's bills for the creation of a state department of agriculture and defining its duties and powers, and a companion bill transfering to the new department the duties and powers vested in the state board of agriculture, state board of health, state commission on tuberculosis in animals, state live stock commission and other commissions and boards relating to agriculture. The main bill creating the department was passed by a vote of 17 to 2, Senators Hennessy and Ackerson, Democrats, making strong opposition to it. They charged that the bill would create a political machine. They said secretary of the board would be under civil service and would have power to name clerks and heads of departments with the consent of the board. They contended that the appointive power should be invested in the Governor. The members of the new department are to be elected by the agricultural societies.

Want Farm Demonstrator.—A large body of farmers of Passaic County appeared before its Board of Freeholders last week and asked for the appointment of a county farm demonstrator. The farmers represented the various granges and the county board of agriculture. There is such a demonstrator in ten counties in the state at present.

Must Inspect Cows.—At a meeting of the board of health of Woodbridge, held last week, a resolution was adopted to the effect that everyone applying for milk licenses or a renewal of a milk license must first present a veterinary certificate stating the physical condition of his cows. If the condition is found to be up to standard the license will be granted and if not it will be revolked.

County Road Patrol.—The Board of Freeholders of Passaic County are expected to adopt the recommendation contained in the annual message of Director MacDonald, which provides for the inauguration of the patrol system as a means of keeping the roads in repair. This system is expected to save the county considerable money during the year. The plan is one in which several patrolmen with horses and carts go over and repair roads in outlined sections. They are provided with all necessary tools and stone is supplied them at various points in their sections.—L.

FARMERS' TRANSPORTATION MEETING

A public meeting will be held in Grange Hall, Burlington, N. J., Saturday, March 18, 8 P. M. Prominent speakers from various parts of the country will be present to give interesting information on the following subjects: ‘‘Diseases affecting the apple, corn, cherry, peach and potato.’’ ‘‘Spraying—When to spray and what to spray with.’’ ‘‘Reports from various states, concerning the peach crop.’’ ‘‘Paper on Apple-Aphis.’’ ‘‘Fertilizing properties to overcome the lack of potash.’’ ‘‘Transportation facilities for the coming season.’’ ‘‘The Commission Man, as a medium.’’

Prof. C. D. Vreeland, authority on spray materials, representatives from the New Jersey State Experiment Station and well known commission men from New York City will be present. You are accorded a hearty welcome to this meeting which will be one of mutual interest and profit to all growers of fruit and farm-truck in the River-Section of this county.—L. A. Page, Secretary and Treasurer.

FARM MEETING CALENDAR

Farmers' Transportation Assn., Burlington, N. J., ...	Mch18
Penna. Cattle Feeders' Convention, State College, Pa.	Apr.12
American Jersey Cattle Club, New York City	May 3
Holstein-Friesian Association of America, Detroit, Mich. .	June 6
American Forestry Association Reading, Pa., ...	June26-27
American Assn. of Nurserymen, Milwaukee, Wis., ...	June28-30
International Apple Shippers' Association, New York ...	Aug. 2
National Dairy Show, Springfield, Mass.	Oct.12-21

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Cut Corn Stalks for Bedding

Oats and Peas for Hay

During the past four or five years I have had occasion in friendly chats with farmers and neighbors to suggest the use of cut corn stalks for bedding down animals during winter. But not until this winter have I had the opportunity to put my suggestions into practical operation. I have now used them for more than two months in my dairy barn and pig pens, and occasionally I use them in my horse stables, so that the few words of commendation I have for this practice are from actual experience.

Why is it that I am so interested in this proposition? First, from a manurial point of view. The old practice is to throw the stalks out in the barn yard after the animals have stripped them of leaves and husks. The animals in the barn yard tramp them down, but it is not uncommon to see manure being hauled to the field from the barnyard with long stalks three and four feet long sticking out all over the load. Such material is not in proper condition for rapid decomposition, nor is it an easy matter to prepare the seed bed properly when long stalks stick up here and there above the furrow slice.

The food value of stalks is considerable when proper care is taken of them. This has been mentioned in the Pennsylvania Farmer a number of times, and it seems unnecessary to add details. Here is a clear-cut proposition: If stalks may be used in place of oats, wheat or rye straw and give just as good results, then the stalks are just as valuable to the farmer as the straw they substitute, less, of course, the extra labor charges of cutting which you will see later are very small.

What does this mean? It means that the farmer in the locality where no grain is raised may realize from his corn stalks as much as it would cost to buy straw or any other material for bedding animals. In the locality where grain is grown in the familiar rotation of corn, oats, wheat or rye, clover and timothy, and the grain returns a good profit, the straw may be sold and added to the number of cash crops raised; again making the stalks equal in value to the straw ordinarily used. Now the case which is most interesting to me because it hits me hard is that of the farmer growing grain at a slight profit, if any, and two years out of three at an actual loss, but still continuing in order to have nice bedding for a few nice horses or a few nice cows or both. Of course, it is hard to realize that a beautiful crop of oats, a beautiful crop of wheat, or a tall well-headed crop of rye which waves so prettily in the wind is worse than the boarder cow, but figures tell the story in plain language. What is the alternative in such cases? It is a revision of the rotation in a manner to eliminate the grain crops and use corn stalks for bedding. This can be accomplished by growing no wheat or rye and by substituting a mixture of oats and Canada field peas for oats. Why not? You can buy oats cheaper than you can raise them; that is, if you know how to buy and in my estimation this is true even today while everything is high because of the war trade.

A question regarding this theory will arise immediately. Are oats and Canada field peas under general farming conditions any more profitable than oats which were discarded for them? Not always, and probably less the first year grown because they are a crop which requires greater attention and peculiar climatic conditions which will be brought out during the first year's experience. But this crop has a wide range of uses and a strong point in its favor is that the peas are legumes which, with the aid of the proper bacteria which must be added to the soil if they are not already present, take nitrogen from the air. This is a wonderful advantage because the pea gives some assistance to the oats and after the crop is removed the soil is better supplied with nitrogen than it would be had only oats been grown.

HARVEST HOME DAIRY HERD, OWNED BY L. E. HELSEL, CAMBRIA CO., PA.

Canada peas mixed with oats are only a suggestion, but they are a suggestion where help is needed because it is no easy matter to find a crop suitable to conditions to fit in in just this place—a crop with a short-growing season. A few days ago I was talking this very matter over with a neighbor and he told me that he had been doing the very thing I am expecting to do with one field. That is, instead of planting oats, plant a mixture of cow peas and soy beans to plow under in late summer. This man stated that the other crops in the rotation showed a greater profit and that oats had never been a good crop any how.

Returning to the preparation of corn stalks and the fitness of them for bedding, it is evident that some equipment is necessary. A cutter and power to run the cutter must be had. Today most farms are equipped with power of some kind. In my case I set up my large ensilage cutter in the grinding room where I have electric power. I bought an elbow and short piece of galvanized pipe to fit the blower. We thus blow the stalks thru the wall of the room into a storage loft, and all I have to do is turn on the power and feed the machine. It is not an expensive item of labor. Two men will bring a load of stalks up from the barracks, cut them up and clean up afterward in an hour and a half, and those stalks will last my ten cows, three heifers, a bull and five pigs two weeks or more. For this number of animals I figure the cost of preparation less than 35 cents a week; a small item of expense.

The appearance of stalks as bedding is very pleasing. They are clean and white and strangely enough very absorbent. I am producing clean milk and I am required to keep my stable up to the standard of the certified plant, and so far no difficulty has been experienced. The work in handling them cannot be greater or at least very much greater because my men let me know soon enough if I add to their daily burdens, and so far I have not heard from them.

Corn stalks are not dusty. My loose oats straw spreads dust thruout the whole barn when thrown down from the loft. Its clean straw, too; no chaff left in it. In my estimation the idea is a good one well worth a trial and from my two month's experience I can commend it as one of the best propositions I have ever struck for solving the bedding problem. I like it and my neighbors like it.—John H. Voorhees, Morris County, N. J.

Troy Cow Testing Records

The Troy Cow Testing Association of Bradford Co., Pa., consists of 29 members testing 462 cows. Its report for the month ending January 28, 1916, of cows producing more than 40 pounds of butter fat, is as follows:

Owner of cow	Breed	Pounds of milk	Percent fat	Pounds butter fat
Austin Leonard and Son	Jer.	1023.	5.2	53.1
Austin Leonard and Son	Jer.	1180.4	4.4	52.3
Austin Leonard and Son	Jer.	905.2	5.	45.2
Austin Leonard and Son	Jer.	1032.3	4.2	43.3
Austin Leonard and Son	Jer.	845.4	4.8	40.7
Austin Leonard and Son	Jer.	697.5	5.8	40.4
George H. Wolfe and Son	Jer.	902.1	4.5	40.5
John Van Horn	Gd. Jer.	871.1	5.3	46.1
John Van Horn	Gd. Jer.	737.8	5.5	40.5
F. M. Barns	Gd. Jer.	753.5	5.5	41.4
F. M. Barns	Gd. Guer.	899.	4.8	43.1
J. L. Miller	Gd. Guer.	923.8	5.	46.1
Austin Kinyon	Gd. Jer.	871.1	4.6	40.
R. H. Fleming	Hol.	1577.9	3.8	59.9
R. H. Fleming	Hol.	1565.5	3.4	53.2
R. H. Fleming	Hol.	1435.3	4.2	60.2
Ezra Calkins	Gd. Hol.	1023.	4.4	44.9
George Dickinson	Gd. S. H.	1168.7	4.6	53.7
George Dickinson	Gd. S. H.	1041.6	4.6	47.9
George Dickinson	Gd. S. H.	1050.9	4.3	45.1
George Dickinson	Gd. S. H.	979.6	4.1	40.1
R. K. Cornell	Gd. S. H.	923.8	4.4	40.6
R. K. Cornell	Gd. S. H.	961.	4.4	42.2
George Dunbar	Gd. Ayr.	1016.8	4.	40.6

—P. D. Jones, Official Tester, Austin Leonard, Secretary.

WHY I AM DAIRYING

I was born and raised here on Evergreen farm, but was not trained to dairying. My father raised hay and grain for market, just keeping a few steers to consume the rough feed. When I took charge at the time of his death, I was 17 years old and had heard so much talk about the hard confining life of a dairyman that I did not take it up. Seven years ago I became interested in a country store. I had the place farmed on shares for the four years I was in the store, and now, after trying both, will say that I would rather milk cows 4 years than to spend four more years in a store.

When I again took charge of the farm I kept the mixed bunch of cows the tenant and I had owned on shares, thinking then that if I liked dairying I would soon sell them off and put on all of one breed. Finding that I liked dairying well enough to continue it, a year ago last summer I decided to put on all Holsteins, and so far I have not been sorry. We had a public auction and made a clean sweep of all cows and heifers on the farm. I then went to New York state and bought a carload of high grade Holsteins and a few purebreds. I believe I did very well for my first attempt, and I now have a pretty fair herd.

The cows were springers when I bought them. I raised eight grade heifers from them and now have just sold the heifers at average age of 15 months for $75 per head. That seems a good price for yearlings, but the good kind are worth it. The price includes service of my purebred sire and their keep until March. I have bought three carloads of cows in New York state for myself and others, and have tried buying both from dealers and direct from farmers. I will say from this experience that unless your time is not valuable and you know the country and people well, it will pay you to go to a reliable dealer, one whom you have looked up in advance. Many farmers will not sell subject to tuberculin test, and also will ask you more than they would of their home dealers.

Whether it be Holsteins, Guernseys, Jerseys or Aryshires, I think it is best to keep all of one kind and work on the breeding of them. You will get much better results than by having a mixed lot. By all means use a purebred sire. If there were 500 to 1,000 good grades of any one popular breed in a 10-mile radius in any section it would be no trouble to get buyers for surplus stock. As the ticks are being exterminated in the south, many cows are being put on in that section and there should be a good market for years to come. At present many Holsteins from New York are being sent there and the black and white seems to be the popular cow there. From my own experience I think justly so. They are good looking, good producers and hearty feeders, and if one should go wrong for milk they will bring a good check from the butcher.

While Holstein milk is not as rich in butterfat as some other, it will make up in quantity, and as a beverage it is now recognized as being the best for all, especially infants and invalids.

My cows are good feeders and I want them so. If many farmers with 20 cows would keep but 10 good ones, give them as much feed and attention as they do the 20 they now have, they would be better off in dollars and also have something that would fill the eye as well as the bucket. As a neighbor remarked when he saw my cows last winter, "Say, if these cows didn't pay a profit on their milk it would be worth

"Good News for Farm Women"

Orange, N. J., March 1, 1916

Dear Mrs. Dairywoman:—

The bearer of good news is always welcome; and I have some very good news for farm women. We've a new separator at our house and it's a wonder.

One splendid feature of this new invention which must have been planned with the comfort of the dairy woman in mind is the knee-high supply can. This does away with the hard, high lift no woman should be asked to endure day after day. It's only a few inches to lift and a tilt of the pail, even for a small boy. This is *one* item of good news.

Cleanliness is the beginning, middle, and end of good dairy work. You know how quickly the separator shows the effect of any slight letting up in this direction. With dishes to wash three times a day, cooking utensils, calf pails, milk pails, etc., a big pile of separator disks is just about the "last straw", isn't it? But with our new Sharples there are only three pieces to clean, not one heavy, bulky, or fussy. This is the ***second*** piece of good news.

Formerly, a slight slowing of speed in turning the handle of the separator meant a loss of cream—and money. One's attention had to be strictly on turning the crank at an unvarying high speed, which was trying to both mind and strength. My ***third*** and best piece of good news is that

THE NEW SHARPLES SUCTION-FEED

Separator draws up into the bowl just the right amount of milk—always in proportion to the separating force. If you feel out of sorts, you may turn slowly and the bowl will drink up just enough milk for clean skimming and no more. If you feel spry and want to get through to sew, to trim a hat, or to visit a neighbor, turn as fast as you please and the bowl will take up proportionally more milk, yet the cream will be of the same thickness. Smooth, even cream, such as the Suction-feed gives you makes quality butter that brings top prices.

The separator has only one thing to do while you have many tasks. The separator has always been a tyrant which insisted on being turned at regulation speed, whether you were well or ill, worried or happy, rested or worn out. But this new Suction-feed Separator ***meets your moods.*** Its speed is your speed and yet, it ***gets all the cream all the time.***

Why don't you drop a postal to the Sharples people for their new book? Then, you can show your husband that this new invention will be a money saver for him as well as a labor saver for you.

Yours truly,
A Dairywoman

What this farm woman says in her letter is absolutely true. There are many other pieces of good news in our new book, "Velvet" for Dairymen, which fully describes this wonderful separator. Send for your copy today. Address Dept. 20.

The bowl is easy to wash. There are only three parts, and *no disks.*

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Proper ventilation is the only means of maintaining the health of cattle, curing hay quickly, preventing fires from spontaneous combustion. Costs but a few dollars to equip your barn. The "Globe" more than pays for itself the first year.
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1916 FEATURES Include valves in the head, (worth $15 alone, but costs nothing extra), extra large cooling surfaces, perfected oiling system, economy carburetor (a fuel and money saver, worth $10 more—costs nothing extra on the Galloway), built-in magneto and Hercules water-cooled cylinder head, an arch of strength, mechanically perfect in design, (worth $25 extra, but costs you nothing!)
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considerable just to have them to look at." Of course the looks won't pay the feed bill and taxes, but to me it seems to make the work more pleasant to see a good looking bunch of stock, and I am sure the hired help is proud of them and takes more interest in them.

Much milk is sent to cities that is not at all fit for human use, and it is the fault of many farmers that the city restrictions have been made so severe. It is not much more trouble to have it clean than it is to have it dirty and try to strain the dirt out of it. You can strain the visible particles out, but the real dirt is washed on thru. If the first bucket you strain is dirty, the strainer merely mixes it thru the whole milking. I have not strained any milk for over a year. I aim to keep the cows clean any way and just before milking we spend just a few minutes wiping their udders and flanks with a damp cloth. This removes the dust and loose hairs and also starts the milk secretions. Most cows can be easier or more quickly milked after such care. Then we use the hooded sanitary milk bucket and carry each bucket to the dairy as milked. We pour direct to can without straining. We do not believe in keeping the cans in the stable. In this way you can produce a sanitary milk which will usually command a premium over ordinary milk.

As to getting rid of boarder cows, one of the very best aids is to join a cow-testing association. We then know just what each cow is doing and in addition to this we know the butter fat test of our milk, so that if our city dealer is getting too much milk and kicks on the butter fat test, we know whether it is a bluff or the truth. I joined the first Harford Cow Testing Association a year ago last December. The official tester comes once a month, weighs and tests each cow's milk, weighs her feed and shows just the profit or loss. We could do this ourselves but most of us are too busy.

In the 12 months just finished my 18 head (including 3 heifers with first calves) produced in 360 days, 156,940 pounds of milk which contained 6,572 pounds of 80 percent butter, making a daily average for each cow in the herd of three gallons of milk a day and one pound of butter. The product sold as milk made the gross sum of $3,154.83, with a feed bill including roughage and pasture of $1,414.01, leaving for labor, equipment, interest and depreciation, $1,740.82, to which should be added a goodly sum for manure and calves. All of the cows showed a profit but I have gotten rid of four that did not do as well as I wished.

There is work in anything that is worth while, but with a good bunch of cows in a good barn I would rather attend to and milk cows than many other farm jobs.—A. B. Twining, Evergreen Farm, Harford Co., Md.

DAIRY RATION FOR MARCH

On the basis of cost in relation to feeding value, the following mixture is recommended by N. Y. College of Agri. as a dairy feed during the month of March: 500 pounds hominy, 500 pounds distillers' dried grains; 500 pounds mixed feed, 300 pounds gluten feed, 200 pounds oil meal.

During the past month distillers dried grains have dropped a little in price; gluten feed has advanced; cotton seed meal and linseed meal have taken a drop; but according to the department of animal husbandry of the state college at Cornell they are still out of the question except as a small part of the mixture.

The 200 pounds of oil meal has been recommended in the mixtures given, altho oil meal is relatively expensive. Since spring is coming on, however, the college thinks it is well to have oil meal in a ration for cows that are going to calve. It will be good for all cows at this time of the year. Since it is dropping in price, and because of its high manurial value, the college thinks that dairymen will be justified in putting some of it into the ration.

OLEO LEGISLATION

The Color Question

Up to the present writing the oleomargarine legislation presented in the 64th Congress is as follows:

House Bill number 3613 was introduced December 10th, 1915, by Mr. Dyer. This is a bill to amend the Act of Congress of May 9th, 1902, to permit the coloration of oleomargarine to look like butter, and that no tax be imposed thereon. This bill, if passed, would permit the artificial coloration of oleomargarine with ingredients of any kind, without a tax being imposed. Another bill, known as House Bill number 7620, was introduced January 5th, 1916, by Mr. Gordan, which provides for the repeal of the internal revenue tax on the manufacture, sale, and use of domestic oleomargarine, and to repeal the internal revenue tax of 15 cents per pound imposed upon the sale, transportation and use of imported oleomargarine and to amend certain sections of such acts. Both these bills have been referred to the Committee on Agriculture. It will be seen by the titles of these two bills that the packers want to sell oleomargarine colored.

From the "Oil Miller," Atlanta, Ga., January, 1916, page 28, we find the proof of our statement, which says: "The opposition to the tax comes mainly from the big packing interests in Chicago, and other meat sections, as well as from the cottonseed oil manufacturing concerns of the South." The question arises what interest have the packers in the cottonseed mills of the South, because one hundred dollars worth of cottonseed meal is used by the dairy people to one dollar's worth of oil bought by the packers in the manufacture of oleo. Is it true that the packing interests own one-half of the cottonseed mills of the South?

"The Modern Packing House," by F. W. Wilder, a standard authority on packing house methods, on page 459, says: "The formula for high grade butterine differs from low grade in that it does not contain cottonseed oil." Hence it must be inferred that the oleo manufacturers want to make a low grade oleomargarine and hide its inferiority by coloring it to resemble butter. To prove this statement I quote from a letter written by Hon. James Foust, Dairy and Food Commissioner of Pennsylvania, (where oleo is sold uncolored). He says: "The product is purer and more wholesome than it was when all sorts of schemes were devised to impart to it color or a tint by adding cottonseed and other oils, which depreciated its flavor and quality." And further proof can be added from a letter written by Hon. James H. Maurer, President of the State Federation of Labor of Pennsylvania, to Samuel Gompers, in which he says in concluding his letter, the following: "Therefore, looking at the question from every angle possible, I can see but two reasons why some dealers and manufacturers want a law, giving them the right to color in imitation of butter, their product; one to charge more for their product, and the other to give them a monopoly of the butter market."

The Haugen Oleomargarine Bill prepared by the National Dairy Union is based upon these facts and deserves the support of all buttermakers.—Wm. T. Creasy, Secretary, National Dairy Union.

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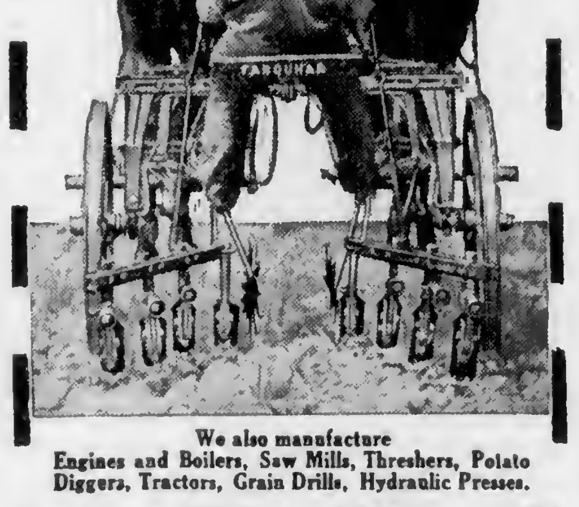

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Absolutely free from adulterants and fillers, just like the feed you would mix for yourself, is a special combination of choice cottonseed meal, dried beet pulp, gluten feed, corn distillers' grains, wheat bran, wheat middlings and a little salt, that's all; each ingredient weighed by automatic scales and all thoroughly mixed in huge power driven mixers, so that it is always absolutely uniform, and always good. An extra quart or two of milk daily from each cow may turn a loss into a profit. Try LARRO-FEED for more profits. Sold on "money back if not satisfied" plan, the decision being entirely up to you. LARRO dealers almost everywhere; write if none near you.
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100 uses on each farm. Guaranteed every way. Free Circulars.
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Also mfgrs. of drag and wood saws, mills, etc.

THROWING AWAY CROPS

Other Manufacturers Watch Wastes Closer Than the Farmer

Waste is abhorrent to all of us and yet is one of the most marked features of American life. We are not likely to throw away a finished product. The clothing manufacturer does not throw away a suit of clothes after he has made it, but unless he watches closely he will find that the buttons, the thread and the odd pieces of cloth, as well as the time of his employes, will be wasted and add to the cost of the manufactured suit.

The farmer is in much the same position. He does not willingly throw away a bushel of corn after he has husked it, nor does he set his wheat out for the consumption of the birds. The wastes he suffers from are made in the handling of what might be called his raw materials. The failure to do the right thing at the right time is often more of a waste with the farmer than if he were to throw away several bushels of his finished product. Probably this is shown most in his manure pile.

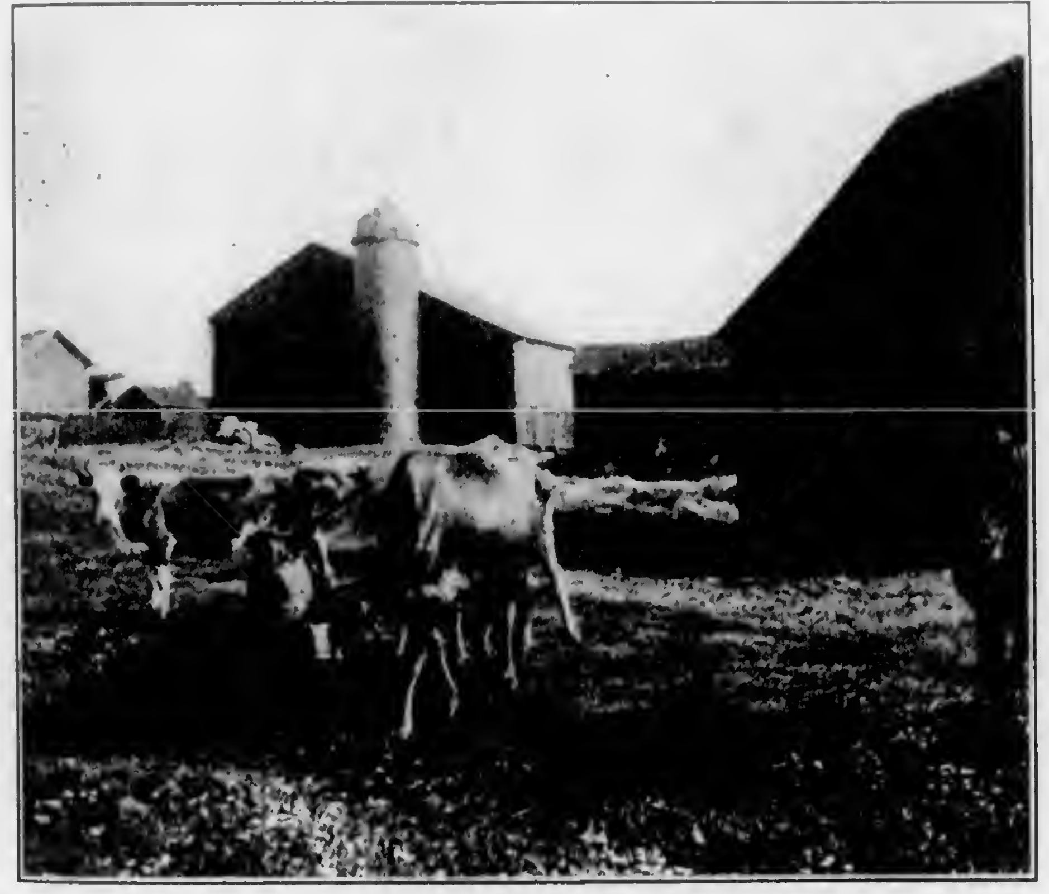
Uncle Sam tells us that there is wasted in the United States every year an average of $100 worth of manure for every farm. Of course, this does not mean that the farmer wastes all of this, but it is undoubtedly true that many farmers fail to get what they might get from the manure pile and have to resort to chemical fertilizers or else suffer the loss of the fertility of their fields.

Very often this waste of money is due to ignorance of the best way of handling the manure. Sometimes it is due to the natural distaste for working around the pile, but we all have unpleasant tasks to perform, and we might just as well face them and get them over with as to dread them. Manure is the most valuable fertilizer that can be applied to any land. Its results are greater, in proportion to the cost, and its handling isn't so very difficult when it is gone about right.

The greatest waste in manure comes from the attempt to store it. Unless you are provided with concrete tanks or covered barnyards and have facilities for flooding the manure pile frequently you will certainly lose in storing it. The rains, the snow and the air all conspire to filch away some of the valuable properties, and in three months' time they may, and we are sorry to say they frequently do, take half the money value of the pile away. The ideal way, of course, is to spread manure as fast as it is made. That was Nature's way originally and man has never been able to improve on it. The simplest way to accomplish this is to have the spreader standing where the manure can be thrown on it and at every opportunity to haul it out and put it on the fields. A light fall of snow need not interfere with it, nor need the farmer stop because the ground is frozen hard. So long as it is frozen hard the manure will lie on the top without injury, but as soon as the weather gets warm the ground will take it up.

A GOOD SILO

The accompanying illustration shows the hollow tile silo that we have had in use for two years. It has given us excellent satisfaction. When once erected there are no expense or repair bills. We had some very cold weather last winter but our silage did not freeze. There are several silos of this type in our community, and they are giving universal satisfaction.—F. B. Camp, Venango Co., Pa.



DAIRY BUILDINGS ON F. B. CAMP'S FARM, VENANGO CO., PA.

TIMOTHY HAY FOR THE COWS

It is pretty generally recognized among dairymen that timothy hay is not a first class feed for cows, but it is not so universally known that the cause of this is late cutting. W. A. Henry, in his book "Feeds and Feeding" says that timothy cut before bloom contains 9.8 percent crude protein; at early bloom it contain 6.3 percent, and at late bloom only 5.5 percent. When the grass is fully ripe it has slumped in protein content to 5.5 percent. When left in the field until the seed rattles out, as is done on far too many farms, it is not worth more than half what it was the first of July—in other words it contains less protein than dry corn stover. Pursuing the subject still farther he tells us that timothy rowen contains 14.4 percent, placing it almost on a par with the third cutting of alfalfa, and above red clover.

Keeping these figures in mind it is evident that timothy should be cut in June rather than August if it is to be fed to the dairy cows. What the June crop lacks in weight is more than made up in feeding value. The cow must have protein in order to produce milk. The legumes furnish more of this element than any of the grasses, but meadows particularly adapted may be seeded to timothy with the assurance of getting a grade of hay high enough in protein content to be worth growing.—C. H. C.

Note.—At prices that have prevailed on timothy in recent years, most eastern farmers will find it more profitable to sell their timothy and grow the clovers for feed. But where timothy must be depended upon for forage, the recommendation of early cutting here given may be followed.—The Editors.

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Poultry

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A GOOD CHICK FEED

This the age and hour of preparedness for the nation should be the same for the poultryman and fancier if he expects to continue in the poultry game.

Early hatched chicks lay and pay but we must be prepared to grow them after hatched, which part of the game is the most difficult with the average farmer. It may seem strange to some people that others are so very particular as to the kind of feed they give their little chicks.

Many people use the common commercial chick feed of cracked grains and seeds and other "stuff" and I am sorry to say that much of this ready mixed chick feed is cracked corn and "stuff" which if examined closely is weed seed.

For years I have made my own chick feed and sold it to my neighbors some seasons as much as three tons and the price was higher than sold by dealers because it was all grain and solid food that would grow the chick.

I had it cracked at a near-by mill and this can be done on the home mill so much in use by farmers at present on many modern farms. This is the mixture I used for chicks to be fed the first 3 weeks. One bushel good hard wheat, one peck hulled oats, half peck kaffir corn, half peck Canada peas, half peck of white or yellow corn. This cracked fine and the meal sifted out.

To this cracked grain add three lbs. fine sharp chick grit, three lbs. fine cracked oyster shells, three lbs. fine granulated chick size charcoal. To make a dry mash of the meal sifted out of the cracked grain I add one-half its weight in good wheat bran and then add five pounds fine prepared meat and five pounds fish scrap and two pounds bone meal. Be sure the prepared meat is fit for feeding and not tankage. After starting the chicks on sharp grit, oyster shells and charcoal I feed very little of the cracked grain for the first few days. After the fifth day I have small hoppers before the chicks all the time filled with the dry mash made from the sifted meal, bran, etc.

A chick will not over feed if kept exercising and the feed is not too high in protein. Tender grass or sprouted oats or wheat cut fine will help to balance the ration and keep the chick in healthy condition. Allow them to run out on the ground if not wet and muddy as it is best to get them close to nature as soon as possible after the first week.

When three or four weeks old more corn cracked and wheat can be fed with the dry mash and fresh water, your feed is complete.—Frank Kline, Chester Co., Pa.

DUCK RAISING

(Continued from last week.)

There are three varieties of the Indian Runner, namely the Fawn and White, Penciled and the pure white. They are a new breed in this country and have gained popular favor in a very short time. These ducks came originally from India; hence the name Indian. The term "runner" comes from the fact that they literally run instead of waddle like other ducks. The Indian runner is noted for its ability to produce lots of eggs. The writer has a letter from a party who claims that her flock of twenty runners average 230 eggs each for the year 1914. A lady from Pennsylvania has made a sworn statement that one of her runners laid 258 eggs in 365 days. However, 130 to 175 is an excellent average and is all that should be expected.

The Indian Runner is a small duck and will make nice broilers if properly fed and taken care of and should be marketed when ten to twelve weeks old. They will be matured in that time. All surplus drakes should be sold and also the cull ducks. I will not attempt to describe the three breeds of runners for they have often been described in the poultry papers that a further description will be useless. Standard weight drake 4½ pounds, duck, 4 pounds.

White Ayelsbury ducks are similar to our Pekins. They are bred on a small scale in this country, but are bred extensively in England.

Standard weights are the same as the Rouen duck.

Another one of our popular ducks are the white and colored muscovey ducks. They are not, however, very desirable to keep with other ducks or poultry for they are quarrelsome. They do not quack like other ducks. They are very good flyers and sometimes build their nests in trees. They are not as good layers as the other breeds that I have described. Standard weights are: Adult drake 10 pounds; adult duck 7 pounds; young drake 8 pounds and young duck 6 pounds.

The best way to hatch ducks on a small scale is with a hen. Place a sod or some moist earth in the bottom of the nest and then place some straw or hay and set from eleven to thirteen eggs under the hen, depending upon the size of your hen. After the eggs have been sitting about two weeks, sprinkle with luke warm water of 103 degrees every other day and the last week every day, until they hatch. We always place the hen and ducklings in a coop for we find as a rule that the hen is the best brooder we can get to use on a small scale.

If you wish to hatch and brood ducklings on a large scale it will be necessary to use incubators and brooders. In hatching ducklings in an incubator be sure and use plenty of moisture.

One of the best feeds for starting ducklings on is stale bread moistened with sweet milk and squeeze as dry as possible with the hand, sprinkle lightly with sharp sand and feed five times a day. After they are a week old, change to a mash and feed five times daily for the first six weeks; then reduce to three times daily. Make the change gradually from bread to mash or you may cause sickness. The mash that I have had good success with is the following: Four parts of wheat bran, two parts corn meal, one part low grade flour, one part wheat middlings, one part alfalfa meal, one-third part sharp sand and one-third to one-half part beef scrap. Mix together dry and then mix with water and feed in a crumbly mass. Do not feed any more than they will clean up with a relish. Over feeding is a great deal worse than under feeding. Always give them fresh water at feeding time. For the first two weeks, take the chill off the water. Have the vessel deep enough so they can rinse out their nostrils, but have it arranged so they can not get their bodies wet until they are six or eight weeks old. Have their coop so they can get into the shade. Hot sun is fatal to young ducklings. Always have a heap of sharp sand and some charcoal so they can get at it. The sand helps grind their food and the charcoal will keep their stomachs sweet.

A good egg laying mash is made as follows: Four parts of wheat bran, two of corn meal, two of wheat middlings, two or three of clover leaves or alfalfa meal, two of beef scrap, one of sand.

Mix with water and feed in a crumbly mass and feed twice a day all they will clean up quickly.

Duck raising is a very profitable business. I would not advise any one to rush into it and expect their fortune the first year or two. It has its pitfalls the same as every other business. Start on a small scale and grow. Experience will be your best teacher—if you stick.—George F. Williamson, Morris Co., N. J.

HOW TO GET EGGS THAT WILL HATCH

We have never had any trouble getting eggs that are fertile and that hatch well. The care of our fowls, selection, method of feeding, etc., is as follows.

The chickens are never inbred. We keep only strong, vigorous hens and pullets, and either buy some pure eggs, hatch them and thus raise non-related cockerels to mate with the hens, or buy strong, vigorous cockerels for breeding purposes. Vigor in fowls is the first thing to be considered. No fowl that seems weak or lacking in life and animation is kept for breeding, for if such a plan is followed the results are sure to prove disappointing. The poultry raiser must learn to begin right in his selection of breeders and stick to it, if he is to turn the fowls into profit. Eggs from well bred, vigorous, well cared for fowls will contain strong germs and will hatch well.

Often the method of feeding affects the fertility of the eggs, by failure to supply something that the fowls needed. The feeding one kind of feed is liable to cause it, as, corn alone fed in amounts to cause overfatness. It does not contain all the elements necessary to build up the different parts of the system and repair the waste, hence there is something lacking to produce plenty of strong germed eggs. The fowls should have as large a variety of feed as possible, different grains, meat scrap of some sort and any and all kind of green stuff and vegetables. Clover, alfalfa, lettuce, cabbage and sprouted oats furnish a supply of green stuff that is bulky and just what the fowls need as it helps to build up a good strong body. Wheat is a fine feed as it contains all the elements needed in the make-up of the body. Bran also is one of the best feeds to keep before both old and young fowls. Old plaster pounded into grit, and oyster shells furnish lime needed for good hard egg shells. Charcoal and other grit also supply a need. Sour milk furnishes necessary feed, containing protein. Foodstuffs that keep the fowls contented and in first class condition and fat enough but not overly fat are what the fowls need to be at their best and able to reproduce themselves.

Eggs that are unusually small or overly large should not be incubated. Unnatural formed eggs should also be discarded as they are generally infertile. Rather, choose the perfectly formed, medium sized eggs. It is best to set them the same day they are laid or as soon afterward as possible. They are in good condition when one week old and frequently will hatch fairly well after they are two or even three weeks old if kept in a moderately cool place and turned often to keep the yolks from settling to one side. However, we do not set eggs that are over a week old, as we think it safest not to take any chances with them.

Fertile eggs must be properly set. If placed in an incubator, it should be carefully watched and given a chance to do its best. If the eggs are placed under a hen, see that the nest is comfortably constructed, kept free from vermin and the hen given the care needed to induce her to stick faithfully to her task. In this way the dearly worked for fertile eggs will not be a disappointment.—C. B. Williams.

OYSTER SHELLS FOR CHICKS

I have noticed that a number of persons who keep poultry get oyster shells and grit for chickens confused. They seem to have the impression that both serve the same purpose and that if grit is provided for the laying hens that oyster shells are not necessary, or if oyster shells are provided that the grit is not needed. The oyster shells are used because the ordinary grains that are fed to the poultry are deficient in lime and since the shells are almost pure lime this deficiency of the food is supplied by the shells. The object of feeding grit is to grind the food. The oyster shells may serve to grind the food to a limited extent but the grit can not furnish lime to the chicken which is necessary to form the shell of the egg.—A. J. Legg.

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"We have been raising chickens for the last seven or eight years and have tried to find something that would stop the White Diarrhoea. Have tried everything we heard or read about but never found anything that did the work until we sent for Chictone. Our first hatching last spring was 97 chicks. They began to die and when we got the remedy we had only 68 left. We lost no more after we began to use it. We never lost one out of our second hatch of 94. Chictone is one of the greatest discoveries ever made for the benefit of chicken raisers." Mrs. Claude Kane, Cataract, Wis.

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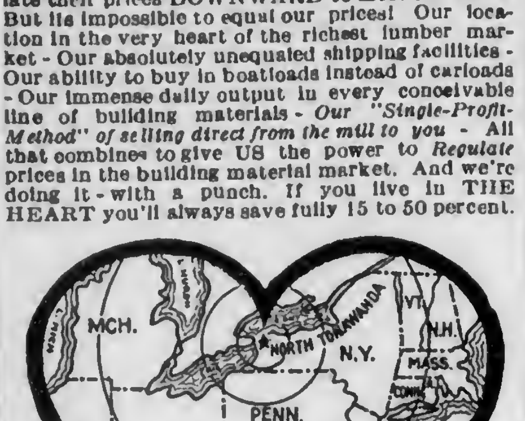

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ALFALFA HAY FOR BROOD SOWS

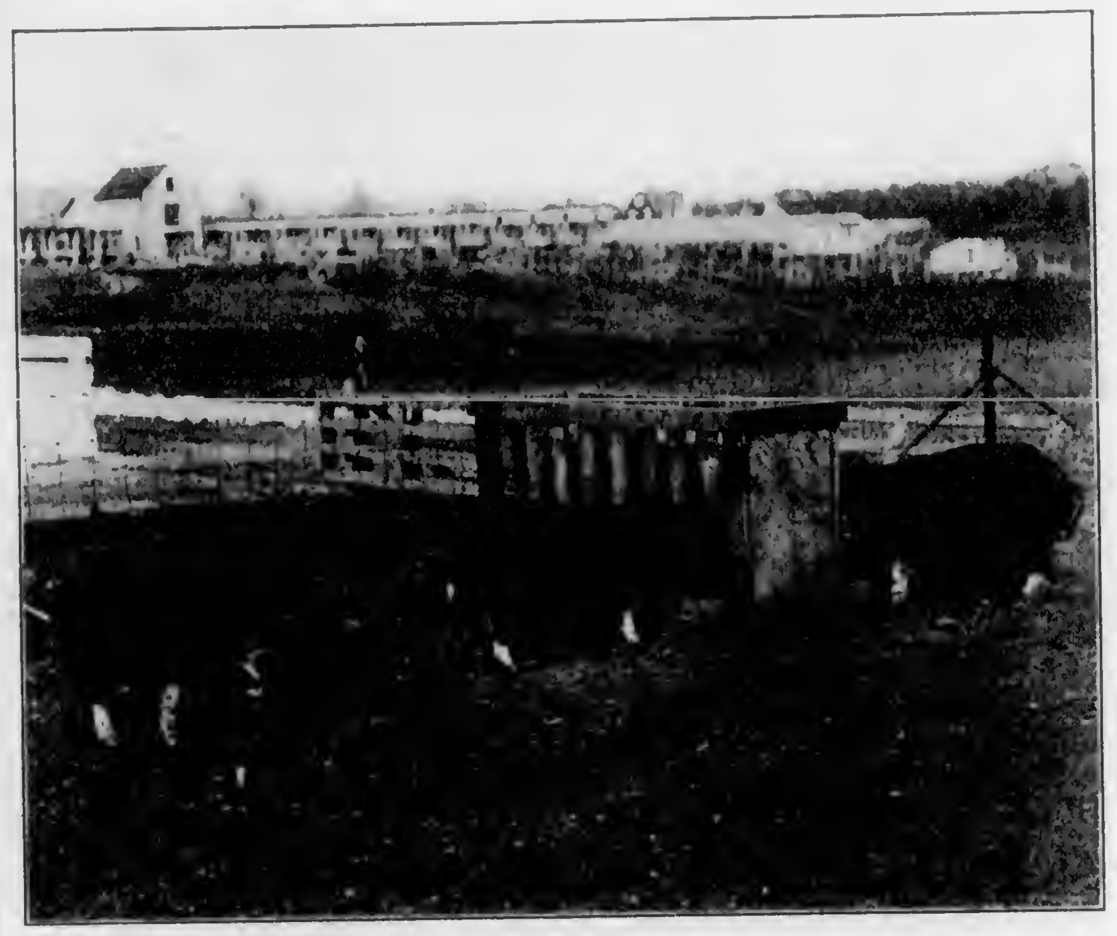
Until quite recently the idea has prevailed that hogs would not eat alfalfa. This belief has been overthrown by feeding experiments conducted at the New Jersey Experiment Station, and it has been definitely established that hogs will not only eat alfalfa but also that it is one of the most desirable roughages to use in the winter ration. In the case of brood sows, it provides the right amount of roughage, and in addition, sufficient protein to meet the demands of the sows themselves and those of the unborn pigs.

The mixed ration adopted by the New Jersey Station viz: Alfalfa and ear corn alone, is fed to brood sows up to within 30 days of farrowing time. Equal parts of ear corn and alfalfa hay, by weight, have given the best results. In one instance a 300-pound sow consumed an average of 3 pounds per day of this mixture, coming thru the winter in excellent health and showing a fine appearance. The practice of the Station is to increase the amount of corn slightly during the cold weather, so that the sows may be kept in a vigorous and thrifty condition.

About twenty days before the sows are due to farrow the addition of a small amount of some such grains as wheat middlings, to which 10 percent of digester tankage has been added, is made to the rations. The object of this extra feed is to get the sow in better condition for farrowing, and sufficient quantities should be fed to insure a gain in weight for each sow of 1.2 pounds per day. The grain mixture is fed as a thin slop. Skim milk may be used for this purpose, altho water will do. One part grain to four parts water or milk is a good mixture.

Where sows were fed in the manner outlined, the pigs at farrowing time were strong, active, vigorous individuals; sows placed on a grain ration while suckling the pigs had much better appetites than others wintered in the usual way on grain mixtures.

A convenient and easy device for feeding the alfalfa hay has been adopted by the New Jersey Station. The device consists of a simple slat rack with slats placed 4 inches apart. This rack is 4 feet wide at the base and may be any desired length, about 4 to 6 feet being most convenient. These racks are movable, an advantage over the ordinary fence racks. The bottom of the rack is extended out 6 to 8 inches beyond the slats and lightly boarded, making a trough. This trough catches leaves which would otherwise be lost, and it is these leaves which contain much of the nourishment of the alfalfa plant.—C. M. A.



SLATTED RACK FOR FEEDING ALFALFA HAY.

The Brood Sow and Her Litter

Care and Management

Surely farrowing time is an important season for the pig raiser. It corresponds in many ways to the harvest season for the grain crops. A small pig crop is as disappointing as a small grain crop, but in many cases is more easily averted. The weather conditions have much to do with the health and vigor of the new-born pig. These conditions cannot always be controlled, but some points concerning management have much to do with producing "bumper pig crops."

Much of the success of this spring's pig crop was determined by the selection of the brood sow previous to the breeding season. Poor selections cannot always be told until the sow has been given a chance to prove her value. It is not always the sow that seems to fit all requirements of a good producer that proves the most efficient, but usually this is true. The good brood sow must farrow a large litter of pigs, she must farrow pigs that will grow into good individuals, and she must have those maternal qualities, such as disposition and milk production, to enable her to properly care for the pigs until they are ready to wean.

The sow that has proven herself capable of raising large litters of good pigs should be retained. The system of fattening and selling sows after they have raised one litter of pigs is a poor one. At this time she may sell for more money than later on, but if she is a good brood sow the lower selling price will be more than offset by the good which she will do. Old sows will produce larger litters and stronger pigs than will young sows. This is contrary to the belief of many farmers, but is substantiated by results of careful experiments conducted by the Iowa Agricultural College.

Feeding

The feeding of the brood sow while she is pregnant has much to do with the size and vigor of the pigs at time of their birth. It should be borne in mind that to properly develop the foetus, the unborn young, feeds high in protein and mineral matter must be used. The pig at birth is made up of much lean tissue and bone, and in the case of the plump fellows, some fatty tissue. The protein material and bone-building material must first be supplied. The feeds which some brood sows are given do not contain materials from which they can properly develop their young. Corn is a feed which is lacking in there essential components, and should not be used exclusively as a brood sow ration. It can be used extensively, but in connection with such other feeds as are rich in protein and mineral matter. Alfalfa is being used extensively in some sections as a feed for brood sows. If fed in some combination with corn, good results can be obtained. It is especially high in mineral matter and protein, two essentials in building up a strong foetus. It is also much cheaper than most other feeds in proportion to their food value. Tankage is also an excellent supplement for corn in making up a ration for brood sows.

Exercise

Exercise is essential for a brood sow if she is to produce the best results. This is too often overlooked, and probably accounts for many pigs which are not vigorous at birth. The sleeping quarters of the sow should be located far enough from the feeding place to necessitate the animal walking a considerable distance to meals. The sows will always take this exercise regardless of the weather, and usually after getting out will remain out of the sleeping quarters for sometime before returning.

The shelter or sleeping quarters for brood sows should be comfortable and dry. This does not necessitate an expensive hog house. Even on farms where farrowing houses are found, the brood sow is kept in an inexpensive shelter previous to farrowing. Plenty of bedding to keep them dry and warm makes this preferable to a large house where exercise will be lacking. Brood sows should not be allowed to lay upon heating manure piles or to crowd together in sleeping quarters in order to keep warm. Kept under these conditions they often farrow many dead pigs.

At Farrowing Time

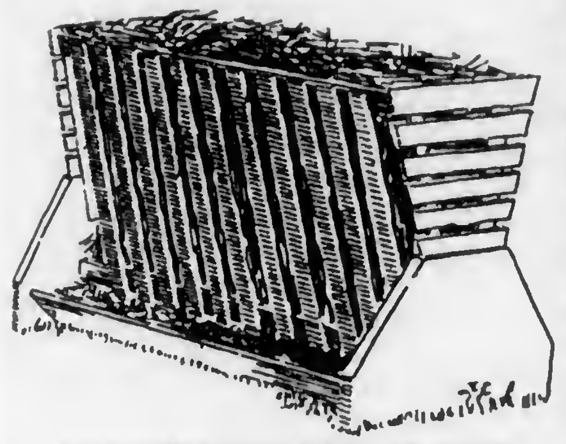
As farrowing time approaches, preparations should be made to save as many of the pigs as possible. A little extra time and attention given to the sow and pigs at farrowing time will sometimes save many. If the sows are bred to farrow during the late winter or before the spring work opens up, more time can be devoted to the young litters.

The place of farrowing should be light, warm and dry. Each sow should have a pen at least 8x8 feet. These may be located in a barn or shed if a desirable hog house is not at hand. A sow can farrow to good advantage in individual hog houses if it is not too cold. In case of extremely cold weather, additional heat for a day or so is advisable. The date of farrowing should be known and the sow placed in farrowing quarters a week previously, so that she may accustom herself to surroundings. The gestation period of sows is 112 days, and seldom varies more than a day or two. It is advisable to be on hand at farrowing time to render assistance if needed. Farrowing time is usually preceeded about twelve hours by the appearance of milk in the teats of the sow. A sow will seldom farrow after midnight except in those cases where labor was begun much earlier.

Only a small amount of bedding should be used, and this should be clean and fine. If large amounts of bedding are used the little pigs may become entangled in the bedding material. The sow will also make a hole or bed in large quantities of bedding and pigs are more easily crushed. A guard rail

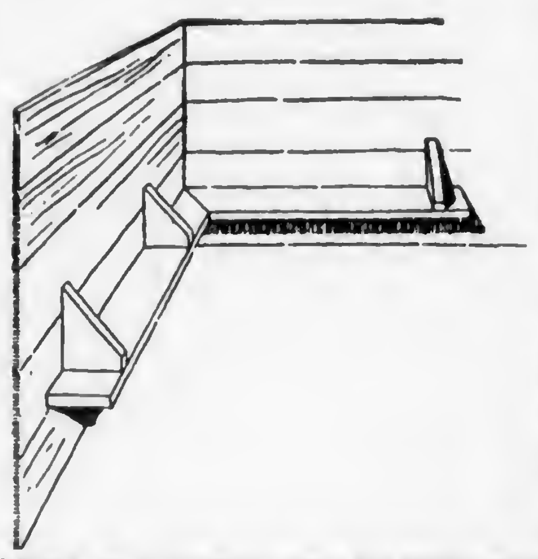
or fender around the pen serves to save many pigs. This consists of a 2x4 inch piece being placed 10 inches above the floor and six inches out from the wall of the pen. When laying down the sow will strike against this rail and any pigs which may be at her side will have a chance to escape. It will be noticed that a sow will collect the bedding and make her nest in a far away corner, so that only those corners need be thus protected.

Many pigs are saved by being taken away from the sow after farrowing time and placed in a basket or half-filled barrel to be returned every few hours until old enough to take good care of themselves. This necessitates much time, but if many sows are kept it is time well spent. If this is attempted, it should be remembered that the pigs should be returned to the sow as soon as she has finished farrowing, or else she may not own them. Permit them to remain as long as possible before taking them away from the sow, as this serves to develop the maternal attachment of the mother with her family.



A ROUGHAGE FEED RACK FOR SWINE.
From Wis. Bulletin 242.

The feed of the sow for a day or so before farrowing should be reduced or changed to a bulky feed. If the sow is given a full feed at farrowing time the milk flow is larger than the pigs will consume and the stale milk in the udder has a tendency to produce scours. Feeds such as bran or middlings made into very thin slop so as to fill the sow are advisable. After a day or so larger amounts of feed can be given. Such feeds as will produce large quantities of milk should be fed as soon as the pigs are old enough to consume it. Pigs will make gains more rapidly and more cheaply while nursing the sow than at any time after weaning. If the sow is properly fed she will not become as thin in flesh as many think. Corn can be made the basis of the ration, but some nitrogenous feeds such as tankage, middlings or oil meal should be added in order that the nutrients forming milk may be furnished.



CORNER OF FARROWING PEN EQUIPPED WITH FENDERS. From Wis. Bulletin 242.

As soon as the pigs show signs of wanting to sample the sow's feed they should be provided with some feed for themselves. This will add to their growth, and at weaning time they will be thoroly accustomed to eating. The age at which pigs are weaned varies with different sections of the country. If pigs are allowed to run with their mothers for eight weeks, they may be successfully weaned.—Paul Gerlaugh, Pennsylvania State College.

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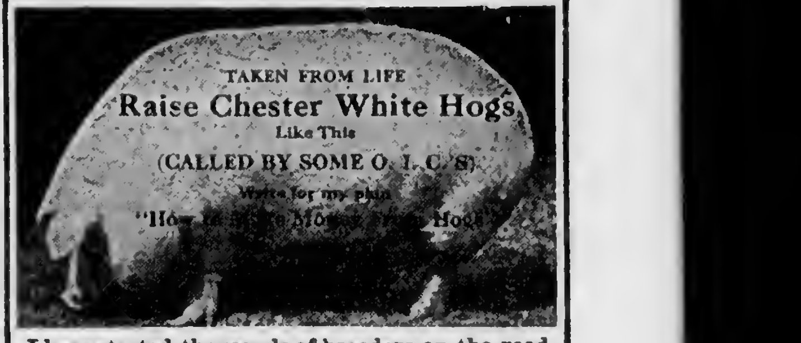

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Making Over Old Furniture

Buffet Made from Old Kitchen Sink

Sometimes one has a piece of furniture which has served its usefulness in one form. Perhaps by a little ingenuity we can convert it into usefulness for some other part of the house. The buffet shown on the left in the cut on this page is one which we made from an old-fashioned sink. I had previously considered getting a new buffet, but decided that if a piece of new furniture were brought into diningroom, it would not correspond with other pieces I had. And we could not afford new dining room furniture thruout. So I went to our large attic, where I am in the habit of storing nice promising boards for future use, and found one which had at one time been in the head of a bedstead, and which with little trouble would be trimmed to 20 by 42 inches, the right size to cover the top of the sink, and leave a little margin at the front and ends. The upper end of the board as it was used in the bedstead was a little oval in shape, so I used that edge for the front of the buffet.

I solicited some help from my husband, and we built up a back which extends above the top about 13 inches, using, to do this, one board 9 inches wide, and another one 4 inches wide, the latter having been the foot of the bedstead. It has a beveled edge and a small ornament in the center, which relieves the very plain effect and gives it a finish at the top. To fasten top on, we screwed strips to the back of the top, and extended them down the back of the sink, screwing them fast to the sink also. I then took another board, the length of the sink, and six inches wide, and with two small iron brackets, one fastened near each end, I made a shelf, placing it about two inches below the top of the back, fastening the brackets to the back.

I then took the old white knobs off the doors and drawers of the old piece. The sink had never been painted, but stained and varnished, so with sandpaper and a piece of glass I scraped and smoothed it off nicely. I stained it the same walnut color it had previously been, and varnished it. If I had cared to go to the trouble, I could have put two small drawers just above the other drawers, in the sink space covered by the top board. With the great variety of stains and paints now available a piece of furniture can be any desired finish.

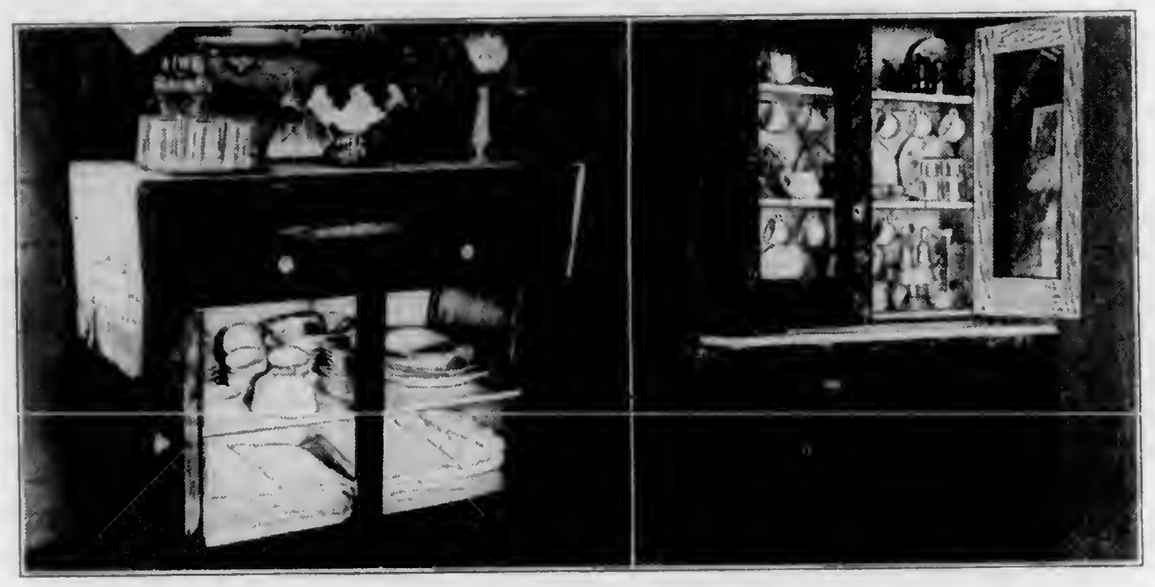
When it was dry, I put nice glass knobs on the doors and drawers, and casters underneath it. Then I lined the entire lower part of the buffet with white oilcloth, pasting it tightly with flour paste on the ends, shelves and back. I then lined the bottom of the drawers with a neat piece of heavy cloth, which can be removed to wash. I had a panel-shaped mirror, which had been packed away for some time. I brought it out, and put it under the shelf on top of the buffet.

The inside of the buffet, with its white oilcloth lining, is very clean and neat looking, and gives me room for one set of dishes, extra trays, table linen and spreads. One drawer gives plenty of room for knives and forks, and the other for spoons. On the top I keep a water set, a basket of fruit, and a vase of flowers in season. The narrow shelf at the top holds odd pieces of china.

My Remodeled China Cupboard

Another piece of furniture which I transformed was a large, old-fashioned cupboard. As it was, it was too clumsy and unsightly. So we set to work on it.

The cupboard was in two pieces, and as it was too tall, we lifted off the upper part, removed the top board from the lower half, sawed off a few inches and replaced the board. We then took off the molding from the upper half around the top, removed the top board, sawed off a few inches, then replaced the board and molding. This brought it to a height more convenient to handle. We put four large, strong double casters under the bottom half.



BUFFET MADE OUT OF OLD FASHIONED KITCHEN SINK (AT LEFT): CHINA CLOSET AT RIGHT.

The doors were taken from the upper part of the cupboard, the panels were removed and glass ones put in their places. This took away much of the clumsy-looking effect. I then sandpapered it, restained and varnished it. Then I painted the shelves, above and below, also the edges, with white enamel paint; also the inside of the doors and the ends of the cupboard between the shelves I enameled white. On the inside back and top of the cupboard I pasted white oilcloth. This with the white enamel made it attractive as well as practically dust-proof.

On the under side of the shelves of the upper half, I screwed brass hooks for hanging cups. Shelves treated thus are easier to take care of, are more sanitary than papers, and the effect of the dishes against the glossy white background is pretty.

The drawers had glass knobs, which I left on. In these drawers I keep napkins, table runners, etc. The lower half of the cupboard extends beyond the upper half, which leaves a place to set things on temporarily. I covered this with white oilcloth also.

The cost of the casters was 60 cents; of the glass for doors, 75 cents; brass hooks, 10 cents per dozen; and the paint, stain and oilcloth did not bring the cost to much over $2.—Mrs. Laura R. Riedinger, Stark Co., O.

SHAMROCK EDGING

In your January 15th issue you gave instructions for shamrock lace, with which I am so well pleased that I would like directions for an edge to match. We so much enjoy your household page.—Faithful Pennsylvania Farmer Reader, Columbia Cross Roads, Pa.

1st Row.—Chain 48. 1 dc in fourth ch from needle; dc 1 in each of next three ch, 3 holes, 7 dc, 3 holes, 7 dc, 4 holes. Turn.

2nd Row.—Ch 5, 1 dc in next to last dc of preceding row; 2 more holes, 13 dc, 1 hole, 13 dc, 2 holes, 4 dc. Turn.

3rd Row.—Ch 3, 3 dc, 2 holes; 13 dc, 1 hole; 13 dc, 3 holes. Turn.

4th Row.—Ch 5, 1 dc, 3 holes; 10 dc, 1 hole; 10 dc, 3 holes, 4 dc. Turn.

5th Row.—Ch 3, 6 dc, 5 holes; 4 dc, 5 holes. Turn.

6th Row.—Ch 5, 1 dc, 1 hole; 10 dc, 1 hole; 4 dc; 3 holes; 4 dc, 1 hole, 4 dc. Turn.

7th Row.—Ch 3, 3 dc, 2 holes; 4 dc, 1 hole; 4 dc, 2 holes; 13 dc, 1 hole. Turn.

8th Row.—Ch 5, 1 dc; 12 dc, 3 holes; 4 dc, 3 holes, 4 dc. Turn.

9th Row—Ch 3, 3 dc, 3 holes; 4 dc, 4 holes, 7 dc, 2 holes, ch 11. Turn.

10th Row.—Dc. 1 in 8th ch from needle, 9 holes; 4 dc, 3 holes, 4 dc. Turn.

11th Row.—Ch 3, 3 dc, 3 holes; 4 dc, 2 holes; 4 dc, 7 holes. Turn.

12th Row.—Ch 5, 1 dc, 5 holes; 4 dc; 2 holes; 4 dc, 1 hole; 4 dc, 2 holes, 4 dc. Turn.

13th Row.—Ch 3, 3 dc, 1 hole; 4 dc, 3 holes; 7 dc, 7 holes. Break thread and fasten. Turn.

14th Row.—Dc 1 in third dc from end of preceding row; 11 holes, 7 dc. Turn.

15th Row.—Ch 3, 3 dc, 3 holes; 7 dc, 3 holes; 7 dc, 2 holes. Turn.

16th Row.—Ch 5, 13 dc, 1 hole; 13 dc, 2 holes; 4 dc. Turn.

17th Row.—Ch 3, 3 dc, 2 holes; 13 dc, 1 hole; 13 dc, 1 hole. Turn.

18th Row.—Ch 5, 1 dc, 1 hole; 10 dc, 1 hole; 10 dc, 3 holes; 4 dc. Break thread and fasten.

19th Row.—Fasten thread in end of previous row, ch 7. Break thread and fasten. Begin at the other end, ch 13, 6 dc, 5 holes; 4 dc, 7 holes. Turn.

20th Row.—Ch 5, 1 dc, 3 holes; 10 dc, 1 hole; 4 dc, 3 holes; 4 dc, 1 hole, 4 dc. Turn.

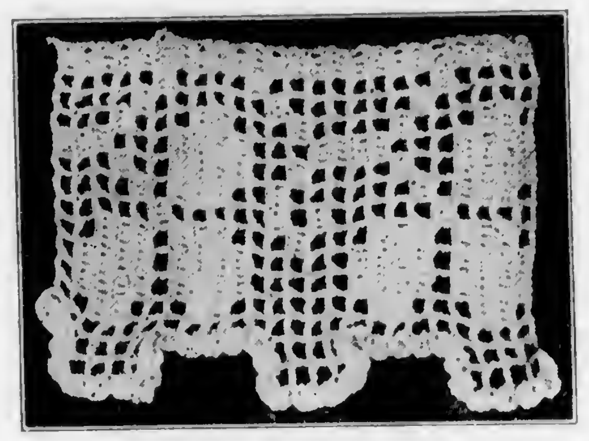
21st Row.—Ch 3, 3 dc, 2 holes; 4 dc, 1 hole; 4 dc, 2 holes; 13 dc, 3 holes. Turn.

22nd Row.—Ch 5, 1 dc, 2 holes; 13 dc, 3 holes; 4 dc, 3 holes, 4 dc. Turn.

23rd Row.—Ch 3, 3 dc, 3 holes; 4 dc, 4 holes; 7 dc, 2 holes. Turn.

24th Row.—Ch5, 1 dc, 7 holes; 4 dc, 3 holes, 4 dc. Turn.

Continue in this way until lace is desired length. Great care must be taken in making the scallops, because sometimes the thread must be broken, and other times this is not necessary. When the lace is as long as desired, make 3 dc in the side of the first square in the edge; 1 sc in the corner, 3 dc, 1 sc in next dc, 3 dc in next square, and so on until the edge is on the whole length. Great care should be taken in turning the corners.



SHAMROCK EDGE

Holes.—The "holes" are made by ch 2, skip 2, 1 dc.—Ruth McSparran, Lancaster Co., Pa.

CITRUS FRUIT MARMALADE

The following recipe is a favorite with Philadelphia housewives. They call it orange marmalade, but it is more properly citrus fruit marmalade. Cut 1 grapefruit, 2 oranges and 1 lemon into small pieces, using everything except the seeds and the tough pulp in the center of the fruit. Measure the cut-up fruit, and add 3 times the amount of water. Let this stand over night in an earthen or granite dish. Next morning boil for 10 minutes, then let stand until the following morning. Add 1 pint of sugar for each pint of fruit and juice, then boil until the mixture jellies. Put in jelly glasses and when cool cover with a thin coating of paraffin. The combination of grapefruit, lemon and orange gives a pleasing flavor, which many consider superior to the marmalade made entirely of oranges.—Nevada D. Hitchcock, Phila. Co., Pa.

HOMEMADE ENAMELED BUTTONS

Almost every dress, waist or coat this spring will be trimmed with quantities of buttons. As style always "comes dear", these buttons are very expensive many times, and sometimes it is difficult to find just the color combinations desired to match a garment. Here is a style of homemade button that any woman may make for a very few cents and a little time:

Wax-Enameled Buttons

For these, metal foundations are best. Any old metal buttons or metal button molds are good, and tarished gilt ones make an excellent foundation for wonderful effects sometimes.

Buy sealing-wax in the shades desired. These may often be purchased in broken lengths for a few cents, the stationer being glad to get rid of them. Heat a button over a small lighted lamp, then heat a bit of wax until it is ready to drip from the end. Dab the wax here and there on the old button foundation. Continue this process with the two or more colors of wax desired for your new buttons; then, holding the button over the flame, turn and twist it about almost constantly until the colors are prettily blended, and the smooth surface shines like expensive enamel. Just as soon as the button suits you exactly, plunge it into a cup of cold water to harden. If the work is not smooth, or if you want to add a bit more of any color, wipe the button absolutely dry, and continue as above directed.

Old metal cloth-covered buttons from men's cast-off coats and vests make good foundations by cutting away the worn cloth tops. These may be held on a hat pin thrust thru the cloth shank at the back for convenience. Other buttons may usually be held between thumb and finger, or held on a hat pin, tooth-pick, or other small instrument thrust thru the shank.

Transparent brown wax containing sparkles of gold or copper, and transparent green, blue, etc., make beautiful foundations over gilt, steel, or other shiny-surfaced buttons, and may then be touched here and there with whatever color in the opaque wax may best harmonize with your new or made-over garment.

A brown button made as above was touched with black, and looked particularly well on a coat made of a brown and black mixture. A bullet shaped foundation covered with waxes in taupe-brown, pale green and two shades of lavender was the effective trimming for a dress in taupe-brown containing wee roses in two-toned lavender with pale green leaves. This was an unusual and somewhat difficult combination that its owner could not match in any of the big city department stores where she saw real enameled buttons not half as lovely, ranging in price from fifty and seventy-five cents up to quite prohibitive prices per dozen.

In this day of many buttons, the above scheme is well worth trying. It is such fascinating work that the girl or woman who has made a set of wax-enameled buttons will not stop there, but will evolve buckles, hat pins, beauty pins, etc., for the mere delight of watching the magic transformation of old and ugly articles turning into new, lovely colored, shimmering possessions. Try it.—Nina Willard Wallace, Broome County, N. Y.

POSSIBILITIES OF ONE CAKE RECIPE

Commit to memory the foundation of this recipe, and you can "ring in" many changes, as follows, at will:

Sweet Cream Cake.—One egg, 1 cup sugar, 1 cup sweet cream, 2 cups flour, 2 tablespoons baking powder, flavoring. This amount makes a small loaf.

If ground cloves, cinnamon, alspice, cocoa and raisins are added, the result is a devil's food loaf.

Stir in ½ cup of walnuts, chopped fine, adding them just before the batter goes into the oven, and you have a fine nut loaf.

The original recipe, if baked in tiny gem pans, makes little cakes that please the children, especially if you dip them all over in frosting.

The batter may be baked in a square pan, cut in squares and served hot with whipped cream, simulating cottage pudding.

Twice the amount of ingredients will make a four-layer cake that when covered with frosting is almost as good as many more expensive cakes.—Edith M. Marvel, Kent Co., Del.

COOKERY QUERIES

Butter in Fruit Cake Making.—Is there any reason why we should mix fruit with the butter instead of the flour in making fruit cake? Some cooks do this in this section. Mrs. W., North Carolina.

In making fruit cake and fruit puddings, it is always better to flour the fruit before adding it to the mixture. That keeps it from settling to the bottom. I would never mix it with butter, for there is no advantage whatever in doing this, and there would be a tendency to mash up the fruit by so doing.

Ginger and Fat Absorption.—Will adding a little ginger to doughnut dough better prevent the absorption of fat in frying? Mrs. W., North Carolina.

I can not see that it would prevent absorption of fat in frying. It is the shortening and the dough's consistency that makes it take up fat. If you have too much fat or shortening in your dough, of course, it is bound to absorb more fat. — Pearl MacDonald, Penna. State College Home Economics Dept.

HOUSEHOLD SUGGESTIONS

To Prevent Baby from Pulling Cloth from Table.—Accidents will happen in the best regulated household, but the wise mother will guard against them if possible; so to prevent baby from pulling off the table cover, and upsetting ink, lamp, etc., she can sew a tiny loop at each of the four points where the cloth comes closest to the top of the table leg. The loop is upon the under side, and a piece of tape is run thru and tied around the leg loosely.

Worn Oilcloth on Kitchen Tables.—When there are small holes in the oilcloth upon the kitchen table and the greasy dish water seeps thru day after day until a disagreeable odor is detected it may be that the moldy, vile-smelling splotches underneath may be direct cause of the bad cases of sore throat that the family is suffering from. Better get along without the cloth until a new whole one can be applied.

Thermometer Saves Time and Trouble.—A good thermometer has many uses on the farm. The temperature of the pantry should not be more than 50 degrees, and that of cellars should not be allowed to become less than 30 degrees, 35 degrees being a good temperature for cellars. When buying a thermometer, select one which bears the name of the maker and with a Fahrenheit scale etched on the glass stem.

To Thaw Out Frozen Pipes.—The trap in the drain pipe leading from the kitchen sink froze up solid one cold night. I lit the bracket lamp and set on the floor under the pipe. The heat from the lamp soon had the pipe clear. When you are afraid the water pipes in the house will freeze some cold night, put a lighted lamp or lantern near them and it will keep the frost away.—C. H., New York.

Lantern in Cold Cellar. — We put lamps or lanterns in our potato cellar when the thermometer commences to drop to near the freezing point. We have a thermometer hanging in the coldest part of the cellar and keep watch of it when it is cold. One lantern will raise the temperature several degrees in an hour or two. — C. H., New York.

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Be sure to give the figures and letters of each pattern exactly as printed at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-263 So. Third Street, Philadelphia, Pa.

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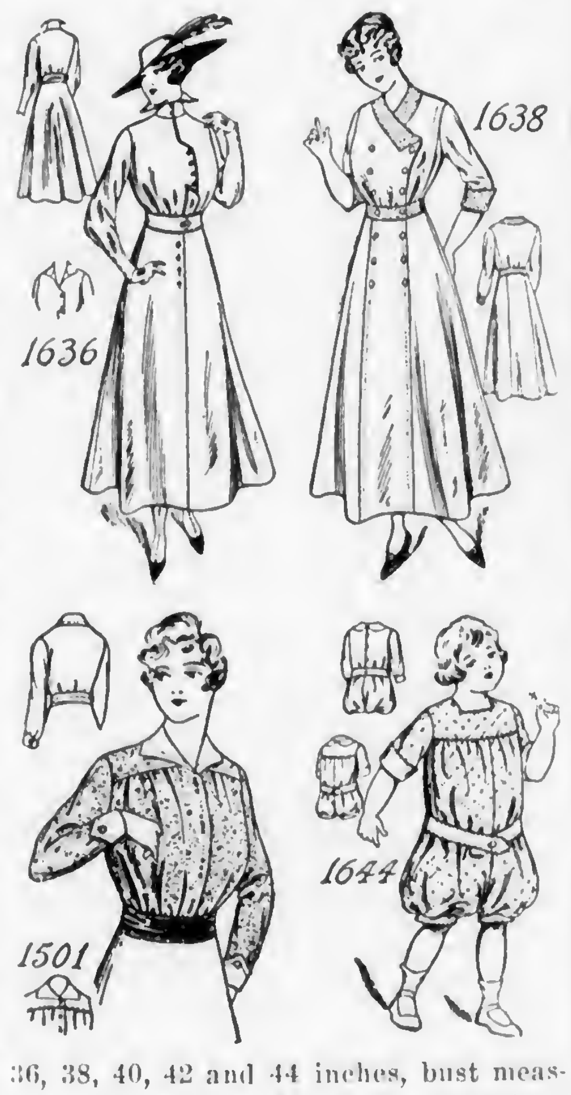
1638.—Ladies' House Dress.—Cut in 7 sizes: 32, 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 7¼ yards of 36-inch material for a 36-inch size. Price, 10 cents.

1501.—Ladies' Shirt Waist with Convertible Collar.—Cut in 7 sizes: 32, 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 2¾ yards of 40-inch material for a 36-inch size. Price, 10 cents.



1644.—Child's Rompers.—Cut in 5 sizes: 1, 2, 3, 4 and 5 years. It requires 3 yards of 27-inch material for a 4-year size. Price, 10 cents.

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Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., March 13, 1916.

The potato market is taking a firmer tone and with continued light receipts there have been slightly advanced offerings for fancy stock. At jobbing, a few Pennsylvania potatoes have sold at $1.35 per bushel. Wholesale lots of Pennsylvania stock are moving at $1.18 to $1.20. Reports are made by dealers to the effect that the greater part of potatoes held in storage here have been sold. Shipments from Maine and York State are becoming lighter so that the Western stock is the greatest factor in controlling the market prices. Maine potatoes are selling on a par with Pennsylvania stock while New York potatoes sell at $1.10 to $1.15. Western potatoes are going out at $1.10 to $1.12. There have been several cars of Delaware potatoes sold in the last week at from $1 to $1.10.

Sweet potatoes are in heavy supply and selling at reduced figures. Jersey stock brings 50 to 60 cents per basket for fancy marks; No. 2 grades selling at 30 to 40 cents. Sweets in hampers sold at 75 to 90 cents, with only a small proportion of the stock bringing the top quotations. Choice or medium grades are selling at 50 to 65 cents per hamper.

Vegetables

Good sound onions continue very scarce, there being a proportion of about one car of fancy stock to every 10 cars arriving. The bulk of the shipments now being received are from York State. Fancy stock moves quickly at prices ranging from $2.25 to $2.50 per 100-lb. bag. The choice stock is bringing from $1.50 to $2. A few cars of Western stock were received in the last week which were real fancy, and sold at $3.

Under very light supply the cabbage market continues at the high mark of $20 per ton. Some extra lots of fancy medium sized cabbage are selling as high as $25 per ton. Florida cabbage is selling around $1.25 to $1.40 per hamper.

Celery from the near-by sections will be cleaned up within another week after a season of very satisfactory prices. Sales are being made from 10 to 15 cents per bunch. Florida celery is arriving in fair supply and selling at $1.50 to $2 per crate.

The supply of root stocks is very limited and prices generally advanced. Carrots are now jobbing at $2.75 to $3.25 per barrel, the highest prices secured this season. Beets are in good demand at $2 to $2.25 per barrel. White turnips at $1.50 to $1.85 per barrel. Rutabagas are now advanced to 90 cents and $1 per bushel. Parsnips are a continued drag and sell around $1 per barrel.

Southern Vegetables

The receipts of southern vegetables are light and the market more firm with increased quotations on several commodities. Slight effects of frost are evidenced in some of the shipments but there is a general improvement in the stock being received. Several cars of Texas spinach packed in bushel baskets were received and of good quality. Sales were made at $1.50 to $1.75 per basket. Some spinach from near-by hot-beds is being offered but in very limited quantities. Norfolk spinach is varying widely in quality and is offered at prices from $1.50 to 2.50 per barrel. Kale is selling at 75 cents per barrel.

Florida beans maintain the high prices of $2.50 to $3 per basket, with some fancy marks selling as high as $3.50. Peas arrive in very small shipments and sell at $5 to $6 per basket. Peppers are selling at $1.50 to $2.25 per carrier; eggplant, $2 to $2.50 per crate; tomatoes, fancy, $2 to $2.25 per carrier; do. choice, $1.50 to $1.75. Lettuce has suffered the effects of frost and a large portion of the receipts are in poor conditions. Sales range from 75 cents to $2 per hamper.

Fruits

The government report of cold storage apple holdings for March first indicate that there are 19.9 percent more apples in cold storage on March 1 this year than were held on March 1, 1915. The barreled apple holdings show an excess of 40.5 percent over those of a year ago and the boxed apple holdings 25.7 percent below those of last year. During the month of February, the holdings were decreased 27.3 percent, the boxed stock moving slightly faster than the barreled stock, as compared with the February first holdings.

Increased consumption has put a better feeling into the market here and many dealers believe the outlook for apples better for the remainder of the season. Quotations are as follows: York State Kings and Gills, $3 to $3.25; Greenings, $2.50 to $3; Baldwins, $2.75 to $3.25; Spys, $2.50 to $3.50; Russets, $2.25 to $2.75; Southern Black Twig, Rome Beauty and Winesap, $2.50 to $3.50; York Imperial, $2.25 to $2.75; Ben Davis, $2.25 to $2.50. Number two fruit brought $1.50 to $2.25 per barrel. The prices on boxed apples have been low in the past week; one car of fancy Rome Beauty apples selling at $1.20 to $1.30. Other varieties reach as high as $1.75 and $2 per box.

Poultry

The market on dressed poultry continues firm under light receipts with but little change in quotations over last week. Extra fancy fowl sold today at 18½ to 20 cents per pound; smaller sizes 16 to 17 cents; old roosters, 15 cents. Fancy chickens were well cleaned up with steady prices maintained. Jersey broilers sold at 24 to 26 cents; other near-by broilers 22 to 24 cents. Near-by fancy turkey hens and toms continue to sell at 31 cents per pound. Fair to choice turkeys, 25 to 30 cents and old toms at 25 cents. Spring ducks from near-by sell at 18 to 20 cents; geese at 17 to 20 cents.

The demand for live poultry has been excellent and the market ruled firm under light supply. Fancy fowl sold today at 18 to 19 cents; roosters, 12 to 13 cents; spring chickens, 19 to 20 cents. Turkeys sold from 20 to 22 cents; ducks, 18 to 20 cents; geese, 17 to 19 cents.

Eggs

Under the more liberal offerings there is a decline of only 1 cent per dozen below the quotations of last week. Fancy near-by extras are selling today at 26 cents per dozen; nearby firsts, 23 cents; near-by current receipts, 22½ cents. Western extra firsts brought 23 cents; firsts, 22½ cents; seconds, 20 to 21 cents. Fancy selected candled fresh eggs jobed at 28 to 30 cents per dozen.

—Selmarad.

NEW YORK PRODUCE

New York City, March 13, 1916.

The increased arrivals of butter and the warmer weather caused a weakness in the trade. Cheese remains firm. In eggs, the general market is firm for the general offerings. Nearby whites are in pretty good supply but there is a good demand and fancy qualities hold firm. Supplies of live poultry are moderate and there is an active demand. Invoices of dressed poultry are exceedingly light and the market is stronger. Apples are in free supply and trade only moderately active and market weak for ordinary quality. Pears in fair demand at steady prices. Potatoes firm with fair demand.

Butter. — Creamery extra, (92 score) per pound, 36c; higher score, 36½@37c; thirds to firsts, 30@35c; state dairy, 35@35½c; packing stock, 20@22c.

Cheese.—Whole milk specials, 18@18¼c; daisies, 18@18½c; skims, 13½@16¼c.

Eggs. — Fresh gathered, extra, 22@23c; firsts, 21½c; thirds, 21½c; dirties, 19c; nearby whites, fine to fancy, 29@30c dozen; ordinary to good, 27@28c; browns, 25c.

Dressed Poultry.—Philadelphia and Long Island, fancy, 3 to 4 pounds to pair, 40@42c; Philadelphia fancy roasters, 23@26c. Fowls, 16@19c; old roosters, 14½c; squabs, $2.50@5.75 dozen. Spring ducks, per pound, 20@21c. Turkeys, dry picked, 26@30c.

Apples.—These prices show the range from "B" to "A". Jonathan, bbl., $2@6; York Imperial, barrel, $2.50@3.50; Winesap, barrel, $2.25@4.25; Greening, barrel, $2@3.25; King, bbl., $2@3.50; Northern Spy, $2.25@4; Baldwin, bbl., $2@3.25; Hubbardson, bbl., $2@2.50; Ben Davis and Gano, bbl., $1.75@3.25.

Vegetables.—Beets, per bbl., $1. Carrots, bbl., $2@2.50. Cabbage, Danish, ton, $10@20. Turnips, bbl., $1@1.25. Onions, yellow, $2@2.75 bag. Squash, Hubbard and Marrow, $1.75@2 bbl. Potatoes, Pennsylvania, $3.40@3.65; Jersey, $2.50@3 bag. Long Island, $4 bag. Sweets, 60c@$1 per basket.

Country Dressed Veals:

Choice	16	@16½
Prime	15	@15½
Fair to good	13½	@14½
Coarse, heavy	13½	@14½
Common	12½	@13
Buttermilks	11	@12
Grassers	10	@11

YORK PRODUCE MARKET

York, Pa., March 13, 1916.

Butter appears to be getting more scarce. Creamery has advanced to 40 cents per pound. Poultry is firmer. Eggs dropped several cents. Pork has reached 12 cents wholesale. Potatoes unchanged.

Eggs.—22@25 cents per dozen.

Butter.—Country, 30@32c per pound; separator, 32@35 cents per pound. Milk, 6c qt.

Poultry.—Hens, 14@16c pound; dressed, 50c@$1 pach.

Vegetables.—Cabbage, 3@10c a head. Lettuce, 5@10c a head. Potatoes, 12@18c ½-pk.; 85c to $1.20 per bushel. Beets, 5@8c a bunch. Radishes, 5@6c bunch. Onions, 4@5c bunch; 10@12c ½-pk. Lima beans, 25c quart. Soup beans, 15@18c quart. Lard 12@15c pound. Turnips 5@8c ½-pk. Sauer kraut, 8@10c quart. Spinach, 20@30c ½-pk.

Fruit. — Apples, 10@20c ½-pk.; 75c@$1.50 a bushel. Pears, 15c ½-pk. Strawberries, 25@40c box.

Retail Grain Market.—Wheat, $1.18; corn, 90c; oats, 60c; rye, 85c; bran, $1.45 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.06; corn, 73c; oats, 52c; rye, 80c; bran, $26 per ton; middlings, $32 per ton.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., March 13, 1916.

Receipts for the week ending Saturday evening, March 11:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,192	5,030	7,512
Previous week	3,114	6,164	7,609

Calves. — Total receipts of calves for this week were 1,106 against 1,298 last week.

Beef Cattle.—A better feeling seemingly prevailed thruout the market, and values were firmly maintained on all desirable stock. Arrivals were ample and included Western nearby and Southern cattle. Bulls of the choicer sorts, as well as cows and calves, brought full rates.

Best steers	$9.00@9.15
Choice	8.60@8.75
Good	8.15@8.40
Medium	7.60@7.85
Common	7.10@7.25
Bulls	5.50@7.00
Fat cows	5.00@6.75
Thin cows	2.75@4.25

Veal Calves.—

Exceptional lots	$11.50@12.00
Good to choice	11.00@11.25
Medium	9.00@10.00
Common	7.00@ 8.00
Southerns and barnyards	4.00@ 6.00

Sheep and Lambs.—Under moderate offerings there was a fair clearance at unchanged values, the market closing with a firm outlook.

Wethers—Extra	$ 8.75@ 9.00
Choice	8.25@ 8.50
Good	7.75@ 8.00
Medium	7.00@ 7.25
Common	5.00@ 6.00
Ewes, heavy, fat	7.00@ 8.00
Lambs, extras,	11.75@12.00
Good to choice	11.25@11.50
Medium	10.00@10.25
Common	8.00@ 9.00

Hogs.—In sympathy with the strong condition at the primary points, the market closed higher under a seasonable demand.

Westerns,	$11.20@11.40
Lights	14.00@14.25

City Dressed Stock.—All varieties of strictly high-grade meats were firmly held under a fair inquiry, with hogs showing an upward revision.

Steers,	10	@14
Heifers	9	@13
Cows	8	@11
Veal calves	14	@16
Extra calves	17	@
Southern and barnyards	10	@13
Country dressed	12	@14
Extras	16	@
Sheep	13	@14
Extra wethers	16	@
Lambs	16	@17
Extra lambs	18	@
Hogs	14¼	@14½

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., March 13, 1916.

Cattle.—The supply on sale Monday was 77 loads compared with 90 loads the week before. The market ruled active and generally 15 cents per cwt. higher while some sales showed as much as 25c per cwt. higher. A good demand prevailed for weighty cattle only a few being on sale. Heifers and fat cows in light supply and sold higher on grades from common to choice. Bulls higher on all grades. Best fresh cows higher; springers and medium grades slow. Today's supply was 50 loads. With a good demand the market ruled active at 25 cents higher on all desirable grades.

Good to choice	$8.80@9.25
Good, 1300 to 1400 lb.	8.30@8.75
Medium to good, 1200 to 1300 lb.	7.85@8.25
Tidy, 1050 to 1150 lb.	7.90@8.25
Fair to medium, 1000 to 1100 lb.	7.25@7.75
Fair, 900 to 1000 lb.	6.50@7.25
Common, 700 to 900 lb.	5.50@6.25
Rough, half-fat, 1000 to 1300 lb.	6.25@7.25
Common to good fat oxen	4.00@6.75
Common to good fat bulls	4.25@7.50
Common to good fat cows	4.25@7.00
Heifers, 700 to 1100 lb.	4.75@8.00
Bologna cows	3.75@4.25
Fresh cows and springers	$25@85

Calves.—Receipts of calves fair and market closed 50 cents per cwt. above Monday's prices. Today's receipts were 650 head, which sold steady with Saturday's close.

Veal calves	$8.50@11.75
Heavy and thin calves	5.00@ 8.50

Hogs.—Supply on sale during the week has been light and with higher prices at other places our market has ruled active and higher all week, the advance being 80c per cwt. above Monday's close. Today's receipts were 40 double-deck loads. The market ruled 5 to 15 cents lower than Saturday's closing prices.

Prime heavy	$10.35@
Heavy mixed	10.30@
Prime medium weights	10.25@
Best heavy Yorkers	10.25@
Light Yorkers	9.50@
Good pigs	8.50@ 8.85
Common to good roughs	8.50@ 9.40
Stags	7.00@ 7.75

Sheep and Lambs.—Sheep and lambs have both been in light supply, and with a good demand market ruled higher; best sheep closed 25c per cwt. higher and handy lambs 15 cents lower than Saturday's closing prices. ble-deck loads, and they sold actively at steady prices.

Prime wethers	$9.10@ 9.25
Good mixed	8.25@ 8.75
Good mixed ewes and wethers	6.50@ 7.50
Culls and common	4.00@ 5.50
Spring lambs	7.00@11.60
Heavy lambs	7.50@11.75
Culls to choice yearlings	6.00@ 9.50

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., March 13, 1916.

Hay and Straw.—The hay market rules steady with the demand about equal to the limited offerings. Prices are steady with last week. Straw is quiet and unchanged.

Grains.—The wheat market has declined about 3 cents per bushel from last week's quotations. There is a fair export inquiry but foreign orders are generally limited in price basis. Speculation interest is bearish in the West. The corn market is quiet and lower by about 2 to 3 cents per bushel. There are moderate but ample offerings. Supplies of oats are small but demand is limited and prices made a small decline during the week.

Hay.—No. 1 timothy, medium bales, $21.50@22; No. 2 do., $19.50@20; no grade, $10@14. Light mixed clover, $19@19.50; No. 1 do., $18.50@19; No. 2 do., $15.50@16.50.

Straw.—No. 1 straight rye, $13.50@14; No. 2 do., $12.50@13; No. 1 tangled rye, $11.50@12; do., No. 2 $10.50@11. No. 1 wheat straw, $10@10.50; No. 2 do., $9@9.50. No. 1 oat straw, $10@10.50; No. 2 do., $8.50@9.

Wheat.—No. 2 red, $1.13@1.16; No. 3 red, $1.13@1.16; rejected A, $1.10½@1.13½; rejected B, $1.09@1.12.

Corn.—No. 2 yellow western, 79½@80½c; steamer yellow, 78@79c; western, No. 3 74@75c; No. 4 yellow, 72@73c; ear corn, 78c per 70 pounds.

Oats.—No. 2 white, 51½@52c; No. 3 do., 48½@49½c; No. 4 do., 46½@47½c; standard white, 49½@50½c; sample oats, 43½@44½c.

Feed.—Winter bran, in 100-pound sacks, $24.50@25 per ton; spring bran, do., $22.50@23.

Flour.—Car lots, winter clear, $5.00@5.25; straight, $5.35@5.60; patent, $5.50@5.70. City mills, choice to fancy patent, $6.25@6.75; do., regular grades $5.00@5.25. Rye flour, $5.00@5.50 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., March 13, 1916.

Hay.—Receipts of hay of all kinds have had a remarkable dropping off within the last week, little or none of the better grades arriving. The demand is increasing for everything except clover and heavy mixed. These grades are practically unsalable. No. 1 timothy, $19.25@19.50; No. 2 timothy, $16.25@17.25; No. 3 timothy, $13.50@14.50; No. 1 light mixed, $16@16.50; No. 1 clover mixed, $15@15.50; No. 2 clover mixed, $11.75@12.75; No. 1 clover, $13.50@14; No. 2 clover, $8.25@11.25; No. 3 prairie, $10.75@11.25; No. 4 prairie, 8.25@8.75.

Straw.—Receipts of straw are excessive, plenty lying around at the different terminals with no inquiries. Market dull. No. 1 oat $7.75@8; No. 2 oat, $7@7.25; No. 1 wheat, 7.75@8; No. 2 wheat, $7@7.25; No. 1 rye, 8.75@9.25; No. 2 rye, $7.50@8.

Ear Corn.—Slightly better demand for good, sound, No. 2 yellow ear corn but not enough to warrant heavy shipments. New No. 2 yellow, 74@75c; No. 3 yellow, 65@68c; No. 2 high mixed, 70½@71½c; No. 2 mixed, 68@69c.

Oats.—While receipts are not heavy still the demand is very limited; market quiet. No. 2 white, 47@47½c; Standard, 45½@46c; No. 3 white, 44½@44¾c; No. 4 white, 42½@43½c; Rejected, 35@40c.

NEW YORK HAY AND GRAIN

New York City, March 13, 1916.

Hay and Straw.—The hay market is firm on all medium and high grades of timothy. Prices hold steady on all lower grades of timothy but the demand is not active. All hay is becoming scarce due to the slow deliveries of the railroads, and all desirable grades are picked up quickly. Clover mixed would sell readily at full quotations or higher, but there is none arriving. Heavy mixed and low grades of clover are slow sale at unimproved prices. Rye straw holds about steady. Little demand for other kinds of straw.

Grains.—Wheat is declining at present under a bearish speculative movement. The present export basis is lower in the expectation of heavier shipments from Argentina and Australia, while the larger stocks of wheat in the United States and Canada discourage larger operations on the "long" side. The outlook for winter wheat is declared to be much better than earlier expected. The government report of wheat still in farmers' hands indicates that there is a supply of wheat in this country approximating 500,000,000 bushels, or one-half of the total crop raised last year. Corn and oats are comparatively firm on the light country offerings and hold at about steady prices.

Hay.—Large bales—No. 1 timothy, $26@27; No. 2 $24@25; No. 3 $20@22; fancy clover, light mixed, $23@24.50; No. 1, $20@21.50; No. 1 clover, clear, $18@19.

Straw.—Per ton, No. 1 rye, $14.50@15; do., No. 2, $13@14; oat straw, $10.

Wheat.—No. 1 Northern, $1.48; No. 2 $1.42; No. 2 hard winter, $1.15¾.

Corn.—No. 2 yellow, 84½@85c; No. 3 yellow, 82½@83c.

Oats.—No. 3 white, 49@49½c; No. 4 48@48½c; ordinary to fancy, 48½@49c.

Rye.—$1.01 bu.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $23.00. Standard middlings, $25; flour, do., $29 to arrive. Red dog, to arrive, 140-pound sacks $33.50. Oil meal, $35.50@36. City feed, bulk bran, $23. Heavy feed in bulk, $24. Red dog, $33. Flour middlings, $32.50.

PHILADELPHIA DAIRY MARKETS

Receipts of butter are moderate but outside advices are lower and prices have declined about 1 cent from the high point last week and are back at the basis of last week's quotation. There is a fair movement at the revised figures as supplies are moderate. Ladles are quiet and unchanged with light offerings. Prints are 1 cent per pound lower but supplies of desirable goods are kept well cleaned up. The cheese market rules firm under light offerings but the demand is only moderate.

Butter.—Solid packed creamery, fancy specials, 39c; extras, 37c; extra firsts, 35½@36c; firsts, 34@35c; seconds, 31@33c; ladle packed, 22@24c; nearby prints, fancy, 40c; average extra, 38@39c; do. firsts, 34@36c; do., seconds, 31@33c; special fancy brands of prints, 43@46c.

Cheese.—New York, full-cream fancy, 1@18¾c; fair to good, held, 17¾@18¼c; do., part skims, 11@16c.

NEW YORK MILK MARKET

New York City, March 13, 1916.

Production continues to increase and with is sufficiently large to make it necessary for some dealers to start up their manufacturing machinery. Receipts of milk fell off 10 cans and of cream exceeded those of the previous week by 1,018 cans respectively. The market value is approximately 3⅞ cents a quart for Grade B in the 26-cent zone.

The receipts of milk and cream in 40-quart cans for the week ending March 11 were as follows:

Railroad	Milk	Cream
Erie	41,358	2,770
Susquehanna	9,637	215
West Shore	17,956	1,233
Lackawanna	59,100	1,510
N. Y. Central (long haul)	86,526	1,529
N. Y. Central (short haul)	22,450	39
Ontario	40,091	3,009
Lehigh Valley	39,984	946
Homer Ramsdell Line	3,680	36
New Haven	7,377	28
Pennsylvania	7,950	210
Other sources	1,210	126
Totals	337,819	11,551
Same week last year	321,847	10,736

ELGIN BUTTER MARKET

Elgin, Ill., March 11, 1916.

Butter sales today were made at 35 cents per pound, 50 tubs sold at that figure.

WOOL MARKETS

The Boston "Commercial Bulletin" of March 10 says:

"Business has been less active in the wool market here during the past week. A fair business is reported, with sales ranging from three to four million pounds. Prices are generally firm, and only defective short scoured wools are really at all weak altho buyers are taking advantage of the weakness in London to talk down the market here. The primary markets are closing very firm as a rule. The situation at the mills is still very healthy and consumption continues at a very marked rate."

Ohio and Pennsylvania fleeces; Delaine washed, 40c; ½-blood combing, 36@37c; ⅜-blood unwashed, 34@35c; ⅜-blood unwashed, 39c.

Michigan and New York: Fine unwashed, 27@29c; delaine unwashed, 30c; ½-blood unwashed, 34@35c; ⅜-blood unwashed, 39c.

Wisconsin, Missouri and average New England: ¼-blood, 38c; ⅜-blood, 39c; ½-blood, 32@33c.

Kentucky and similar: ½-blood unwashed, 37c; ⅜-blood unwashed, 40@41c.

TOBACCO MARKET

Deliveries were somewhat hindered by changeable March weather and there are yet many crops to be brought in. It is estimated that some 10 percent of this production is yet in growers' hands, but practically all of this is sold, mainly to the large factories. The unsold crops are so few and far between that it is impossible to give quotations but it is sure that values were as high as at any time upon the new crop. The delivery of the present crop has been characterized by less quibbling than usual on the part of buyers, and as prices have been fairly satisfactory there is a tendency to increase the acreage of the 1916 crop. Just how far other influences will offset this is hard to determine, but it is sure that many growers are finding that tobacco is not the only thing, and will accordingly devote increased attention to other crops. An influencing feature will be found in the greatly advanced price of commercial fertilizer, so much of which is used on tobacco. Growers are discussing the almost yearly damage sustained by pole burn which often amounts to $1 to $2 per cwt., to which must be added the loss in weight which the burn causes. To control this trouble should be a simple matter and certainly constitutes a fruitful field for private and public experiment. It seems certain that among the necessary factors would be barns made as nearly air tight as possible, yet provided with ventilators to use under certain conditions. Also artificial means of circulating the contaminated air which gives rise to the mould which causes the trouble known as house burn or pole burn.—H. E. Tweed, March 13, 1916.

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RURAL SCHOOL DIRECTOR'S PROBLEMS

(Continued from page 1.)

unsatisfactory. I then suggested to school boards two color schemes from which they might choose: (a) Ceiling and border cream, walls light green, wainscotting brown; (b) ceiling and border cream, walls light tan, wainscotting brown. I then found that while school boards followed these suggestions they very seldom got the right shades. The green was always too dark. The blending of the other shades was seldom properly done. In order to solve this problem, I had paint companies make a card showing the colors we wanted.

Neat walls and good pictures called for good seats and slate blackboards. We have only one school in the county not supplied with slate blackboards. At the same time we enriched our course of study and our boys and girls when they have completed our eight grades of school work are able to appreciate and enjoy Longfellow, Holmes, Lowell, Hawthorne, Whittier, Cooper and a host of other men and women whose friendship is worth more to them than silver or gold. We have placed in the libraries of our rural schools 4,353 volumes during the last six years. All the money thus used for library books, good pictures and about $500 worth of playground apparatus was raised by school socials. During the last six years our rural teachers raised by school socials $6,951.02.

Industrial Work

We hear a great deal these days of the cultural value of industrial work. Educators tell us that the solution of problems in German, Latin, and Greek do not help the student to solve life problems and they say we challenge you to prove that they do. I am not in sympathy with the theory and at best it is only a theory, and I fling back the challenge prove to me that the solution of problems in Greek do not help in the solution of life problems. I believe thoroly in industrial education; I believe also in the classics.

Some one has said, "If you educate the head only, you get an infidel; if you educate the heart only you get a fanatic and if you educate the hand only you get a drudge, but if you educate all three; the head, the heart and the hand you get a Christian gentleman." Let that be our attitude toward our system of education. Let us believe in industrial work, let us also believe in that which is purely cultural.

I have spent much of my life in farm homes and while poverty of wealth and poverty of thought usually go together, this is not necessarily true. Let us not forget that the greatest poverty is the poverty of thought. To lead people into an appreciation of higher school ideals, secure thru your superintendent the best teacher he can recommend to you at the highest salary your constituents can be made willing to pay a teacher who can and will earn that salary.

I have in my files in my office some copies of work in art done by the members of the senior class in one of our best state normal schools. I had the honor to be a member of the examining board at this state normal school and was assigned to examine the class in agriculture. One of the tests was to make a drawing of a side of beef and label the parts.

My father was a farmer before me and because he was not very successful at that business he was also a butcher. There were nine children in our family. My mother was a resourceful woman and often after the best cuts of meat had been sold, and they were always sold, she gave us oxtail soup and beef tongue just in order to make ends meet. But she was not so resourceful as some of these senior girls who were able to cut porter house steak from the neck and sirloin steak from the flank. I am afraid that when these seniors went out to teach in the country schools, they exhibited just such ingenuity in solving the rural school problems.

It reminded me of the young lady teacher who after she had gone to a certain community to teach, having previously listened to some lectures on "Rural School Problems," found that there were a great many things that needed reforming and she went at it with a will. When her school closed and she was about to leave, she said to the kind-hearted, hard-headed farmer with whom she had boarded, "Good-bye, Mr. Ingersoll, I hope my work here has not been entirely without good results." "Sartin not," replied the old farmer, "you've learned a heap since you first come, but by Heck, you was the greenest one we ever had on our hands."

It takes far broader scholarship with all that the term involves to be a successful rural school teacher than to be simply a grade teacher. There are rural school directors who have learned as one said to me that "the teacher is the whole thing" and who are willing to pay the price to the teacher who can and will "deliver the goods". But this class of directors is not large enough. The movement to secure better trained teachers for our rural schools has begun in Pennsylvania and our state normal schools are awakening to that fact.

Over the entrance of that magnificent Union depot in Washington, D. C., is this inscription, "The Farm, Best Home of the Family, Main Source of National Wealth, Foundation of Civilized Society." Trained teachers who are in sympathy with country life will help Pennsylvania to demonstrate the truth of that inscription. The greatest unsolved educational problems in Pennsylvania today are the problems of the rural schools. The people who have to deal with these problems are the least able in the profession to solve them. "The teacher who must bring us the ideal rural school must be capable of directing a far wider range of activities than any other teacher in our educational system. Such a teacher must be in close sympathy with country life and understand its problems. She must have the enthusiasm, courage, patience, perseverance and tact necessary to overcome the inertia found in the average rural community; must have a vision of what is to be done and the rare qualities of leadership which can successfully set the community in motion to accomplish these ends."

In the southern part of Potter County, five miles from the nearest town, is a small rural school with fourteen pupils. All of these children are foreigners. None of them speak the English language in their homes. The teacher who is a graduate from Alfred University has had about nine years experience. I call her my missionary teacher. I would as soon my boy would attend that school as any other elementary school in Pennsylvania. The children last fall gathered 212 different kinds of wild flowers in the immediate vicinity of the school. Each child can recognize and name most of them. The school made a collection of 43 different kinds of wood found in the vicinity of the school. When I visited the school, I was afraid to test the pupils formally in their work for fear that the results would be discouraging to the teacher. To my surprise they ranked higher than any school I had visited and worked tests made in city schools with an average equal to that of their city cousins. The only thing wrong in that school is the teacher's salary.

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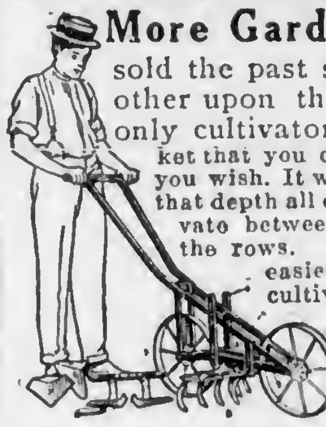

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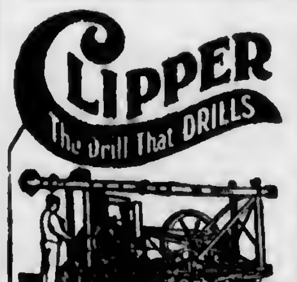

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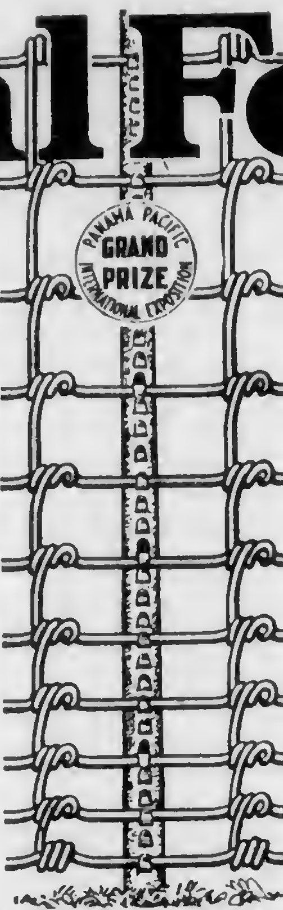

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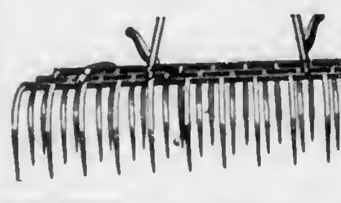

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WRITE FOR 1916 CATALOG FREE

Grange

Among the Granges

Bucks and Philadelphia Pomona.—Pomona No. 22 was entertained March 1, 1916, by Penn's Manor and Delaware Valley granges. Master Jesse G. Webster conducted the morning session which was devoted to reports, initiations and installation. Reports showed a membership of about one thousand in the ten subordinate granges. Bustleton grange, of Philadelphia, reported co-operative buying of feeds, coal, etc., to the amount of $13,600. At Pineville and Newtown the grangers had assisted in holding successful Farmers' Institutes.

The new master, Samuel K. Foster, called the afternoon session to order, and appointed committees. The literary program conducted by the lecturer, Robert C. Wilson, was interesting and helpful. "If the wife is partner on the farm, why 'Pin Money' for her more than her husband?" Mary S. Wilson in answering this said, why not share the balance be it great or small. "Sunday Dinner," was planned by Mrs. Arthur Trussel to be hot and tempting. Others spoke of a plainer meal to give the wife a better opportunity to attend church.

A piano duet by Miss Gladys Lovett and Mrs. Lovett, was followed by a discussion on "Celebrating our National Holidays in the Home." Joseph C. Watson recommended family gatherings but did not approve of the baseball games to which young boys go from town to town, often in bad company. After a piano and violin duet by Helen Lafferty and Headley Woolston, words of greeting were extending from visiting grangers.

The value of U. S. and State bulletins was discussed by Dr. Rosenberger, He emphasized their value, and urged that they be taken care of systematically, so as to be available when needed. "What should be done toward solving the problem of farm help" brought forth a splendid discusion.

Paul Woodman called attention to the custom among too many farmers to hire the intemperate men who run the roads—"the scum of the earth." These men associate with their boys in field and barn, and too often the evil effects are seen.

State Master John McSparran was introduced and held his listeners in closest attention as he discussed the duty of all especially those having the opportunities the Grange affords, to use their influence in so shaping public opinion, that the soverign rights of citizenship, as bequeathed to us by our fore-fathers, be not usurped by those selfish interests working in our legislative halls for special privileges.

There is a great need among farmers or strong leaders to maintain justice for themselves and to help them shake off the unfair burden of taxation placed upon them.

What the debating society and lyceum did for earlier days, the grange can do today, in giving its members the ability to discuss public questions, and thus to produce able leaders.

Our government as framed by our fore-fathers was truly a noble conception and has largely met the needs of the people. But with its bestowal of sovereign rights it also brought responsibilities which have not always been assumed. Too often public duties are left in the hands of a few.

The farmer usually tries to solve all his problems too much alone, not realizing that problems that bring succes must be worked out en mass.

Public opinion rules. Look at the liquor question. Aroused public opinion says "The country must go dry," and it will. Just in this way, we must face all public problems.

Mrs. Jennie Rogers, lecturer of Chester and Delaware Pomona, recited "Little "White Rose" and "Mother Mine".

Brother Armstrong of Luzerne urged the need of better market conditions. A reading "Milking Time" by Helen Carrol, completed the program.

Carversville grange invited Pomona to meet at their hall in Solebury the first Wednesday in June. The Farm Agent from Montgomery County expects to be present.—M. R. B.

York County, Pa.—A well-attended meeting of York Co. Pomona Grange, No. 40 was held in Gideon Grange Hall, Hanover, Feb. 19. Altho the day was unfavorable the attendance was good. D. P. Forney, Master of Gideon Grange, presided over the afternoon session and delivered the address of welcome which was responded to by H. W. Etters, of Red Lion. Music was furnished by an orchestra under direction of Oscar H. Lange, a member of the grange. The most important feature of the meeting was an address by John A. McSparran, Master of Pennsylvania State Grange. Mr. McSparran presented the farmers interest to his hearers with unusual force and vigor. The next speaker was H. W. Etters of Red Lion who advocated good roads and told how to make them. Mr. Etters spoke from large experience in county road building and is the kind of man who ought to be more frequently consulted in this matter.

RURAL CARRIERS' PAY

With reference to the Rural Route question, I will admit that the Rural Carrier who can't finish serving the mail before 5 and 6 o'clock in the afternoon fully earns his pay, but I am not ready to admit that the carrier who can commence duty at 8 A. M. and finish at 11.15 A. M. has given a just equivalent for the pay received.

It requires no college education to run around with a few letters and papers and I venture the assertion that 90 percent of American farmers would be glad to exchange positions with the average carrier, from a financial, short hours, and easy work standpoint.

I would not say that the rural carriers will ever become abnormally rich, but I do know they can buy an automobile, land and other property. On the other hand I know a few farmers who work hard and have mortgages on their farms, with no prospect of being able to release them. You seem to look upon the postal deficit as of little or no importance, but I believe in stopping a leak in the bucket whether it be in the bottom or side. How many farmers get 15 days per annum holiday with pay? I have been a worker over 50 years but I never got a day's pay that I didn't work for. I believe in postal efficiency and the government can have it and at a far less cost.—Wright Smith.

WHAT'S THE USE OF THE GRANGE?

Dear Editor—In your issue of February 26, a new subscriber asks the above question. May I add these rew remarks to your already able answer?

The new subscriber says that he would not be in favor of toll roads. Neither is he in favor of the present methods of the highway department. In these statements lies the answer to his question. New subscriber is not in favor of these things. Neither am I, and there are a whole lot of our brother farmers who have a like opinion about these questions and upon others equally

as good. But how are we going to make ourselves heard?

When we have a team hitched to a heavy load it never does to have one horse pull and then the other. Likewise it never does very much good for one fellow alone to set up a howl about some evil and then when he is thru someone else take it up and so on around. But all must act together. The hosts that gathered around the walls of Jerico were not to shout singly but all together at one time and victory was theirs. Just so it is today. But how shall we do it?

We will go to our subordinate grange meeting and there talk over our ideas. If they meet with approval a committee will be appointed to draw up a resolution which when duly passed will be taken to the pomona grange and there presented. Here the idea will be again talked over. Good things added and some bad ones taken out. We will pass it here and then take it in like manner to the state grange and from there to the national grange. And when the national grange gets hold of a good idea it never lets go but keeps on hammering.

The farmers must assert themselves in the matter of legislation. The most effective way of doing this is thru organization. The grange stands ready with fully equipped machinery for bringing this about. In the grange we have the machine. Let's use it.—V. Ross Nicodemus, Bedford Co., Pa.

LYCOMING COUNTY INSTITUTES

During the past week three Farmers stitutes were held in Lycoming coun . The first one was held in Fridens urch, a two days session was held in ontgomery and a two days session in ughesville. The speakers were Wm. Patton, C. C. Hulsart, Dr. Hannah K. Lyon and W. H. Stout. Dr. Lyon dressed several of the sessions, her lk being entirely for women and girls. er theme was "Efficiency in Home aking." She urged girls to take a urse in domestic science, declaring at marriage was a partnership affair, d only by being trained could woman her part. She pled for a trial of bor saving devices in the home, asting that many times the absence of se was due to fact that women did t wish to try new things, preferring e old way. Several addresses, one on Lime, how and when to use it," and other on "Corn culture" were pracal, and greatly enjoyed. One of the st encouraging features of the meet s were the number of questions asked farmers after the addresses. The men took part in some of the dis sions, and were benefited by the ses ns.—Dorothy Dean.

VE THE BEGINNERS IN SCHOOL A CHANCE

t is an anxiom of business that mon invested should bring an adequate rn for the investment.

ll of us who have property in farms therwise are by necessity compelled make investments of more or less e every time we pay our taxes. To ure we do not always look at it that , but rather view it as a sort of ed contribution for which we never ect to get equivalent value. And n we do not. But let me call at tion to one fact.

nder our system of government we t not consider our whole duty done n we contribute our share of money axes. This is brought home to us fully when we pay our local rates. local roads and schools are most ly under our own control. I wish eak of the country schools in parti , and of the primary pupils, the nners especially. Sometimes I fear that we better realize the importance of a good start for our tomatoes, our early cabbage, our calves or our pigs than we do for our children. Some of us may say with a deal of truth that it keeps us so busy providing for their physical needs that we have little time to act or think for the mental development of our children.

We have too many one-room, mixed schools, where one teacher has to care for the intellectual education of 40 to 60 pupils from A B C to algebra in a 5½ hour day—to say nothing about their moral welfare. How can the teacher do it? How could you do it? Go visit the school tomorrow and see!

Good educators are telling us to consolidate our schools. But that seems hard to get accomplished in many localities where the country is hilly, the farms isolated, the roads often bad for wheeled vehicles and the cost of new buildings would increase taxes already hard to meet.

But for all that these little children must have some chance for a good start in educational as well as in physical growth now or never.

So I want everyone who reads these lines to see if he or she cannot do something towards providing separate schools for the smaller children.

Why no up-to-date poultry raiser would expect to get good results if he or she cooped up the little, young chicks with the half or two-thirds grown ones. Nor would the stock raiser put his young calves with the yearlings or two year olds.

I feel that no part of my life has been better spent than the few hours once put in in convincing some indifferent citizens of our community, and afterwards some doubting members of the school board, that our home school should be made into two parts. It was done, another room was added, a good primary teacher placed in charge and some young lives thereby awakened to an activity of great promise.

It would often be comparatively easy to divide a mixed school into two parts where the question of consolidation and free transportation seems impractical in a given community; and who knows what benefit might be secured for the little beginners. Did you ever notice how some children in mixed schols get sort of stunted in mental growth?

My experience of a number of years' teaching and also as a parent convinces me that the first few years of a child's school experience are of the greatest importance.

As a teacher I have had pupils come into the school for the first time whose interest it was easier to get and retain and whose minds it was easier to lead to develop than those whose intellectual growth had been checked by crowding and neglect or other unnatural methods in school work. Let this be a plea for separate country schools for beginners. Since we must invest our money in schools we are not good business men if we do not insist that we get adequate returns for money invested, in the educational development of our children.

If I were to hire a man to care for my horses and cattle and sheep and pigs and hogs and chickens and then give him so many of the different animals that it was a physical impossibility for him to properly attend to them in his hours of labor, I could not expect him to make a success of it no matter what I paid him, and of course I would not get much, if any, return for money invested.

Some people may object to this kind of comparison, but no one can deny the analogy between the lack of efficiency in the cases of the hired herdsman and the teacher of a mixed school that includes all grades. Parents, I ask you to think this thing over and act.—T. L. Walls, Clearfield Co., Pa.

Price—Dependability—Roominess

The Pullman's dependability --- sturdy, clean-cut chassis, powerful motor, smart lines, and luxurious appointments are known and recognizable features.

But do you know that the Pullman is the roomiest car of its class on the market? No car gives the roomy comfort that a Pullman gives for $740.

Leg space is ample in driver's compartment, and the rear seats are so built that there is no chance of crowding or cramping. The seats are real leather over real curled hair. A Pullman seat is the easy chair of the road.

As optional equipment to the Pullman the C-H Magnetic Gear Shift may be had for $110 extra.

SPECIFICATIONS: 114-inch wheel base; 32-H. P. four-cylinder motor; Batavia non-skid tires on all four wheels; cantilever rear springs; Independent electric starting and lighting systems; Dixie high-tension magneto; honeycomb radiator; full floating rear axle.

Write Dept. 15

PULLMAN MOTOR CAR CO.
York, - Pa.

Dependable Spark Plugs

THE *official estimate* of the AUTOMOBILE CHAMBER OF COMMERCE on automobile production this year is—
One million four hundred thousand cars.
Of these, over a million will be Fords, Overlands, Studebakers and Maxwells, equipped with Champion Dependable Spark Plugs.

The Manufacturers of *over one hundred other cars* will equip this year *exclusively* with Champions. *Their production will exceed 120,000 cars.*

So of all the automobiles produced this year it is apparent that more than four out of five will be dependably equipped—with Champions.

Champions have been selected by these hundred and more manufacturers because their exhaustive tests have shown that the Champions designed for their motors *give the best results.* Remember *their* conclusions when you replace the plugs in *your car.*

CHAMPION SPARK PLUG COMPANY 506 UPTON AVE., TOLEDO, O.

The Fur Bringers

By Hulbert Footner

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CHAPTER I

June Fever

The firm of Minot & Doane sat on the doorsill of its store on Lake Miwasa smoking its after-supper pipes.

It was seven o'clock of a brilliant day in June. The westering sun shone comfortably on the world, and a soft breeze kept the mosquitoes at bay.

Moreover, the tobacco was of the best the store afforded; yet there was no peace between the two. They bickered like schoolboys kept indoors.

''How many link-skins in the bale you made up today?'' asked Peter Minot.

''Three-seventy-two,'' his young partner answered in a surly tone that was in itself a provocation.

''I made it three-seventy-three,'' said Peter curtly.

''What's the difference?'' demanded Ambrose Doane.

''Seven dollars,'' said Peter dryly.

''Well, you can claim the extra one, can't you,'' snarled Ambrose, ''and make an allowance if its found short?''

''That's not the way I like to do business!''

''Too bad about you!''

The older man frowned darkly, clamped his teeth upon his pipe, and held his tongue.

His silence was an additional aggravation to the other. ''What do you want me to do,'' he burst out with an amount of passion absurdly disproportionate to the matter at issue, ''cut it open and count it over and bale it up again?''

''To blazes with it!'' said Peter. ''I want you to keep your temper!''

''I'm sick of this!'' cried Ambrose with the wilful abandon of one hopelessly in the wrong. ''You're at me from morning till night! Nothing I do is right! Why can't you leave me alone?''

Peter took his pipe out of his mouth and looked at his young partner in astonishment. His face turned a dull brick color and his blue eyes snapped.

He spoke in a voice of portentous softness: ''Who in thunder do you think you are? A little gorramighty? To make a mistake is natural; to fly into a temper when it is discovered is childish. What's the matter with you these past ten days, anyway? A man can't look at you but you begin to bark and froth. You'd best go off by yourself a while and eat grass to cool your blood!''

Having delivered himself, Peter pulled deeply at his pipe and gazed across the lake with a scowl of honest resentment.

It was a long speech to come from Peter, and it went unexpectedly to the point. Ambrose was silenced. For a long time neither spoke.

Little by little the angry red faded out of Peter's cheeks and neck and his forehead smoothed itself. Stealing a glance at young Ambrose, the blue eyes began to twinkle.

''Say!'' he said suddenly.

Ambrose twisted petulantly and muttered in his throat.

''Stick out your tongue!'' commanded Peter.

Ambrose stared at him in angry stupefaction. ''What the deuce—''

''No,'' said Peter, ''you're not sick. Your eyeballs are as clean as new milk; your skin is as pink as a spanked baby. No, you're not sick, so to speak!''

There was another silence, Ambrose squirming a little and blushing under Peter's calm, speculative gaze.

''Have you anything against me?'' Peter finally inquired. ''If you have, out with it!''

The young man shook his head unhappily.

''Forget it then!'' cried Peter with a scornful, kindly grin. ''You ornery worthless Slavi, you! You Shushwap- You Siwash! Change your face or you'll give the dog distemper!''

Ambrose laughed sheepishly and stole a glance at his partner. There was pain in his bold eyes, and the wish to bare it to his friend as to a surgeon; but he dreaded Peter's laughter.

There was another long silence. The atmosphere was now much clearer.

Peter, having come to a conclusion, removed his pipe and spoke again: ''I know what's the matter with you.''

''What?'' muttered Ambrose.

''You've got the June fever.''

Ambrose made no comment.

''I mind it when I was your age,'' Peter continued; ''when the ice goes out of the lake and the poplar trees hang out their little earrings, that's when a man catches it—when Molly Cottontail puts on her brown jacket and Skinny Weasel a yellow one. The south wind brings the microbe along with it, and it multiplies in the warm earth. Gee! It makes even an old feller like me poetical. After six months of winter it's hades.''

Still Ambrose kept his eyes down and said nothing.

Peter smoked on, and his eyes became reminiscent. ''I mind it well,'' he continued, ''the second spring I was in the country. The first year I didn't notice it so much, but the second year — when the warm weather came I was like a wild man. I saw red! I wanted to fight every man I laid eyes on. I felt like I would go clean off my head if I couldn't smash something!''

Ambrose broke in on Peter's reminiscences. He seemed scarcely to have heard.

''I don't know what's the matter with me!'' he cried bitterly. ''I can't seem to settle down to anything lately. I've got no use for myself at all. I get so cranky, anybody that speaks to me I want to punch them. God knows I need company, too. It is certainly square of you to put up with me the way you do. I appreciate it——''

''Aw, bosh!'' muttered Peter.

''I've tried to work it off!'' cried Ambrose. ''You know I've worked, tho I've generally made a mess of things because I can't keep my mind on anything. My head goes round like a top. Half the time I'm in a daze. I feel as if I was going crazy. I don't know what is the matter with me!''

''Twenty-five years old,'' murmured Peter; ''in the pink of condition! I'm telling you what's the matter with you. It's a plain case of June fever. Ask any of the fellows up here.''

''What am I going to do?'' said Ambrose. ''As it is, I work till I'm ready to drop.''

''I mind when I had it,'' said Peter. ''I came to a camp of French half-breeds on Musquasepi, and I saw Eva Lajeunesse for the first time. It was like a blow between the eyes. You do not know what she looked like then. I didn't think about it this way or that; I just up and married her. I was glad to get her!

''Man to man I'll not deny I ain't been sorry sometimes,'' he went on; ''who ain't, sometimes? But, on the whole, after all these years, how could I have done any better? She's good enough for me. A man worries about his children sometimes; but I guess if they go straight there's a place for them, tho they are dusky. Eva, she has her bad points, but she's been real good to me. How can I be but grateful!''

This was a rare and unusual confidence for Peter to offer this young partner. Ambrose, flattered and embarrassed, did not know what to say, and said nothing.

He was right, for if he had referred to it, Peter would have been obliged to turn it into a joke. As it was, they smoked on in understanding silence. Finally Peter went on:

''You see, I gave right in to the desire for a home and companionship. You're different; you want to fight the thing. Blest if I know what to tell you.''

''Eva and I don't get on very well,'' said Ambrose shamefacedly. ''She doesn't like me around the house. But I respect her. You know that.''

''Sure,'' said Peter.

''I couldn't marry a half-breed, Pete,'' Ambrose went on after a while with seeming irrelevance—howsoever Peter understood. ''God knows it's not because I think myself any better than anybody else, or because I think a man does for himself by marrying a—by marrying up here. But I just couldn't do it, that's all.''

''No offense,'' said Peter. ''Every man must chop his own trail. I won't say but what you're right. But what are you going to do? A man can't live and die alone.''

''I don't know,'' said Ambrose.

''Tell you what,'' said Peter; ''you take the furs out on the steamboat.''

''I won't,'' said Ambrose quickly. ''I went out last year. It' your turn.''

''But I'm contented here,'' said Peter.

Ambrose shook his head. ''It wouldn't do me any real good,'' he said. ''It makes it worse after. It did last year. I couldn't bring a white wife up here.''

''Well, sir, it's a problem,'' said Peter with a weighty shake of the head.

This serious, sentimental kind of talk was a strain on both partners. Ambrose made haste to drop the subject.

''I believe I'll start the new warehouse tomorrow,'' he said. ''I like to work with logs. First, I must measure the ground and make a working plan.''

Peter was not sorry to be diverted. ''Hadn't we better get the lumber from the 'Company' mill?'' he suggested. ''Looks like up-to-date somehow.''

''A board shack looks rotten in the woods,'' said Ambrose.

''You're so gol-durn artistic,'' said Peter quizzically.

Minot & Doane's store was a long log shack with a sod roof sprouting a fine crop of weeds. The original shack had been added to on one side, then on the other. There was a pleasing diversity of outline in the main building and its wings. The whole crouched low on the ground as tho for warmth.

Three crooked little windows and three doors so low that a short man had to duck his head under the lintels, faced the lake. The middle door gave ingress to the store proper; the door on the right was the entrance to Peter Minot's household quarters; while that on the left opened to a large room used variously for stores and bunks.

Farther to the left stood the little shack that housed Ambrose Doane in bachelor solitude, and a few steps beyond, the long, low, log stable for the use of the freighters in winter.

Seen from the lake the low, spreading buildings in the rough clearing among gigantic pines were not unpleasing. Rough as they were, they fulfilled the first aim of all architecture; they were suitable to the site.

The traveler by water landed on a stony beach, climbed a low bank and followed a crooked path to the door of the store. On either hand potato and onion patches flourished among the stumps.

From the door-sill where the partners sat, the farther shore of the lake could be seen merely as a delicate line of tree tops poised in the air.

Off to the right their own shore made out in a shallow, sweeping curve, ending half a mile away in a bold, hill-point where the Company's post of Fort Moultrie had stood for two hundred years commanding the western end of the lake and its outlet, Great Buffalo River.

To one who would compare the outward aspects of the two establishments, Minot & Doane's offered a ludicrous contrast to the imposing white buildings of Fort Moultrie, arranged military-wise on the grassy promonotory; nevertheless, as is not infrequently the case elsewhere, the humbler store did the larger trade.

The coming of Peter Minot ten years before had worked a kind of revolution in the country. He had brought war into the stronghold of the arrogant fur monopoly, and had succeeded in establishing himself next door. The results were far-reaching. Formerly the Indian sat humbly on the step with his furs until the trader was pleased to open his door; whereas now when the Indian landed, the trader ran down the hill with outstretched hand.

Far and wide Minot & Doane were known as the ''free-traders''; and some of their customers journeyed for three hundred miles to trade in the little log store.

The partners were roused by a shri hail from up the shore. Grateful for the interruption, they hastened to the edge of the bank.

Summer is the dull season in the fur trade. Most of the firm's customers were ''pitching off'' among the hills and visitors were rare enough to b notable.

''Poly Goussard,'' said Ambrose after an instant's examination of the dugo nosing alongshore. Ambrose's keenness of vision was already known in a lan of keen-eyed men.

''Taking his woman to see h folks,'' added Peter.

Soon the long, slender canoe grounded on the stones below them. It contained in addition to all the worldly goods of the family, a swarthy French half-breed, his Cree wife and three copper infants in pink calico sunbonnets.

The man climbing over his family indiscriminately, landed and came up the bank with outstretched hand. T woman and children remained sitting like statues in their narrow cra staring unwinkingly at the white m

Mrs. Goussard as a full-blooded C was considerably below Peter's h breed wife in the social scale, and s knew better than to make a call invited. Even in the north, woman, conservator, maintains the distinction

''Stay all night,'' urged Peter wh formal greetings had been exchang ''Bring your family ashore.''

Poly Goussard shook his head. P had a chest like a barrel, a face t color of Baldwin apples and a pair rolling, gleaming, sloe-black eyes. H head of curly black hair was famo some one had called him the ''Ne foundland dog.''

''I promise my wife I sleep wit' h

folks tonight,'' he said. ''It is ten miles yet. I jus' come ashore for a little talk.''

''Fine!'' said Peter, ''we're spoiling for news. Come on up to the store and have a cigar.''

Seven hundred miles from the railway a cigar is something of a phenomenon. Poly Goussard displayed twenty-dazzling teeth and made haste to follow. The three men entered the store and found seats on boxes and bales.

CHAPTER II

Fort Enterprise

''Me, I work all winter at Fort Enterprise,'' said Poly.

''So I heard,'' said Peter. ''You've had quite a trip.''

The rosy half-breed shrugged. ''It is easy. Jus' floatin' down the Spirit River six days.''

''What kind of a job did they give you at Enterprise?'' asked Peter.

''I drove a team, me, haulin' logs to the saw mill,'' said Poly. ''There is plentee work at Fort Enterprise.''

''The Company's most profitable post,'' remarked Peter to Ambrose. ''They have everything their own way there.'' The look which accompanied this suggested to Ambrose it would be a good place for Minot & Doane to start a branch.

''What did you think of the place, Poly?'' asked Ambrose.

The half-breed flung up his hands and dramatically rolled his eyes.

''Wa! Wa! Towasasuak! It is a gran' place; Jus' lak outside! Trader him live in great big house all make of smooth boards and paint' yellow and red lak the sun! Never I see before such a tall house, and so many rooms inside full of fine chairs and tables so smoot' and shiny.

''He is so reech he put blankets on the floor to walk on, w'at you call carrpitt. Every day he has a white cloth on the table, and a little one to wipe his hands! I have seen it! And silver dishes!''

''There is style for you!'' said Peter, with a whimsical roll of his eye in Ambrose's direction.

''There is moch farming by the river at Fort Enterprise,'' Poly went on; ''and plaintee grain grow. There is a mill to grind flour. Steam mak' it go lak the steamboat. They eat eggs and butter at Fort Enterprise and think not'ing of it. Christmas I have turkey and cranberry sauce. I am going back, me.''

''They say the trader John Gaviller is a hard man,'' suggested Peter.

Poly shrugged elaborately. ''Maybe. He owe me not'ing. Me, I would not farm for him nor trade my fur at his store. Those people are his slaves. But he pay a strong man good wages. I will tak' his wages and snap my fingers!

''But wait!'' cried Poly with a sparkling eye. ''The mos' won'erful thing I see at Fort Enterprise—Wa!—the laktrek light! Her shine in little bottles lak pop, but not so big. John Gaviller him clap his hands, so! and Wa! she shine!

''Indians, him t'ink it is magic. But I am no fool. I know John Gaviller make the laktreck in an engine in the mill. Me, I have seen that engine. I see blue fire inside lak falling stars. ''Gaviller send the laktrek to the store inside a wire. He send some to his house too. They said it cook the dinner, but I think that is a lie. If a man touch that wire they say he will jump to the roof! Me? I did not try it.''

Peter chuckled. ''Good man!'' he said.

The wonders of Fort Enterprise were not new to Ambrose. Other travelers the preceding summer had brought the same tale. With the aid that politeness demanded he only half listened, and pursued his own thoughts.

On the other hand Peter, who delighted in his humble friends, drew out Poly. The half-breed told about the bringing in of the winter's catch of fur; of the launching of the great steamboat for the summer season, and many other things.

''Enterprise is sure a wonderful place!'' said Peter encouragingly.

''There is something else,'' said Poly proudly. ''At Fort Enterprise there is a white girl!''

The simple sentence had the effect of the ringing of an alarm gong inside the dreamy Ambrose. He drew a careful mask over his face, and leaned farther into the shadow.

''So!'' said Peter with a glance in the direction of his young partner. ''That is news! Who is she?''

''Colina Gaviller the trader's daughter,'' said Poly.

''Is she real white?'' asked Peter cautiously.

''White as raspberry flowers!'' asseverated Poly with extravagant gestures; ''white as clouds in the summer; white as sugar! Her hair is lak golden-rod; her eyes blue lak the lake when the wind blows over it in the morning!''

Peter glanced again at his partner, but Ambrose was farthest from the window, and there was nothing to be read in his face.

''Sure,'' said Peter; ''but was her mother a white woman?''

''They say so,'' said Poly. ''Her long tam dead.''

''When did the girl come?'' asked Peter.

''Las' fall before the freeze-up,'' said Poly. ''She come down the Spirit River from the Crossing on a raf'. Michel Trudeau and his wife, they bring her. Her fat'er he not know she comin'. Her fat'er want her live outside and be a lady. She say 'no!' She say ladies mak' her sick! Michel tell me she say that.

''She want always to ride and paddle a canoe and hunt. Michel say she is more brave as a man! John Gaviller say she got go out again this summer. She say 'no!' She is not afraid of him. Me, I t'ink she lak to be the only white girl in the country, lak a queen.''

''How old is she?'' inquired Peter.

''Twenty years, Michel say,'' answered Poly. ''Ah! she is beautiful!'' he went on. ''She walk the groun' as sof' and proud and pretty as fine yong horse! She sit her horse like a flower on its stem. Me and her good frens too. She say she lak me for cause I am simple. Often in the winter she ride out wit' my team and hunt in the bush while I am load up.''

''What did Eelip say to that?'' Peter inquired facetiously. Eelip was Poly's wife.

''Eelip?'' queried Poly, surprised. ''Colina is the trader's daughter,'' he carefully explained. ''She live in the big house. I would cut off my hand to serve her.''

''I suppose Miss Colina has plenty of suitors?'' said Peter.

Ambrose hung with suspended breath on the reply.

Poly shook his curly pate. ''Who is there for her?'' he demanded. ''Macfarlane the policeman is too fat; the doctor is too old, his hair is white; the parson is a little, scary man. All are afraid of her; her proud eye mak' a man feel weak inside. There are no ot'er white men there. She is a woman. She mus' have a master. There is no man in the country strong enough for that!''

There was a brief silence in the cabin while Poly relighted his cigar. Ambrose had given no sign of being affected by Poly's tale beyond a slight quivering of the nostrils. But Peter watching him slyly, saw him raise his lids for a moment and saw his dark eyes glowing like coals in a pit. Peter chuckled inwardly, and said:

''Tell us some more about her.''

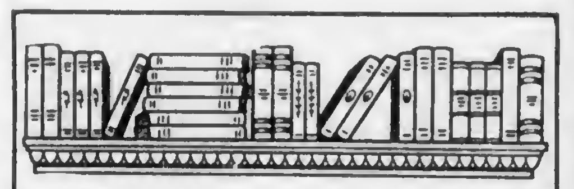
Ambrose's heart warmed gratefully toward his partner. He thirsted for more like a desert traveler for water, but he dared not speak for fear of what he might betray.

''I will tell you 'ow she save Michel Trudeau's life,'' said Poly, nothing loath. ''I am the first to come down the river this summer or you would hear it before. Many times Michel is tell me this story. Never I heard such a story before. A woman to save a man!

''Wa! Every Saturday night Michel tell it at the store. And John Gaviller give him two dollars of tobacco, the best. I guess Michel is glad the trader's daughter save him. Old man proud, lak he is save Michel himself!''

Poly Goussard having smoked the cigar to within half an inch of his lips, regretfully threw the half inch out the door. He paused, and coughed suggestively. A second cigar being forthcoming, he took the time to light it with tenderest care. Meanwhile, Ambrose kicked the bale on which he sat with an impatient heel. Both white men were anxious for this story of how this wonderful girl saved a man.

(To be continued.)



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We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

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Because, somehow, he kept in debt,
Yet he imagined he was wise
And knew how to economize.

He earned enough to live with pride
And lay a little up beside.
Altho he nothing spent for sport
He borrowed and was always short.

''O Tom'' his wife would say, ''a man
Can't manage as a woman can.
Do try me once and soon you'll be
From horrid debts and worries free.''

Tom only laughed, ''No woman can
Handle finances like a man.''
At length his debts and worries grew
So big he knew not what to do.

Then he in time to save his life
Gave all his earnings to his wife.
''Now wife,'' he groaned in woe complete,
''See if you can make both ends meet.''

Bright years have passed; Tom freed from care
Waxed fat upon his good wife's fare.
His debts were paid, and laid away
Was something for a rainy day.

What had Tom's burden been in life
Was pleasure to his careful wife.
Man's forte is earning gold alone
In spending is his weakness shown.

A woman's forte by nature meant
Is taking care of every cent,
And he who lets his wife do this
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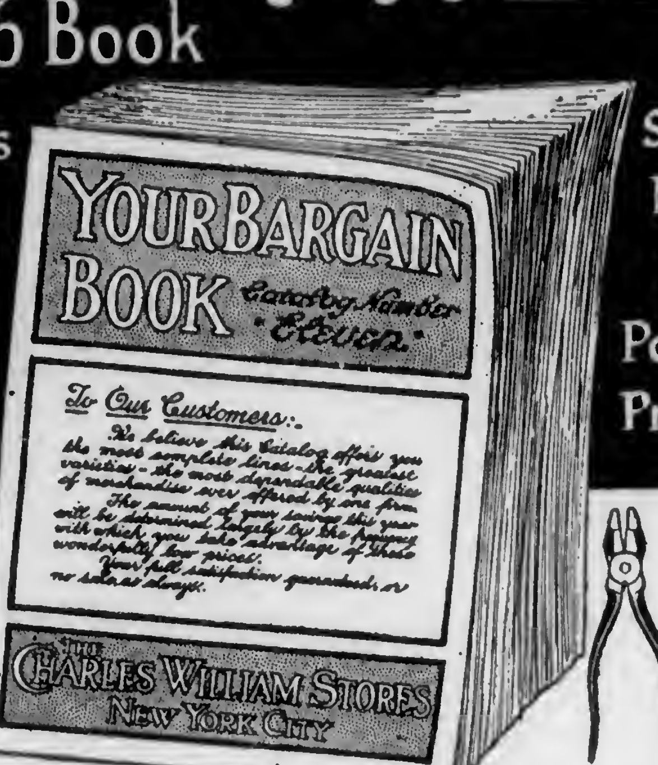

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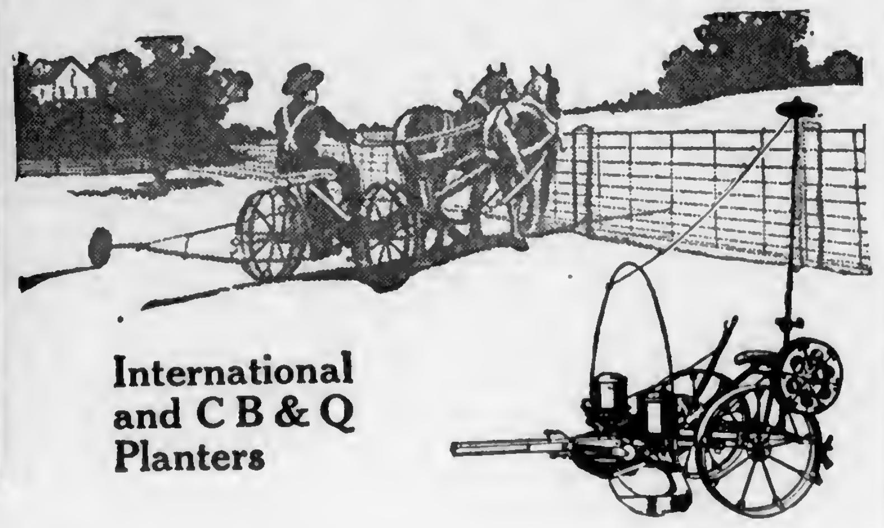

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Life Insurance Contracts and Their Uses--B

By Bruce D. Mudgett

The Use of Insurance Contracts for Protection

Term, whole life and endowment policies are written for $1,000 or some multiple thereof, this amount being payable to the beneficiary in cash at maturity. There are many instances, however, where the payment of a large sum of money in this way will defeat the purpose for which the money is provided; where, for instance, the beneficiary knows nothing about investment and may become the prey of many sorts of speculative investment ventures.

Income Feature.—In such cases it is preferable that the life insurance companies, with their assets under strict governmental control and in the hands of able investment managers, should themselves become the instrument for the investment of funds received by beneficiaries. The real purpose of life insurance when carried for the benefit of dependents is to supply an income in place of that which fails thru death. This situation is provided for by "settlement options" found in all policies today whereby, in lieu of a cash payment, the beneficiary may receive its equivalent in installments continuing for a stated number of years or for life, the latter being identical in principle with the annuity contracts previously discussed. The insured may designate the mode of settlement desired or, failing this, his beneficiary may make a selection after the contract matures. The mode of payment is an all-important consideration in every life insurance contract.

Family Protection. — Life insurance for protection may be for the benefit of one's family, one's self or one's business; the kind of policy and the mode of payment to be used in each instance depending on the exact nature of the need to be covered. A man usually undertakes the responsibility of supplying his wife with income for the remainder of her lifetime. His premature death therefore would necessitate an insurance fund large enough to furnish a life income to maintain the standard of comfort to which she has been accustomed. The whole life policy is probably best adapted to this purpose and should be made payable in installments or as an annuity, unless the wife has the business experience and investment knowledge requisite for the proper safeguarding of the insurance money. The amount of insurance carried will be such as will furnish the necessary income at the death of the insured.

Living costs usually increase as a man's earning power increases, and the higher standard of comfort to which the family becomes accustomed can be provided for thru insurance by taking additional policies from time to time as income permits. Cases frequently occur where a man expects to come into possession of an income thru future inheritance. In such instances insurance protection to the wife may be furnished by a term policy for an amount which will care for all needs prior to the receipt of the inheritance. It should be emphasized that, as nearly as possible, the policy should be chosen to fit actual needs. If, for instance, annuities are being purchased for both husband and wife which provide for their wants after age sixty-five there is no purpose in carrying "protection" insurance beyond that age and a term to age sixty-five is adequate.

Where there are minor children in the family the death of the father would impose additional burdens which would continue only until the children became self-supporting. Term policies running for terms of 15, 20 or 25 years, as needs dictate, will cover this additional responsibility and can be lapsed without appreciable loss when no longer required. In like manner the whole life or term policy may be used to protect any dependent person, varying the term of the policy according to the length of time for which protection is needed.

Personal Credit Insurance.—Occasions frequently arise where insurance is needed to protect oneself against the consequences of one's own premature death where one has borrowed money without collateral security. Many a man has personal integrity and ability such that money lenders are quite willing to trust him with funds and depend on his future success for their return. The one requisite is that he must live. Such a man is said to have personal credit. He can use life insurance to support this personal credit against his death and thereby utilize his future earning power in the present. By borrowing money without security and furnishing the lender with a life insurance policy, from the proceeds of which the debt will be paid in case of his death, many a young man of today is financing his education. Our universities and colleges are every year seeing this plan more widely used by boys who are eager for an education and whose parents cannot provide the funds. In cases where parents have furnished the necessary funds at a sacrifice the son may use life insurance to protect them from the loss which his early death would occasion. The cheapest and probably the best policy to cover this risk is term insurance, with the term regulated to cover the maximum length of time before the debt will be paid.

Business Insurance.—The relationship of life insurance to business has been much more clearly seen in recent years than formerly. As a man has a value to his family as the producer of income so he may be equally indispensable to his business. The business may require his service for a number of years before it is an acknowledged success, or it may have made an "investment" in him which can be repaid only by his continued acitivity. Anyone will recall frequent instances in recent years where the lives of promoters of large industrial corporations have been insured by and for the benefit of the firms. Where the success of a corporation depends largely on the life of a single man it cannot afford to take the chance of disaster thru his death.

An author is often insured by his death to produce articles or books the advertising of which the publishers have incurred expense. The publishers' acounts of recent Arctic and Antarctic explorations are cases in point.

Partnership Insurance.—Partnership insurance is a recent development. The death of a partner and the consequent necessity of liquidating his interest has often meant the disruption of the business. A life insurance policy taken on the life of each partner or a joint policy covering all partners, paid for by the firm and made available at the death of a partner for the settlement of his interest will prevent the occurence of such disasters.

The policy best adapted to business needs will depend in each instance on the specific nature of the risk and the length of time it will probably last. In the case of the author or promoter the risk will exist for a short term of years only and a term policy is usually most satisfactory. For partnership insurance the whole life policy may in many cases be better. In any case a policy taken in favor of a business firm should be paid in a single cash

Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the cause in full; also the name and address of writer.. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Mange.—Early last fall my old horse began rubbing himself in the stable. Had a local veterinary surgeon to prescribe for him, but in spite of treatment the itch developed over his entire body, to such an extent that I found it necessary to clip him and sponge him with a prepared disinfectant dip. I am told that the horse is suffering from mange and that the trouble is incurable. Kindly advise whether such is the case, and if not how shall I treat him. O. A. Y., Walnutport, Pa.—I do not believe that your horse is incurable. Apply 1 part sulphur, ½ part of carbonate of potash and 4 parts fresh lard, twice a week. After you have given him a few applications, continue applying the coal-tar disinfectant. Give him ½-oz. Fowler's solution at a dose, 3 times a day.

Mule Coughs.—I bought a 5-year-old mule three months ago. He was perfectly well for two months, then commenced to cough and would nearly choke down. I also found lice on him. Please advise me what to do. D. K., Nottingham, Pa.—Apply equal parts tincture iodine and camphorated oil to throat every day or two. Also give him 1 dr. fluid extract of Indian Cannabis and 1 dr. powdered nitrate of potash at a dose in soft feed, 3 times a day. Apply coal-tar disinfectant to kill the lice.

Bunch on Poll.—I have a young colt that had a hard lump come on top of his head last summer. There was fever in it and we applied ice. The fever went away, but there is now a hard lump on his head. What can be done for it? F. R. D., LaFayette, N. J.—Apply 1 part iodine and 9 parts lard to bunch, twice a week.

Too Much Bowel Action.—I have a horse, 5 years old, whose bowels move too freely when I drive him. Bowel movements are loose and watery. R. K., Manheim, Pa.—Mix together equal parts ginger, powdered catechu, ground cinnamon bark and charcoal. Give him 2 tablespoonfuls at a dose in feed, 3 times a day. A horse of this kind should not be driven faster than a walk until he recovers. Furthermore, the person who feeds and waters a horse of this kind should be the one who can best control his bowel action. Try different methods of feeding and watering.

Barren Cows.—I have a 3-year-old cow that had her first calf April 1, 1915. She cleaned properly and appears to be in perfect health, coming in heat every 21 days. She has been served four times, but fails to get with calf. I also have a two-year-old heifer in fine condition, served by the same bull three different times with same results. This bull is 17 months old and not in best condition. He is a little under-size. E. L. S., Marumsco, Md.—Dissolve 2 oz. of clean bicarbonate of soda in 3 pints of clean boiled water and inject heifer and cow, 3 times a week. Treat them three or four hours before service. Your bull may not be a sure calf getter.

Stopping Growth of Horns.—Do you know of a preparation that can be applied to the head of a young calf that will stop the growth of horn? I do not approve of dehorning, but have a bull calf that has horns just budding thru the skin and would like to stop their growth if possible. F. E. W., Hammonton, N. J.—There are several medical dehorners advertised in the open market, most of which are effective. The cheapest and simplest is a stick of caustic potash. It should be applied before the calf is three days old. The hair should be clipped off the small prominence on the frontal bone which marks the spot on the uppermost side of the head where the horn would be developed if not interfered with. Dip end of potash stick in cold water and carefully rub it over this little prominence where the horn is budding. Then turn the calf over, treat the other horn bulb the same. Roll back to former position and give another application. If this work is done quickly and fairly thoro and you apply the caustic to the right spot you will have no trouble in preventing the growth of horn. If you allow the horns to grow out then do not attempt the potash treatment. Better wait and dehorn with a dehorning tool.

Weakness.—About a month ago I bought a 10-year-old horse that was low in flesh, but has good life and a good appetite. This horse has picked up some in flesh, but after I drive him five or six miles he seems to grow weak and occasionally water dribbles from him. A. B., Lookout, Pa.—Increase his grain ration, groom him well twice a day and do not exhaust him. Give 1 dr. fluid extract nux vomica, 1 dr. acetate of potash and ½ oz. ground gentian at a dose in feed, 3 times a day.

Heifers Fail to Breed.—I have two heifers, two years old, and neither has yet been in heat. F. S. E., McGram, N. Y.—Give each of your heifers ½ dram ground nux vomica, 1 dr. ground capsicum and 2 dr. ground ginger at a dose in feed, 3 times a day. You should perhaps increase their grain ration. By feeding stimulating, nutritious food and with the coming of warm weather, they will perhaps both come in heat.

Unhealthy Cow.—I have noticed several articles lately concerning foamy or rising cream. We are experiencing some trouble in this line, but had no trouble before adding a fresh cow to our milking force. This cow seems somewhat out of condition. When the calf was about two weeks old she seemed to lose appetite, and now the cream, after being separated, foams up like yeast. The buttermilk gets stringy or cheesy-like, but the churning does not take longer than usual—about 15 minutes for 15 pounds of butter. The cream smells like yeast, but the butter is free from bad odor. We feed crushed fodder, clover hay, bran, cob meal, brewers' grain and a commercial cow feed. The cow appears to be fairly healthy and is not old, but she has not been fresh for about two years and has not become pregnant since having her last calf. A. B., Bangor, Pa.—The whole trouble may be in the manner in which you keep milk or cream. I am inclined to believe that this cow's milk should not be mixed with the rest, neither should the cream that is taken from it. Giving her ½ oz. doses of hyposulphite soda twice a day may perhaps help her.

Indigestion—Hives.—I have a horse, 4 years old in June. He eats well but the feed does not seem to build him up. I also had a sow farrow sometime ago. She had 5 pigs and some of them have some circular blotches on their body. I would like to know what caused them. J. R. N., Mount Bethel, Pa.—Give your horse 1 dr. fluid extract nux vomica, 2 dr. fluid extract cinchona and 2 dr. Fowler's solution at a dose, 3 times a day. Are you sure that your pigs were not kept in too cold a place and might have been frozen? Or, they may have hives. Apply 1 part Friar's Balsam and 4 parts glycerine to inflamed patches, 2 or 3 times a week.

NEW BULLETINS

More Money from Wheat and **Making a Tomato Crop** are the subjects of two pamphlets just issued by the Soil Improvement Committee of the National Fertilizer Association, 916-917 Postal Telegraph Bldg., Chicago.

The wheat pamphlet takes up the value of top-dressing to produce greater yields of higher quality and to insure bigger profits. The pamphlet on "Making a Tomato Crop" takes up the cultural methods and plantfood requirements that make the growing of this particular crop profitable.

Milk as Bacteria Catcher.—Bulletin No. 409 of the New York Experiment Station discusses the probability and possibility of milk receiving bacteria from stable air. The discussion covers a careful investigation and the conclusion drawn is stated as follows: "While these investigations show that the numbers of bacteria present in stable air markedly exceed those found in country air, city street air, air of offices schools or factories, they prove very clearly that the number falling into milk during milking or during any short exposure in the stable, under conditions allowable in any respectable dairy, is so small as to be negligible. Milking under extremely adverse conditions, like feeding very dusty hay or grain during milking, and especially exposure of milk in the open pail for any considerable time under such conditions, should, of course, be avoided."

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North Rush, N. Y.

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Robt. T. Armil, Prop.
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TOP-DRESSING TIMOTHY SODS

By JOHN H. VOORHEES
Morris County, N. J.

Where hay is a cash crop and the hay field or meadow is maintained and mowed for two or more years, top-dressing with commercial fertilizers is a profitable practice. This is especially true on sods in which timothy predominates; that is, the second year when clover and timothy are grown together. A wide experience with co-operative experiments of this nature conducted by farmers leads me to take this opportunity to acquaint the readers of the Pennsylvania Farmer with a few of the results obtained and lessons learned.

The most common rotations to be found among dairy farmers and general farmers in the Eastern states are: Corn, oats, wheat or rye, clover and timothy, one, two or more years, a rotation of corn, silage, rye, clover and timothy, or perhaps, a slight modification of these rotations. Whether or not these rotations are entirely satisfactory from a business point of view, there are two important features in the fertilization of such a series of crops which are: First, the profitable use of home produced manure; and second, the efficient and profitable use of commercial fertilizers. There should be a definite and systematic use of barnyard manure and commercial fertilizers and the latter should be purchased with an object in view.

Barnyard manure is undoubtedly one of the best soil amendments at the disposal of the farmer. I say soil amendment because advantages derived from it indirectly are equally as great if not greater than advantages derived from actual plant-food contained. For this reason in a rotation such as the ones mentioned it gives better results if it is applied to the corn crop and this is true also because the plant-food it contains is held in the organic form and must undergo changes before it is of value to the plant, and the corn plant makes greater use of just such plant-food because it makes its greatest growth not in early spring but in the months of June, July, and August when the temperature is higher and plant-food is readily changed from dormant to active forms.

But, if the greater amount of barnyard manure is applied to the corn crop, what is to be done for the timothy which in many cases is the cash crop and next to corn the most profitable? Stop to consider for a moment, if the plant-food contained in barnyard manure gives its greatest efficiency during the summer months when there is real summer weather how much would timothy which is almost ready to cut by the fourth of July if not before benefit from it? The real benefit from barnyard manure would naturally come after the crop is harvested and put in the barn so, therefore, it is necessary to turn to commercial fertilizers for a supply of plant-food, more especially nitrogen which is ready for the plant to use in early spring as soon as applied.

Two years ago last March I located sixteen experiments for demonstration purposes in the five northern counties of New Jersey and it seemed strange to me that there should be so much opposition to the use of commercial fertilizer for top-dressing timothy sods. I used a mixture composed of 100 pounds of nitrate of soda, 150 pounds of acid phosphate, and 50 pounds of muriate of potash for an acre application. For the demonstrations I gave away enough of the mixture for sixteen square rods or one-tenth an acre and altho the farmer was asked nothing, it was difficult to find men willing to accept fertilizer and apply it. The first objection was that the practice was too costly; the second, that it "killed the groun"; the third, that it made the hay light; and the fourth, that barnyard manure was far superior. This work has been continued each year since with increasing vigor and now, as the results of the third year's work are becoming available, it may be said in all honesty that the point of view of the farmer is most appreciative (and it is hoped that Mr. P. B. Bennetch who has worked with me during the third year will summarize the opinions of farmers).

A GOOD SOD ADDS FERTILITY, PREVENTS SOIL WASHING AND INSURES GOOD HAY.

A few of the things that I have learned in my experience with this matter are interesting. The application should be made in early spring. It is really not enough to say just early spring, it should be applied as the first leaves begin to turn green and indicate that growth is starting. If the application is made later, best results can not be expected and unless care is exercised there is very likely to be considerable injury because the nitrate of soda will burn the leaves; this is especially true if the grass is not thoroly dry.

Of the greatest importance is the composition of the mixture. It should be composed purely and simply of nitrate of soda, acid phosphate, and muriate of potash, which are standard materials of high-grade and which contain nitrogen, phosphoric acid and potash, respectively, in soluble forms and are ordinarily the cheapest sources of these elements. The mixture should be composed of these materials because they are soluble, are distributed readily thru the soil, and because they are cheap; that is, in comparison. Nitrate of soda should be used because it supplies soluble nitrogen—ready for use—which is so thoroly appreciated by the timothy plants, and further, it distributes itself readily thruout the soil. Acid phosphate and muriate of potash should be included in the mixture because they balance the fertilizer and because they do that one greatly desired thing: Give body to the timothy so that it is not light and will not blow over to the neighbor's field.

It is very important that just these particular ingredients be used wherever possible if results are to be secured. One man who is conducting a demonstration this year purchased a ready-mixed fertilizer and applied it to the rest of his field around the demonstration plots. What the mixture consisted of I can not say, but the fertilized plot in the demonstration is much thicker and the timothy stood up a foot over the average of the field.

The amount of the mixture to apply and the proportion of the different ingredients to use in the mixture is a matter requiring individual study and attention. The best experimental data at our disposal seems to show that a mixture analyzing 7-7-7 gives best results. The mixture suggested above would analyze about 5-8-8 and my father, the late Dr. Edward B. Voorhees, recommended an 8-3-5 mixture. These suggestions may be used merely as guides; the amount and analysis of the mixture should be regulated according to the nature of the sod and character of soil. If the sod is pure timothy and the plants are thick and crowded over the ground, the larger amount of nitrogen may be used and the total application may be greater, even as much as 400 and 500 pounds to the acre will prove profitable, altho the usual application is only 300 pounds. For a sod with fewer plants and a sprinkling of clover, the smaller proportion of nitrogen should be used, remembering of course that a first year pure clover sod is not considered in this discussion. Because phosphoric acid is cheap and likely to be deficient in many soils, the larger proportion is an additional fortification and insurance. The proportion of potash should be determined by the character of soil and the amount of lime previously applied which helps to liberate soil potash. In general, good timothy soils are heavy and well supplied with potash.

In three home-mixing demonstrations conducted in Sussex County where 60 pounds of the fertilizer were sold to each interested farmer for a small demonstration, no potash was used because limestone soils prevailed and the results so far recorded show no difference. Upon light soils a liberal amount of potash should be included in the mixture. In general the mixture given above is a good one and it may be used with good results. Careful observation of the growth produced where it has been supplied should be a guide upon which to base any subsequent changes which are thought to be improvements.

The amount of the mixture to use is the crux of the entire question, because it is upon this point that the matter of profit is dependent. The fertilizer is expensive but not costly if used in amounts commensurate with the number of plants on the ground to benefit by it. Three years ago I did not appreciate this phase thoroly and one demonstration was located on a field of timothy which was very poor. The fertilizer was applied early, at the proper time, just when the blades of grass were beginning to turn green, and the results were obtained at the right season. Everything was properly carried out. The results showed that the percentage increase was normal—about 100 percent—but the increase when figured in pounds was not enough to pay for the fertilizer. Top-dressing—no matter how well adapted the mixture may be—will not show a profit in dollars and cents unless there is a good stand of plants on the ground. But even in such cases the improvement of the soil may make it a worth-while practice as stated before. When the same piece is top-dressed the second year the application may be larger.

The average increase of hay upon nine experiments in 1913 was 56 percent. The following year it was about the same and last year I believe it was greater. This, however, is the average and included several experiments upon sods containing considerable foreign grass which does not seem to respond so readily. Upon many good timothy sods the increased production was as much as 100 percent and in a number as much as 150 percent. Where a top-dressing of ground limestone was made the increase was even larger, and much larger the second year on the same ground. In general, it cost about $4.50 an acre to buy the fertilizer and apply it. If hay at harvest season is worth $14 a ton it will require only 645 pounds of hay to pay for the fertilizer and labor of application. In the experimental work about $1.30 was returned in hay for every dollar expended, but individual plots often returned much more.

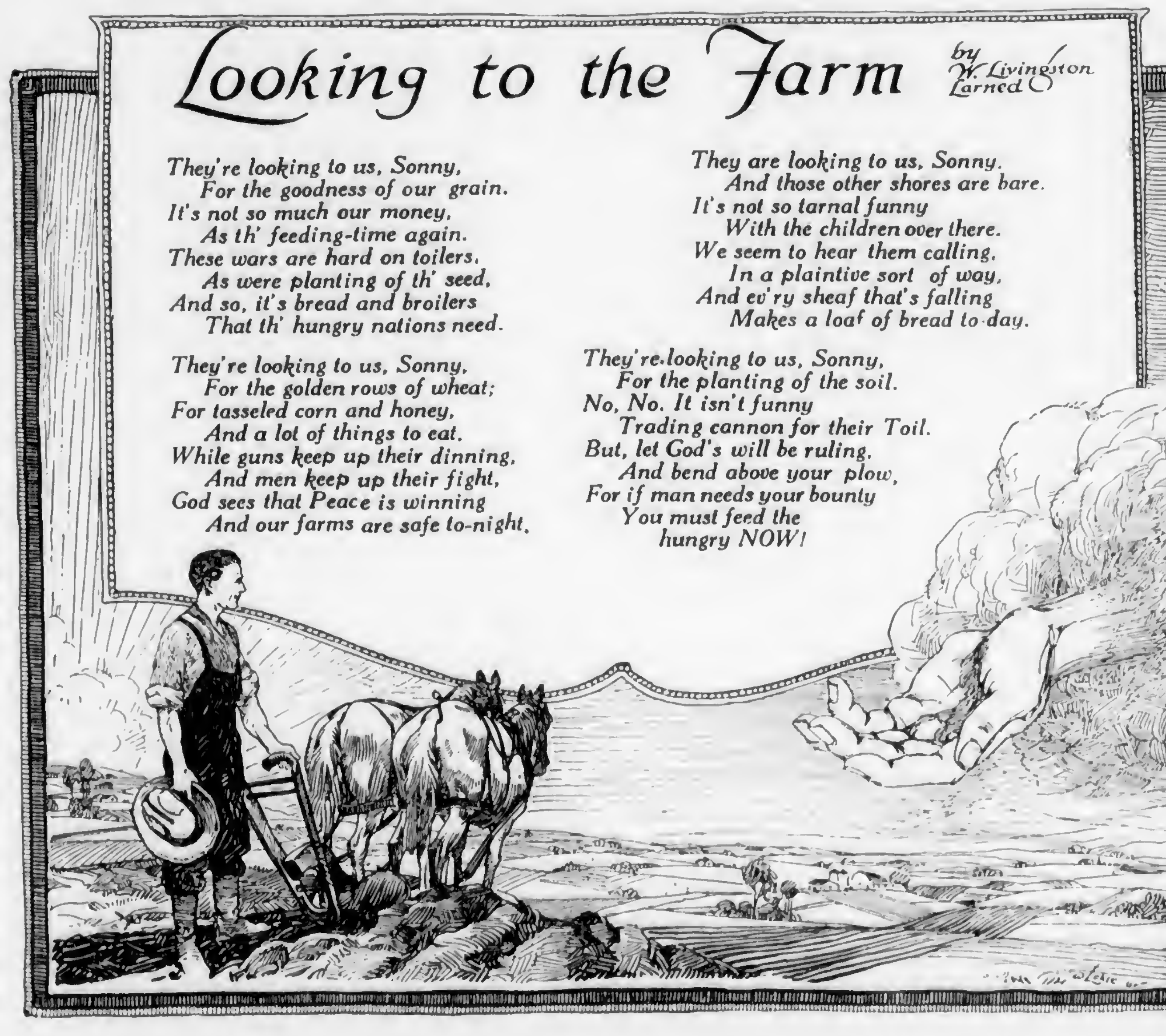
There are more advantages than the actual figures show. The fertilizer thickens the sod so that the increase the second and subsequent years is greater and there is a much larger mass of roots and stubble to plow down furnishing humus for the corn crop. This thickening of the sod may not be noticed by the farmer to amount to very much. Two years ago a farmer in Sussex County told me when I visited him in haying season that there was a slight increase on the fertilized plot; he admitted that the hay was taller but did not believe the fertilizer produced enough additional hay to be profitable. This farmer would hardly believe there was an increase sufficient to pay for the fertilizer, even when we put the hay on the scale which showed more than twice as much. Then he said "Well, I declare." Often the first year the increase is all near the ground and sometimes the number of timothy plants showing heads is small, but the second year more timothy heads appear and a larger part of the increase is from height. This thickening of the sod is a large factor in soil improvement because the additional humus would be very costly if it were necessary to buy or supply in the form of barnyard manure.

One precaution should be considered. Upon stiff heavy soils which are inclined to bake, the fertilizer may cause what I call "firing" and if this occurs the resulting crop is less valuable for sale or feeding. By "firing" is meant the drying of the leaves near the ground. If this occurs the hay should be cut earlier and another year less nitrate of soda should be used in the mixture. Generally speaking, such soils are improved by liberal applications of lime, preferably frequent applications of small amounts of caustic lime.

If a timothy sod has been down for several years and top-dressed annually, it is always a good practice to plow for corn in the fall. In fact, it should always be done unless the field is too hilly. A narrow furrow slice, slightly deeper than usual, should be thrown leaving it somewhat on edge. This practice deepens the soil slightly, starts decomposition of the mass of matted roots and stubble earlier in spring, and the agencies of winter, freezing and thawing, improve the physical character of the soil by breaking and crumbling the particles. If the sod has stood for a number of years and has become infested with wire worms, the fall-plowing will destroy a great many of the eggs and leave the field more nearly free of these pests.

It is clear after three years experience that top-dressing is not too costly, because in four months of growth it returns a profit; it does not "kill the ground" because it thickens the stand and increases the roots and stubble, furnishing much larger quantities of organic matter to plow down for corn; the hay is not light if the proper proportions of plant-food ingredients are used; and barnyard manure may be used with greater attendant results on the corn crop. It is a rational practice when care and judgment are properly exercised.

Note.—Fertilizer prices have changed greatly since these experiments were started, and even since this article was written. With potash practically out of the market it would probably be advisable to buy mixed goods approximating the quantities of nitrogen and phosphoric acid here recommended and leave out the potash. These suggestions should be followed with the price changes on fertilizers in mind.—The Editors.



Looking to the Farm

by W. Livingston Larned

They're looking to us, Sonny,
For the goodness of our grain.
It's not so much our money,
As th' feeding-time again.
These wars are hard on toilers,
As were planting of th' seed,
And so, it's bread and broilers
That th' hungry nations need.

They're looking to us, Sonny,
For the golden rows of wheat;
For tasseled corn and honey,
And a lot of things to eat.
While guns keep up their dinning,
And men keep up their fight,
God sees that Peace is winning
And our farms are safe to-night.

They are looking to us, Sonny.
And those other shores are bare.
It's not so tarnal funny
With the children over there.
We seem to hear them calling,
In a plaintive sort of way,
And ev'ry sheaf that's falling
Makes a loaf of bread to-day.

They're looking to us, Sonny,
For the planting of the soil.
No, No. It isn't funny
Trading cannon for their Toil.
But, let God's will be ruling,
And bend above your plow,
For if man needs your bounty
You must feed the
hungry NOW!

Seed Corn Selection

At a recent meeting of our Farmers' Institute, one of the speakers, Prof. Menges, stated that corn planted in rows 3½ feet apart and 15 inches apart in the row would give 8,296 stalks, and if each stalk bore an ear weighing 1 pound we would have 8,296 pounds or over 115 bushels of shelled corn per acre, counting 72 pounds per bushel.

Most farmers practice some method of seed corn selection, either from the standing corn, from the shock when husking, or from the crib at planting time. In so doing the tendency is to select the largest ears which have a good cylindrical shape. But if there is any appreciable difference in the size of the ears the preference will usually be given the large tapering ears which usually have a thick cob and short grains, especially at the tips.

Thinking over these facts I decided to weigh a few ears of different sizes and shapes in order to determine how large an ear it would take to weigh a pound and also the relationship of the different types of corn to the pound of shelled corn.

The cylindrical ear and even, wedge-shaped kernels so often regarded as merely fancy points, will be found to have a far greater influence on the yield than one would suppose. As is shown in the accompanying table.

No. of Ear	Shape of Ear	Length of Ear	Shape of Kernel	Weight of Ear Oz	Shelled Corn Oz	Bu. per Acre Shelled
I	Cylindrical	7¾ inches	Wedge, Tight	14	13	120.3
II	Tapering	10½ ..	Wedge	18	15	138.8
III	Cylindrical	7½ ..	Short-Square	13	11	101.8
IV	Tapering	11 ..	Short-Round.	15	11	101.8
V	Cylindrical	9 ..	Long-Wedge	18	16	148.1
VI	Cylindrical	10 ..	Loose-Wedge	16	14	129.6
VII	Cylindrical	9½ ..	Loose Wedge	16	14	129.6

The ears selected were nearly of the same diameter at the butts but varied greatly at the tips.

It will be readily seen that the size of the ear has much less influence on the weight of shelled corn and yield per acre, than has the shape and depth of the kernel and the shape of the ear.

We have taken 8,296 ears as a basis, in figuring out the yield per acre for the different ears. Nos. III and IV were the shortest and longest ears respectively yet they shelled exactly the same amount of corn, and both stood at the foot of the list.

The low percentage of shelled corn in No. IV, due to its large thick cob, short, round grains and tapering shape, caused it to fall 19 bushels below No. I, which tho 3¼ inches shorter, owing to its tight, deep, well-shaped grains and cylindrical shape has 120.3 bushels per acre to its credit, while No V which is 9 inches long with the same form of ear and kernels as No. I, has 148.1 bushels per acre to its credit, or 47 bushels more than No. IV and is at the same time 2 inches shorter.

No. II is 10½ inches long; has good, tight, well shaped grains but owing to its tapering form it drops below No. V and gives only 138.8 bushels per acre.

No. VII has a good cylindrical shape and well formed kernels, but owing to the loose arrangement of the kernels it drops to 19 bushels below the yield of No. V, or 129.6 bushels per acre.

This little experiment has brought home to me with more force than anything I have ever seen or read, the important of the well shaped, well filled ear if a large yield of shelled corn is desired.

There is no doubt but that the average yield of corn per acre could be greatly increased if a little more attention was paid to selection of the seed.—Earl P. Bechtel, Montgomery County, Pa.

Are Farmers' Meetings Profitable?

The question is often raised by farmers as to whether it is profitable to take time off from the farm chores to attend farmers' institutes or even short courses in agriculture. In answer to this question we get a reply from a large number attending such meetings, that, of course, they have been well paid for attending. On the other hand, we have the silent reply, in every neighborhood, of a goodly percentage who do not attend these meetings. Judging by their attitude, we could justly assume that the reply of the latter would be contrary to that of the first group. In consideration of this question we do not have reference to any particular section of the country, or to any particular group of people, but rather all such meetings as conducted in the different states. How may we decide this question by other than personal opinion? We wish to submit the following figures for what they are worth and what they may indicate in a general application:

In a Farm Management Demonstration survey of a section in Kent County, Delaware, which is largely devoted to fruit growing, 55 records were taken. From these the labor incomes were calculated in the usual way, and comparisons made on the basis of profit made. The labor income represents what the operator has after the total expenses are taken from the total receipts and when from this is deducted the interest on the total investment in land, buildings and equipment. After these records had been secured and calculated, and before they had been returned, a week's extension school in fruit growing was held in the center of this community. The school was in charge of the County Agent and the Horticultural Department of the state agricultural college.

The course was practical and prepared to meet the local needs of the growers. The subjects taken up were principles of pruning; pruning demonstrations; tillage and tools for this purpose; packing, packages and marketing; insects and diseases; spraying, sprays and spray machinery; and demonstrations in budding and grafting. The course was free to all, and it was well attended. All this is given to explain the nature of the meetings, that they were planned especially for the community, and that we would expect the attendance of every grower at least once during the week.

Of the 55 farms whose labor incomes had been figured, the operators of 26 were present one or more days. Of the 29 other operators not present at a single meeting, one whose record abnormally low was not counted. The average labor income for the 54 farms calculated in the area was $350, but there were 24 farms which made a minus labor income. Here is the interesting part. The average labor income of those attending the school was $661, and of those not attending it, averaged $65. This makes a difference of almost $600 in favor of the farmer who takes the time to attend the agricultural meetings relating to his business. Fifteen of the 24 farms that had a minus income, were of the group which did not attend the meetings. Of the 26 attending, 34 percent had minus labor incomes; while of the 28 not attending, 53 percent had minus labor incomes. Twelve of the 54 farms averaged a labor income of $1,000 or more, and eight of these were represented at the meetings. These figures would indicate that there is a direct relation between labor income, or farm profits, and attendance at agricultural meetings.

As the records were taken almost a year in advance of this school, we should not credit this school with having helped increase the labor incomes of those attending. However, it seems fair to assume that the farmers attending were the ones who had in the past been attending farmers' institutes, horticultural meetings and other educational gatherings for years, and who were also making a study of their business by reading good farm papers, books and bulletins. It is a fact, of course, that a great many farmers who never attend such meetings, and who rarely read a farm paper, do profit indirectly by following the farm practice of the better farmers who attend. If these non-attending farmers live in a progressive neighborhood, they take on the new ideas and carry out the new practices perhaps without knowing why they do it and with little knowledge of the principles underlying it.

Would it not be better to learn the why along with the how of these things? It seems to me that we have satisfied ourselves that there is a real connection between farm profits and the knowledge, study and thought, which are going into the business. The social features and the entertainment afforded by these agricultural meetings may be of some attraction to the farmers and their wives, but the fact should not be overlooked that they are attending such meetings, principally because they have been found to pay.—M. O. Pence, County Agent, Delaware.

Lindenhurst Farm Notes

By R. P. Kester

Cow Testing Association

On March first the first test of 30 cows at Lindenhurst was made by the tester of the newly organized cow testing association The new association has 600 cows "enrolled" and is one of the most progressive steps taken by dairymen in this section in years. A daily record of the amount of milk produced by each cow has been kept since the dairy was started, and a careful balancing of rations, together with cost of feeds, but with all this the additional data obtained by the work of the tester will be of decided advantage. Most of our cows had not been tested for butter fat and this first test shows that we will find some surprises ahead.

TILE DITCHING.

Cow testing associations have been urged for years and it is strange that so many dairy communities are slow in starting them. It is the most economical way of finding out the individual worth of cows—in fact the only way by which the average man is likely to learn whether his herd contains cows that are costing more than they return. When the year is up we will know how many pounds of milk each produced, how many pounds of butter fat was contained in it, how much feed was consumed and what it cost; just the information that is interesting and desirable to know and which the average dairyman guesses at.

We are sure to begin with that we have some which will have a balance on the wrong side of the page. Such a result is to be expected when a large number of cows are purchased in the open market and when few of them have been tested. The man who depends upon his eyes only, or upon the say-so of the seller who only guesses—or worse—at figures, is going to be buncoed about three times out of five.

Summer Feed

Plans should be made now to provide for crops which will supplement the pasture and help out when it fails or is insufficient. The milk shortage of summer could be avoided in a great degree if dairymen would plant crops for soiling every year. It is a practice which is in the nature of insurance against unforeseen incidents such as drouths, crop failures, etc. If the right crops are planted, the surplus over what is needed to feed green can be made into hay which would often permit timothy to be sold and at the same time provide roughage for the home stock.

Of course the first and best crop for cutting and feeding is green alfalfa, but unfortunately only a small percentage of eastern dairymen have sufficient for this purpose. The next is red clover but on most farms even this must be saved for winter feed. Clover, however, would be available only a few days in right condition. The sensible plan for early spring feeding is to have sufficient silage to feed well into the summer months if not the entire year. I am convinced that it is a cheaper succulent feed than any soiling crop, taking into account the time required to cut and feed a green crop in the busy summer season.

Probably oats and peas are the most logical crop for soiling. They should be sown as early in spring as the ground will permit working. This is especially true in localities south of the middle of Pennsylvania as they are both cool climate plants. We find a good plan is to drill the peas first three or four inches deep, using weights on the drill hose unless they can be set by the lever; then roll the ground firmly, after which drill the oats at normal depth. One and one-half bushels of each is about right. Any surplus makes a valuable winter roughage.

Sudan grass is one of the newest additions to American feeding plants, and is worthy of a trial. Henry's Feeds and Feeding has this to say about it: "It closely resembles Johnson grass, but has broader and more numerous leaves and fortunately has no creeping root stocks, so that it cannot become a pest. Sudan grass grows 6 to 10 feet high in cultivated rows and 4 to 6 feet when sown broadcast. Its stems are seldom larger than a lead pencil. The hay is superior to millet and can be fed to all classes of stock without injury. The plant is well suited to soiling. It has about the same composition as timothy. It is a warm weather grass." See further discussion in last week's issue of Pennsylvania Farmer.

A Tractor

An 8-16 tractor has been purchased and it will be depended upon to do the plowing and heavy work on three farms. It will be interesting to watch the degree of success attained. If there is suitable land any place it should be the Lindenhurst, and a neighboring farm which will be farmed in addition. The land is practically level, free from stones and is nice loam. We will mention the work done as the season advances, believing that there is considerable interest in this method of doing farm work. Even with the price of gasoline as it is, it will not eat oats and corn when not working.

The Poultry

The new open front poultry house has proven a decided success during the past winter. A partition divides the interior into a scratching shed having an open front, and the roosting section which has an open front also a curtain made of muslin. This is let down on very cold nights. Many of the pullets were not fully matured at the beginning of winter but the flock as a whole has laid remarkably well. Their feed has been grain, dry mash and meat meal.

The flock consists of 50 purebred White Wyandottes and bids fair to be a foundation for a profit-paying investment. With all that has been said in favor of purebred poultry, the mongrel hen is still in the majority. The old notion that a cross or a mixture is preferable seems to be a difficult one to down. Aside from the probability of greater and more uniform production, the sense of satisfaction enjoyed in caring for a purebred flock is much greater. The time will come when this will be appreciated and flocks of uniform appearance will be found on all farms, and better prices follow because of uniformity of products.

Dibble's Seed Potatoes

Northern grown, from Pedigree stock seed, frequently produce bumper crops when others fail.

Dibble's Russet

the **best** main crop white potato yielded right here in western New York last year over 300 bushels per acre where other kinds were a failure. One of our customers sold over 1200 bushels from 4 acres for $1320.00 where crops on adjoining farms using home grown seed produced less than 75 bushels per acre.

This advertisement is written for the benefit of those farmers who through blight or disease last year lost their crop and must buy new seed and **Dibble's Russet** is the kind to plant on **your** farm if **you** want to grow the best potato **you** ever grew.

Dibble's Russet is the best potato we ever grew on the Dibble Farms outyielding other varieties grown alongside around 100 bu. per acre. We introduced Dibble's Russet four years ago and have sold over 30,000 barrels direct to our customers over **1,000** of whom have written us---"Russets were the best variety we ever grew," over **100**---"They were blight and scab proof" and over **50**---"They outyielded other varieties grown alongside over **two to one.**"

Dibble's Russet grow a strong, magnificent spreading vine, foliage dark green and more blight resistant than any other variety in cultivation. The tubers are round to oblong, netted skin, pure white flesh of most excellent quality. One of our customers sold a carload to a leading New York Restaurant, then a second and finally a third at 10c. per bushel above the highest New York City prices.

At this writing, we have in store, **10,000 bu.** of choice, medium sized tubers saved from fields that were **absolutely free from blight** and offer them as follows as long as stock lasts - **$4.00 per bbl.--10 bbls. $37.50.** If in sacks holding the same quantity, 25c less per package.

Do Not Pay "Fancy Prices"
Buy Direct --- Save Money

We also have full stocks of **Early Ohios**, the best extra early potato, **Irish Cobbler**, the best pure white early and a dozen more, early intermediate and late and **our prices are right as we ship "from our Farms to Yours."**

We are Headquarters for Seed Potatoes

Oats, Corn, Alfalfa, Clover and Grass Seed, Peas, Vetch, Rape, etc., northern grown for northern Farmers, hardy, acclimated and full of vigor.

Dibble's Farm Seed Catalog The leading strictly Farm Seed Book of the year gives a full description of Dibble's Russet, over a score of photo engravings and a hundred testimonials proving conclusively that Dibble's Seeds are all we claim and more Dibble's Catalog. Dibble's new book on Alfalfa Culture and 12 Sample Packages of Dibble's Farm Seeds for testing Free. Ask for yours NOW.

Address **Edward F. Dibble Seedgrower**
Box D, HONEOYE FALLS, N. Y.

Nearly 2000 Acres in the Dibble Farms

A CROP WORTH HARVESTING

Queries and Comments

Sweet Clover—Dairy Ration

"Could you give me any information regarding sweet clover? If I sowed the seed in April, when could I expect to cut it green for cows? Would it do to feed cows nothing but cotton seed meal as a ration? How much can be fed without bad results? Is gluten preferable at $1.60 per cwt.? How much of it should I feed if no other grain is used?" R. T. D., Berks County, Pa.

The use of sweet clover for soiling purposes (cutting and feeding green) is uncommon, but hogs eat it readily when fed thus. It is mostly used as pasture or as hay. If spring sown it is usually best to use it as pasture the first season, as close cutting is harmful to the plants. Since the larger crop is secured the second season this is important. It will reach a height of two to four feet by fall.

Cotton seed meal should not be fed alone. It is a concentrate rich in protein and should be combined with other grains to give bulk and to balance it. Two to four pounds per day is all that can be economically or safely fed. This should be mixed with corn meal and wheat bran, or some other combination. A little may be added to gluten, but even these two are not desirable alone. They aro both "heavy" feeds and should be lightened up by the addition of some lighter material. However, if only one can be used we would prefer gluten to cottonseed meal, but we would spread it over the ensilage when feeding. An average of four pounds of gluten per day for a cow in good milk is suggested. Begin with a smaller amount.

Problem of Reseeding

"I have 20 acres that I sowed with grass seed last September at the rate of 10 quarts per acre (timothy, red clover, Alsike and red top). The field looks very bare at present. I am covering it with manure. I did not apply any fertilizer as I had fertilized for wheat the fall before. The soil I think is in good condition. It has been farmed in corn, oats and wheat and sown to grass seed but failed to give good results. It has had lime applied. Would you advise sowing clover seed again? I do not wish to plow it this spring if I can avoid it." L. J. B., Chester Co., Pa.

There should be a good showing at this time of year if it is to make a satisfactory crop of hay, having been sown in September, which, however, is too late for general practice. Seeding alone to grass should be done not later than the middle of August. It should have a good start before winter freezing begins. The writer does not state what the appearance was last fall. It is possible that the grass was frozen out. In any event we would recommend reseeding this spring, since the prospect is so unsatisfactory at this time. Since it is being covered with manure we think it would be best to wait until the ground is dry enough the first time in April to sow the seed and work it in by using a spike tooth harrow, or, if the manure will interfere seriously use a disk setting the disks only slightly at an angle. The timothy, red top and Alsike may come on but we doubt if the clover will since the ground is bare now.

Sudan Grass

Mr. C. D. H., of Lancaster Co., Pa., asked for readers of the Pennsylvania Farmer who had experience in growing Sudan grass to let him know what success they had with it. Last year I had about four acres of Sudan grass planted in three-foot rows using about 4½ to 5 pounds of seed per acre. I only made one cutting, as I grew it for seed only, therefore I can not say how many tons of hay it would have made, but it started quickly and grew very fast, attaining a height of 6 feet or over and stooled out very good but would undoubtedly have stooled more and made smaller stems if it had been mowed twice. I believe this grass is worthy of a trial by every farmer as its quick, abundant growth will surely make it a valuable addition to our grasses.—J. Harry Kandle, New Jersey.

HOW MUCH MANURE PER ACRE?

This question of how much manure should be applied per acre at each application in order to get the best results really should not be of very great concern to most farmers because they have not enough to cover all of their fields once in every three or four years. However, from observation I know that it is a common practice to apply too much manure per acre at one time. There is scarcely ever any harmful effects noticed from such practices but rather it is a case of not getting the largest money returns per ton.

If we study our experiment station results, which are quite extensive and in many cases cover several years of experimentation, we find that almost without exception in going from a four to a twenty ton application per acre, the value received per ton begins to show a decrease at some point. As an average this point is usually somewhere around eight or ten tons. Above this the yield is increased, but the amount of increase for each ton of manure applied is not nearly as great as with smaller applications. If fifteen tons will not produce a third larger increase in yield over ten tons then it is certainly a poor policy to apply this extra five tons unless an unusual condition prevails where more manure is available than is really needed.

Under the usual corn belt conditions of rotation of corn, wheat, and clover, or corn, oats, wheat, and clover a good practice is to apply the eight or ten tons of manure to the clover sod before plowing under. If at all possible try to get this large an application on all the field. Too often the hill points are given large quantities of manure and the lower areas are allowed to go without any. This may be a good practice in particular cases but as a general practice is certainly objectionable. Regardless of all manuring it is usually impossible to make these hill points yield as much as the other portions of the field. Even if this could be done the question still remains as to whether the manure, if applied elsewhere, would not have yielded more money returns per ton.

In general make the manuring system fit into your rotation as much as possible and don't apply all of the manure on too small an area and let the other fields go without any. If truck crops are being grown to any extent then entirely different systems prevail. In this case larger money returns from the crop on each acre are expected and hence larger applications of fertilizer are profitable.—F. E. Allison, N. J.

TOP-DRESSING WHEAT

The tiny wheat plant must have special nourishment. It must have a liberal supply of readily available plant food of the right kind to maintain it in vigorous growth. This vigorous growth which is the direct result of the addition of available plant food, frequently enables the crop to withstand the ravages of both insects and plant diseases which so often cut down wheat fields. Big crops demand enormous quantities of plant food. The biggest help you can give your wheat crop is to apply a top dressing of 100 to 300 pounds per acre of fertilizer, analyzing 2 to 4 per cent ammonia.

Drug Plants as an Economic Crop

Today our literature is full of glowing acounts of great fortunes to be made in the growing of medicinal plants. The war has stopped or limited the importations of many necessary drug plants, and careless collecting has depleted the natural source of still others, so that today we face a drug famine unless these conditions are relieved by commercial home production. These, in main, are the arguments used to induce the farmer or the gardener to launch forth into fields of golden reward. They are certainly good arguments and in strict accordance with the facts; but there are other things to be considered.

We are very apt to think of drug plants in terms of wheat, oats or corn, forgetting entirely that one group of plants is, for the most part, unacclimated and unimproved, while the other is a finished product resulting from many years of breeding and cultivation. This difference is fundamental and has a vital bearing on the commercial aspects of the case, but is mostly lost sight of in the enthusiasm to produce a crop of supposedly high value. It is to the grower who has been misled by exaggerated statements too often found in popular literature that I want to present the true facts of the drug plant situation.

Crude drugs are like all other commodities in that only those of superior quality are in demand. The markets are already glutted with medium or infeior grades, and in many cases only 100,000 pounds of crude material are used in this country annually. Simple arithmetic makes it clear that there is not a field here for an unlimited number of workers. We must further bear in mind that, as growers of crude drugs, we are in direct competition with native collectors and foreign producers. We cannot hope to be able to meet this competition on the basis of equal production because of the difference in labor values. It is also hardly to be expected that we can produce more pounds per acre since our European neighbors have to their credit a great deal more experience than we. We are then put in a position where we must grow better crude drugs and be able to supply the markets with a produce which will assay higher in alkaloidal content than that from any other source. When we can do this we will have just cause to become enthusiastic over the growing of drug plants. Let us consider how this may be done.

Those crops which are most often grown are: Hydrastis canadensis, Atropa belladonna, Digitalis purpurea, Detura stramonium and Cannabis sativa. Of this list only one, Digitalis, is a cultivated plant, but, unfortunately for us, cultivated only from the standpoint of beauty of flower. As far as alkaloidal content is concerned we are dealing with primitive plants.

If we select at random, five hundred plants of stramonium, for example, from a field and we plot a curve for these plants, we would find that the alkaloidal content varies from nothing to maximum with the great majority of individuals much below the higher figure. This is strictly analogous to a field of wheat five hundred plants of which were examined, some having no berries in the head, some three or four, the large majority having nine or ten and a few having thirty or forty. Would we be satisfied with a field of wheat of this sort? Our wheat did not become of much importance until man or nature had bred that plant up to a point where the average head contained a large number of berries; our corn was not highly useful until the ear was developed so that the average plant in a strictly commercial light until the average plant yields a high percentage of alkaloid. This is a problem for the experimentalist, not the farmer or gardener.

In the work of growing these plants there are many difficulties to be found independent of the relatively small value of most of the cultivated native plants. Of those mentioned above, all except Digitalis and Cannabis require greenhouse and hot bed conditions to grow the seedlings. Even when these are provided and great care is taken, only about 50 percent of the seed of belladonna germinates, altho there is much variation on this point. Hyoscyamus is like the poppy, exceedingly difficult to transplant into the field, but even if this is done successfully the plant is prey to many leaf-eating insects and constant watching and spraying are required. Hydrastis is very exacting as to shade and water requirements and the crop can be harvested only once every three years. Furthermore, if these plants are grown upon the farm there is great danger of having them break the bonds of cultivation and disseminate themselves as noxious weeds after which we would know them as: Deadly Nightshade, Henbane and Jimson weed.

The labor involved in the entire process of growing crude drugs is extensive. After they leave the hot beds they must receive cultivation as for potatoes and in many cases frequent spraying. When harvest time arrives, the roots, bark, leaves or flowers must be carefully hand picked, sorted and moved to the curing house. The alkaloid content of drug plants varies according to the development of the plant. Harvesting must be done at the right time in order to have maximum yields. This time varies for each species. Curing demands constant watching and correct temperature and humidity requirements. The highest price is paid to products retaining their color and aroma. Too much heat causes loss in color, aroma and alkaloids and too much moisture invites rots and other fungous troubles. A slight mistake in the curing operation often means the difference between profit and loss.

I am presenting these details in order that I might better point out the fact that the growing of medicinal plants requires particular equipment, experience and a great deal of hand labor, always keeping in mind the fact that we have not done enough experimental work on these plants to make the commercial cultivation of them wise even tho we might possess the other requisites. — L. Wayne Arny, Director of Experimental Drug Gardens, of H. K. Mulford Company, Glenolden, Pa.

Timely Fruit Notes

Fruit, Chickens and a Permenant Orchard Cover

"I have 1¼ acre tract back of my residence, which I would like to put into an orchard and also have chickens running in same. Not, of course, over-run with chickens, just about one hundred hens. Soil very fertile, heavy clay with a good dark top. Land well drained, level, and I think a good location. I would like to plant apples, and peaches as fillers, but would also like to put the tract in grass to make proper conditions for the hens

"Can I get satisfactory results from

Apples for the President

Prize Apples Sent Wilson

Washington, Nov. 23—Dr. Francis Thomas of Sandy Spring, Md., sent to President Wilson today the apples for which the Marylander was awarded the first prize at the Maryland Week show in Baltimore last week.

The fruit is intended for the White House Thanksgiving dinner.
(Baltimore Sun)

These apples came from trees that had been protected by spraying with Pyrox. Why not spray your trees with it and get "apples fit for the President."

Pyrox is the spray used by most growers of prize fruit. It turns out better apples as to finish, color and keeping quality, increases the vigor of the tree and keeps apples on until mature—reduces wind-falls—you send more to market and less to the cider mill. It prevents wormy apples and fungus. Adheres to foliage through heavy rains, is easy to use, and with suitable nozzles goes further than other sprays.

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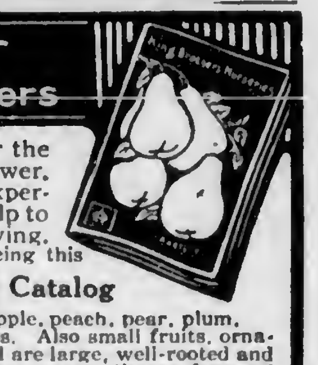

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Vigorous plants that are bound to grow and produce big yields.

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Glick Seed Farms, Box 20, Smoketown, Pa.

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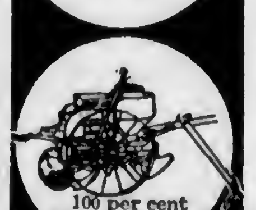

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Potato machinery, spraying machinery, garden tools, etc., are built to give you just what you need to do things right. Almost any combination you can think of in each line. Eighty years of factory and farm experience behind their manufacture.

Ask your dealer to show them, but write us for separate booklets fully describing lines in which you are interested. Let us make good our claims.

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apples and peaches on this fertile soil without cultivating provided the trees receive the proper attention in all other ways?

"Can you suggest anything better than apples and peaches for me to plant under these conditions, that is so that I can have the ordchard in grass? I would much appreciate a prompt reply." H. A. D., Lancaster Co., Pa.

In a case of this kind, I would use apples with plums as fillers, instead of peaches, and would plant the apples at a distance of at least 40 by 40 feet. The interspaces could then be used to grow alfalfa, or a combination of alfalfa and alsike, to furnish green material for the chickens and also to furnish a mulch for the trees, altho mulches are usually rather unstable affairs where chickens are involved. This cover should easily maintain as many as 100 hens to the acre, but I would not attempt more than this number until you find out how the combination is going to work. It will not be necessary to sow any grass with these crops, as the grass will gradually come in anyhow, if not cropped too closely.

If the chickens disturb the mulch too much and no satisfactory protection is available, it may prove advisable to cultivate a strip near the trees for a few years. I would not do this, however unless the trees show unmistakable need of this extra attention, and this is not likely on such a soil as you describe.

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Good varieties of apples for home use or local market in your location, named approximately in order of ripening, are as follows: Primate, Summer Rambo, Jefferis, Maiden Blush, Wealthy, Hubbardston, Smokehouse, Jonathan, Grimes, Red Canada, Rome Beauty, Stayman Winesap, Paragon and Winesap. Good varities of plums for the same purpose are: Red June, Empire, Burbank, Bradshaw, Arctic, Reine Claude, Monarch, Black Diamond, Pond, Arch Duke, German Prune, Italian Prune and Shropshire or French Damson. I would not use nearly all these varieties, but would select from them on the basis of local inquiry so far as possible.

Propagation of Black Raspberry

"Can I get as good tip plants from a black raspberry bush four or five years old as from a bush one year old? If not, please explain why." F. E. T., Tioga Co., N. Y.

There should be no difference between the tip plants of five-year-old and one-year-old black raspberry bushes, since the living canes are the same age. In either case, the new plants are obtained by layering the tips of the living canes in late summer or early autumn. The proper time for layering is indicated by the tips becoming slightly thickened and growing without leaves. It is sometimes said that better rooted plants can be obtained by using root cuttings, an inch or more in length, and starting them under glass with mild bottom heat. The other method is so much simpler, however, that it will doubtless continue to be the usual practice.

Methods of Planting, Use of Stored Trees, Etc.

"In case fruit trees are planted 40 feet apart (i.e. apple) with small fruit trees of plum, peach and cherry planted between in the same row, is it advisable to plant similar trees or any kind in the square? Trees were planted last fall and I have been thinking of planting other trees in newly planted orchard this spring. Can I get such trees as cherries and plums from New York Nurseries (not in cold storage) early enough to grow? It has been repeatedly said that cherry trees are very hard to grow if spring planted. If they are planted by the 1st of April will it suffice? Posibly New York trees (dug) cannot be gotten this early. Do you recommend continuing spraying peach trees for San Jose scale?" J. D. H., Centre County, Pa.

Taking these questions in order, I would say that to facilitate spraying and picking, it is generally best to have fruit of the same variety planted in double or opposite rows. If the smaller trees or fillers are being planted only in the apple rows, without any solid, filler row between, it will therefore be sufficient to plant trees of the same variety on the opposite sides of the apple squares.

There should be no difficulty in securing any of the trees mentioned from New York or elsewhere, that will grow readily in the spring if planted properly. In my opinion also, the prejudice against stored trees is wholly unnecessary. Such trees are quite as likely to grow as any others, if the storage has been of the right sort. I would not hesitate to plant any sound and healthy trees that are furnished direct from a good reliable nursery which grows its own stock. Also in general I would expect greater success from cherries or plums planted in spring than from those planted in the fall. Sour cherries should give little trouble at any time, but the sweets are often more difficult.

The chief points to be considered in planting are to get the trees into the ground as soon as possible after the soil is fit, keep the trees dormant and properly moist until that time, pack the soil thoroly around the roots, and apply a good mulch of strawy manure or its equivalent immediately after planting. Other details such as clipping off the broken or injured roots somewhat above the point of injury are also desirable.

The first of April will be amply early if the trees can be kept in satisfactory condition until then, but earlier planting is preferable whenever the soil permits.

I would certainly continue spraying peach or any other susceptible trees for scale, unless I was thoroly convinced that they were entirely free from it and that there was no convenient chance for re-infection. Even then in the case of the peach, it is usually desirable to make the dormant application of lime-sulphur, because of its value in controlling leaf-curl.—Answers by Dr. J. S. Stewart.

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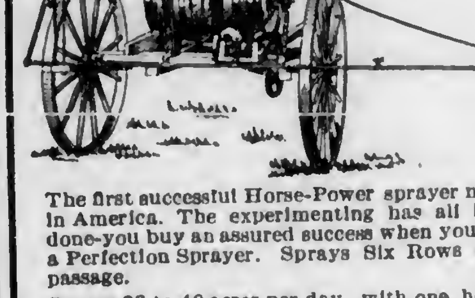

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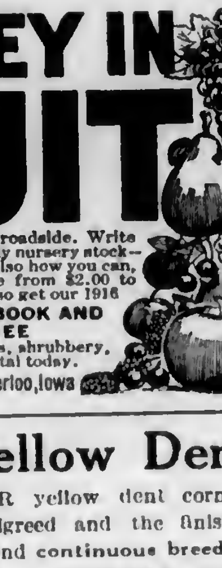

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Pruning Peach Trees at Planting

By Harris T. Kille, New Jersey Exp. Station

At the N. J. Experiment Station experiments have been conducted under the direction of Prof. Blake, Horticulturist, to determine the effect upon growth of heading back peach trees to various heights at time of planting. The results indicate that the common recommendation to head all peach trees back to two feet at time of setting should be modified.

The experiment was conducted with trees ranging in caliper from three-eighths to seven-eighths of an inch. Some of these were not pruned, others were cut back to heights ranging from 6 inches to 36 inches. The effect upon the trees was determined, in part, by measuring the total linear twig growth at the end of the first season; and also by noting the points on the trunk from which the branches came.

A study of the figures shows the following:

1. The 36 inch treatment, regardless of grade, resulted in the best growth.
2. The 12 inch treatment, regardless of grade resulted in the second best growth.
3. The 18 inch treatment, regardless of grade, resulted in the poorest growth.
4. The 24 inch treatment, regardless of grade, resulted in the second poorest growth.

It was noted that with trees headed back to 6 inches the lowest grade three-eighth inch trees, made the best growth, which indicates that growers who desire to head their trees back so severely should not buy the heavier and more costly trees.

Why did the 36-inch and 12-inch treatment give the best results and the 18-inch and the 24-inch treatments the poorest results? The answer to this question is to be found in two principles of tree growth which has been given far too little consideration in the treatment of peach trees at the time of planting. The first of these is the relative length of nodes at various points along the trunk of the tree. The second is the relation of the grouping of buds and branches along the trunk.

With most woody plants it will be found that the length of the nodes or the distance between buds is greatest when the plant is growing rapidly and least when it is growing slowly. This can readily be seen by examining a grape vine of the past season's growth. The nodes nearest the starting point are short. These were formed when the vine was growing slowly during the cool spring. Toward the middle of the vine the nodes are quite long, because formed during the period of most rapid growth in mid season. At the end the nodes are short again, due to the slow growth in early autumn. The length of the nodes on a peach tree vary in the same way. On trees grown in a normal season there are more buds or branches per unit length at the base and the top of the tree than in the middle. Hence when a tree is headed back to 18 inches or 24 inches one portion of the trunk containing the most buds has been removed. A region of few buds from which one or two branches may come and which must be, in part, supported by branches coming from buds lower on the trunk has been saved. This accounts for some of the poor results noted with the 18-inch and 24-inch treatments.

The other responsible factor is the position of branches and buds relative to each other. Those who have handled many young peach trees have probably noticed that the branches come from spaces, about 6 inches in length, which alternate, quite frequently, with similar length spaces containing dormant buds. Branches are produced in periods of prosperity, when growing conditions are most favorable. The rapid growth of latteral branches often checks upward growth, resulting in a space upon which the buds remain dormant. Favorable and unfavorable growing conditions alternating may cause the same result. If a branched space occurs just below the 24 inch or 18 inch length, as it often does, there are no buds near the top from which branches can come after the tree has been planted.

The practical lesson for us is this: Before using the pruning shears we should study the individuality of each tree and treat it accordingly. Why head all the peach trees in an orchard at 18, 24, 30, 36 inches, or any other height? The only time the trees will ever be headed at that height is before they start to grow. If all the trees are cut back to 24 inches at time of planting the head may be formed anywhere from 6 to 24 inches from the ground. If the trees are left 36 inches high there is a chance for a greater variation in the height at which a desirable head can be formed. Isn't it folly to try to get peach trees headed at a certain height by such a hit or miss system of pruning when a study of the peculiar structure of each tree planted will enable the orchardist to get a high percentage of his trees permanently headed within 8 or 10 inches of a given height?

To accomplish this have in mind the height at which it is desired the tree should form its head. Then in pruning remove the branched portion of the trunk just above a portion containing three, four or more dormant buds, which is nearest the desired height. These buds will produce the branches which will form the skeleton of the tree. In trees of the same grade from the same nursery it is surprising how uniform the trees will run with respect to the position of the budded and branched spaces. When a large number of buds can be left, all latteral branches may be removed close to the trunk. Some trees will be found where practically all the buds have formed branches while the tree stood in the nursery row. Such trees should be cut back to the desired height and three to six inch stubs of some of the strong latteral branches left.

This method of heading back each peach tree to that point, just below which it can best form a head, will result in an orchard of trees more nearly headed at uniform height than the method of cutting off every tree at a definite height regardless of the position of the buds and branches. In other words, the best orchard is secured by pruning to get the best growth from each individual tree. If it is desired for aesthetic reasons to have all trees headed at the one height, especially if that height is between 18 and 30 inches, it will be necessary to form the head while the trees are in the nursery row. This can be done by giving each tree plenty of room and pinching back the top to the desired height during the growing season. However, the orchard of peach trees headed by the system of treatment according to individual needs will result in an orchard uniform enough for all practical purposes.

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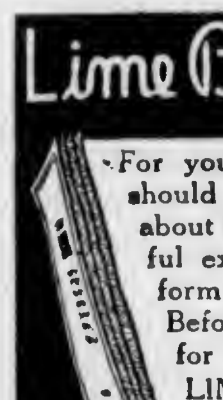

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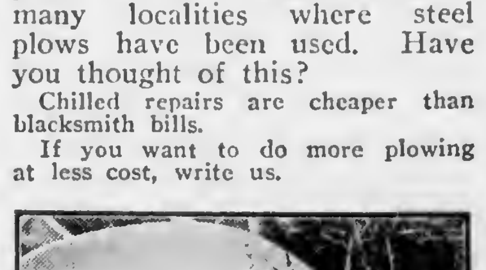

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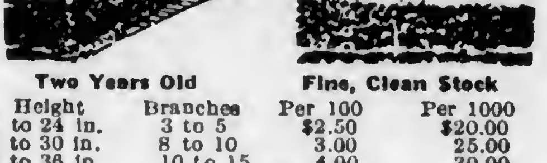

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DELAYED SHIPMENTS

Farmers expecting to buy or sell products requiring prompt shipment will do well to keep in mind the present congestion in transportation lines. Freight movement has been so heavy that several railroad lines have been forced to place embargoes upon certain commodities in some of the larger cities. Perishable products are generally cared for, but there have been delays in the handling of goods than can be held without injury. Fortunately for farmers this is not interfering seriously with their business as there is comparatively little farm produce moving in carload lots at this season of the year. In purchase of supplies, however, such as farm seeds in quantity, farm implements, etc., it will be well to get orders in early to avoid delay when goods are needed.

PROMPT ACTION NEEDED

After all that has been said and done in the interest of conservation of the remaining natural resources it would seem that the public was almost caught napping by the Shield's bill which is about passing the Senate. Apparently this bill is a ''water power monopolists'' bill and the conclusions of men who have studied it are that it would give into the hands of individuals for all time the exclusive power to control the water power of the country. However, it is no too late to kill it. It has not yet passed the house and voters should send their protest to their representatives. The bill has been advanced very quietly and the public was unaware of its portent until Gifford Pinchot called public attention to its danger, and warned that it is ''the most serious attack on conservation since the effort to turn Alaska over to the Guggenheims.'' Surely the American public does not approve of throwing away the last great natural resource into the hands of private monopoly.

BETTER COUNTY FAIRS

Secretary Patton, of the State Department of Agriculture, served notice upon county fair managers in their recent meeting that they must give greater attention to agricultural exhibits. This warning will have the endorsement of every progressive farmer. The county fairs should be a vital force for better farming in the state. They should be the common meeting ground for comparison of agricultural skill in the production of all farm products. Their exhibits should be a demonstration and an inspiration to farm visitors. A few fairs in this state are measuring up fairly well to these possibilities, but the great majority are little better than street carnivals with farm exhibits a minor feature. The state officials have a right to demand a higher standard. There are fairs that carry just enough farm exhibits to draw state-aid money. There are others that feature ''amusements'' and ''entertainments'' just far enough from the immoral to escape being debarred from state aid. If they are to continue to draw state aid they should be made to return a reasonable service in constructive promotion of agricultural interests. If they are to continue as mere amusement institutions they have no claim upon the state and little claim upon the farm people. More power to the new Secretary in this good work.

INTRODUCING NEW VARIETIES

While we do not recommend the practice of continually changing varieties of cereal and other seeds, yet it is good business to keep on the lookout for varieties that are superior to the ones grown. An experimental plot on the farm is one of the most interesting spots that can be maintained. In it different varieties may be tested out and those showing better yields or qualities than the kind now raised, can be noted for further trial. It is necessary for almost every kind of seed to have time to become acclimated when brought into a new locality and for this reason the first year's trial does not always tell the whole story. Varieties and strains vary in their inherent ability to produce both quality and quantity and investigators are continually on the watch for better kinds. This is one way the farmer may increase yields with little expense and much satisfaction.

A CONSTRUCTIVE ARMY

The Society of Constructive Defence has a novel plan for recruiting a standing army. It proposes to combine intensive military training with constructive work on roads, rivers and other public works. It would have recruits enlist for a definite period of time at wages from $25 to $30 per month and use the recruits in construction work while instructing them in military affairs. It would make a constructive army rather than the usual destructive force. To determine the effectiveness of the plan in calling out recruits, an advertisement for such service was recently run in a New York newspaper for one morning only. There were 533 applications, over one-eighth as many as were received for the existing army system from newspaper advertising during an entire year (4,159 in 1915). Many conclusions can be drawn from this result. It appears that the unwillingness to enlist is due more to the monotonous inactivity of standing army service than a lack of patriotism. It suggests also that there are plenty of men willing to give time and service for steady employment in healthy work and the opportunity to learn a trade. It suggests further that a good measure of preparedness is the employment of our people in constructive work and the establishment of a strong, independent and efficient citizenship.

GOVERNMENT PROBES

A reader writes: ''Please tell us something about government probes. We read that the government is starting an investigation of gasoline prices, sisal twine prices, coal prices, etc., and that the probe is going to go to the bottom of things. But we never read of anything tangible coming of such probing.'' This question pretty nearly answers itself so far as practical, tangible results are concerned in the majority of the government probes. There may be several reasons for lack of results to the public. Many investigations are started merely for political effect, and having been started the purpose is served. A politician, a group of politicians or even a political party sees an opportunity to make capital of a government investigation. The investigation and the possible and probable benefits to the public are heralded thruout the newspapers, being careful to give all credit to the particular politician or group instigating the probe. This news having been properly circulated, the investigation may be permitted to flatten out; the whole matter is dropped, but the investigators continue to ''point with pride'' to their record of public service in ''starting'' something Again, the probe may be continued, the investigators taking the testimony and putting such construction on it as they may choose, and using it to their own best interests. Still again, the discovery of irregularities or abuse in an investigation usually requires new legislation to correct. The public forgets, and the results of the probe are lost. As practiced, the government probe appears to be a handy and lucrative device in practical politics. It can be manipulated, and it pays the investigators a good price for mediocre service. Its greatest actual value in good government is the constant possibility that it may go thru and may clean house. A search light is a valuable piece of equipment even tho it may not always be used to best advantage.

SUDAN GRASS

The alertness of the progressive farmer is attested to by the fact that he is instantly interested in new things, especially if they show promise of being an addition to or an improvement upon what he already has. One of the latest proofs of this is the great interest shown in regard to Sudan grass. Altho it has been only seven years since its first introduction into this country there is already a wide interest in it and inquiries concerning it are many. It has been grown in a small way by many and the indications are that it will prove valuable for certain purposes if restricted to its proper field and location. It is essentially a hot weather plant and for that reason it is not yet well adapted to northern sections. Except in an experimental way it would seem best to be conservative about it north of central Pennsylvania. It should not be planted until corn planting time, or later. It may be either sown in rows, or broadcasted. The yield of forage under good conditions is from three to six tons per acre, but not quite so valuable a feed as oats and peas because it contains less protein. It is drouth resistant and for this reason should be tried by stockmen and dairymen in warm sections. It is preferable to Johnson grass as it does not spread by under ground root-stalks and become a pest as Johnson grass frequently does. We are far from recommending extensive and indiscriminate planting of Sudan grass, but we believe it is worthy of serious consideration and trial in the more temperate sections.

LESSENING COST OF PRODUCTION

In comparing the lines of endeavor made in the different fields of production—manufacturing, mining, agriculture, etc., we find a common purpose, and that is to increase profits. But we do not find that the same methods of realizing profits in farming are recommended as are practiced in other big business The efforts of the manufacturer are continually directed towards lowering cost of production. The mine operator is all the time studying and applying means which will enable him to produce a ton of coal or a ton of ore at a lower cost. The out-put in both these industries is conditioned upon the needs and demands of the public and its ability or willingness to pay a profit-bearing price. If profits and dividends are tending downward, increased effort is made to find wherein cost of production may be lessened, and if that is impossible, the out-put is reduced. Speaking generally, we never hear unconditional recommendations made to the mine operator to dig more coal; to the manufacturers of shoes, clothes, steel, machinery, toothpicks or locomotives to simply increase their productions in order to make their business pay better, unless the market is unsupplied with these things. We naturally grant that the owners have sufficient enterprise to guage the volume of business to meet the public's needs, and we commend their reasonable efforts to reduce cost and the elimination of unnecessary waste in labor and material as business-like. But it appears that agriculture is excepted by many from the application of ordinary business laws. On all sides we hear it recommended that if the farmer would make more money he has only to increase the volume of his productions. Much of the stuff that is written, talked and taught and known as agricultural teaching is to this end only. The advice of business men engaged in transporting and handling farm products—men who practice different methods for increasing profits—are enthusiastic in recommending increased production. Of course, better farming methods which increase the yield per acre or per animal tend to lower the cost of producing a given unit, up to a certain point. The greatest trouble in making farming pay, however, is not that the farmers as a whole do not produce enough, but that, first, what they do produce costs them too much, and second, too small a proportion of the ultimate selling price gets back to the farm. It would be a calamity to increase at present the yield of each producing unit now operated 50 to 100 percent. To illustrate: Last week New York's supply of milk was increased by a comparatively few cans and down went the price. Now, it would seem good business for Farmer Smith who wishes to make more money, and who is producing 300 quarts of milk daily from 40 cows, to learn how he may produce the 300 quarts from 30 cows. This he could easily do in a short time, and it would show better business sense than to add more cows and simply increase the number of quarts by present methods. It is not our purpose to suggest limiting or reducing production to force prices, but we do think that the same business rules apply in agriculture as elsewhere, and that the first great need is to learn how to produce each unit at a lower cost; how to grow a bushel of wheat, corn, potatoes and how to produce a pound of beef, a dozen eggs, or a quart of milk at a minimum expense. This learned, we may safely trust the farmers' industry to produce enough to supply the world with its food if it will pay a proper price. And they will increase quality as well as quantity of farm products as the market returns will permit.

HARRISBURG NOTES

Mid-winter State Show.—The idea of a mid-winter exhibition of prize-winning products shown at the county fairs has apparently been well received, and Secretary Patton is working out a scheme for obtaining the co-operation of every fair. Mr. Patton has pointed out that there is now no way whereby prize winners of the whole state are assembled and by having the show in mid-winter it would not interfere with any other fair. Assurances of the money for premiums have been given and arrangements will be made for any individual entries in classes of their own. The state is going to require more attention to agricultural exhibits at county fairs in return for its cash aid for premiums.

Millions for Help.—Figures compiled by the statistical force of the State Department of Agriculture show that almost $4,000,000 is spent every year by farmers for female help. Approximately 11 percent of the farmers of the state, or 23,870, have hired girls to help members of their families. The wages paid in the state range from $2.25 a week to $4. Lancaster county is shown to have 3,035 domestics employed on farms and to pay $8,798 per week. Berks pays about $5,250 and York $4,500.

Politics on the Hill.—Every state administration is in politics. It is but natural. Some allow it to be a bigger feature than others. The announcement of the candidacy of Governor Brumbaugh for president with the contest started for control of the Republican organization has caused the Capitol and all offices of the state government to take a renewed interest in political affairs. Twenty one years ago the state government was turned upside down in a similar contest. Since then new standards have been established in various branches and some new departments have been created, and as they touch upon many of the activities of life and business, it will be interesting to observe whether politics has changed as compared to two decades ago, and whether orders to ''line up'' will be given. Another point which will be watched will be how the development of national or factional politics will comport with the working out of the problems for agricultural conservation and the making of educational advantages better for the dweller in the country. Some ambitious plans have been presented and interference with their consummation would be regrettable.

Dr. Marshall's Warning.—State Veterinarian Marshall, who is in Europe to study handling of animals, especially horses, in the war lands, has left warning at the Capitol that cattle sold at sales in the spring should be carefully inspected to see that there is no spread of infection. Outbreaks of hog cholera and other diseases have often been traced to such gatherings.

Grange Program.—For clarity and vigor the pronouncement of the legislative committee of the State Grange in advance of the campaign for election of legislators has not been equalled in recent years. The Grangers give notice of what they will ask of the men who aspire to sit in the next legislature. They do not give notice of what they will ask of the next legislature. They are going after the candidates before they are nominated and elected, and ask their stand. The Grangers' statement contained no broad, general reference to humanity and the uplift, but was specific in presentment of places where relief should be granted by those selected to legislate and to govern. Shortcomings in support of schools bid fair to be much heard of in the coming legislative campaign, while the indictment of the system of charitable appropriations is just awaiting some one with nerve to take it up.

More Pure Stock.—According to figures issued by the state Department of Agriculture, Pennsylvania has been increasing the number of purebred live stock. Bulls, for instance, have increased from 8,250 last winter to 8,890. An increase of 900 is noted in boars, making the number now 7,400. Stallions remain at 1,500, the same as last year. The department's crop reporters show that the weather has been holding back both wheat and rye generally, altho no damage is reported. Forty-eight percent or nearly half the farmers of the state have been using lime, and 78 percent using commercial fertilizers against 88 percent a year ago.

Few Foreigners Available.—An effort to obtain data regarding the number of foreigners who might be available for farm labor next month has resulted in the discovery that the demands of industries have taken every man who could be hired. There will be little aid to be expected for the farm labor problem from the foreigners this year.

Two quarantines.—Only two quarantine for rabies are reported in the state at present. This is due to the fact that the State Live Stock Sanitary officers have vigorously followed up each outbreak, say officials here. The number of of dogs penned up following the outbreaks was greater than ever last year.—Hamilton, Harrisburg, March 20.

NEW YORK LETTER

Military Training in Schools.—A measure that schools are interested in is Assemblyman Welch's bill providing for military training in the high schools and agricultural colleges of the state. The bill creates a military commission which is to appoint an inspector of physical training to give all pupils above the age of eight years in the elementary and secondary schools. After Sept. 1 of this year all male pupils in the agricultural colleges and high schools shall be given such military training as the commission may prescribe. Pupils must be between the ages of 15 and 19, and others not pupils may volunteer and may receive such training. The period of training shall not be more than three hours in each week during the school year, but a field training is provided for during the vacation period. The use of school houses and grounds, fair grounds, armories, arms and equipment is authorized and the sum of $100,000 is made available for purpose of carrying the act into effect. It is believed that the educational department is not in sympathy with the proposition, but it has strong backing from other sources.

State Fair Grounds.—A bill will soon be introduced in the legislature which will permit the exchange of certain canal lands in Syracuse for 196 acres of adjoining land owned by the Solvay Process Company, in order to enlarge the grounds so as to provide more space for parking autos, for horticultural grounds, for an athletic field and a permanent camp for the farm boys.

Cost of Insane Hospitals.—Last year the state spent $6,865,385 in the care of its insane in all state institutions. There were 36,664 patients under treatment in these institutions and the average cost per capita for their maintenance was $210. The average daily population of the state hospitals was 32,555 and there were 7,934 admissions during the year.

Bonding Commission Merchants.—It is proposed by a bill recently introduced in the legislature to materially amend the law relative to bonding commission merchants. Before any bond shall be issued satisfactory sureties in the sum of $3,000 must be given to secure the honest accounting to the consignor of the moneys received (and this is new in the proposed bill) and moneys that are due and owing by such commission merchants for the sale of farm produce. If recovery is had upon the bond and the amount recovered is sufficient to pay the indebtedness in full, then each claim shall be fully paid, but if it is not sufficient then the money shall be paid pro rata on each claim. After the commissioner of agriculture has recovered and received the said moneys on the bond he is required to notify all the consignor creditors of such commission merchant of the recovery and of his intention to distribute the receipts. He then must advertise for claims and notify each claimant that he must file verified statement of the amount due him and after a certain specified time he shall distribute the money thus recovered.

Weeds and Insect Pests.—Two bills are now before the legislature which should promptly become laws. One gives the commissioner of agriculture power to compel the destruction of trees and plants that are harboring the tent caterpillar and fungus diseases, in order to prevent the further spread of these enemies of orchardists. The other bill requires all owners of property whereon are growing Canada thistles, yellow daisies, wild carrot, and in fact any noxious weeds, to cut these weeds twice a year, once in the last two weeks in June and again during the last two weeks of August. Then penalty for the infringement of the law is to be not less than $5 and not more than $25 for each violation.

NEW JERSEY FARM NOTES

Agriculture Bill Passed.—The measure reorganizing the State Board of Agriculture and establishing a Department of Agriculture was passed by the Assembly during the past week. The Assembly also passed the companion bill lodging in the new department all the responsibilities and jurisdiction over other kindred commissions and boards. Both measures have now passed the House and Senate. The main measure reorganizes the whole agricultural supervision in this state, and the companion bill transfers and invests in the department the powers and duties vested in the Commission on Tuberculosis, Live Stock Commission, and other bodies having charge of kindred subjects.

Road Bill Passed.—The Assembly also passed the Egan State Highway Bill, calling for an expenditure of $7,000,000, to be distrubed thru different years, in the construction of the thoroughfare. It now goes back to the Senate where it will come up for reconsideration.

Potato Crop Small.—The state is facing a shortage of potatoes. The crop in this section is almost exhausted and some stores are getting 75 cents a basket. Wholesale dealers have advanced the price from $1.10 to $1.30 a bushel.

Praise State Cows.—Two prize cows in the herd at the State Hospital farm ner Trenton have been placed in the advanced registry class of the Holstein-Friesian Association. In seven days one gave 617.7 pounds of milk and 24.08 pounds of butter fat, equal to 30.10 pounds of butter. The milk test was 3.87 and the best day's milk was 94.5. During the same period the second gave 608 pounds of milk and 22.64 pounds of butterfat, equal to 28.30 pounds of butter.

Road Law Codification.—The Assembly during the past week passed the resolution authorizing the present Senate and House Committees on highways to act as a joint committee for the purpose of preparing and reporting to the next Legislature a codification and revision of all the laws relating to the repair and improvement of public roads except such as may be repaired and improved by municipalities without state aid.

Hamilton Starts Duties. — W. H. Hamilton, recently appointed Assistant Farm Demonstrator of Mercer County, has taken up his duties at the Farm Bureau Office. Mr. Hamilton will devote all of his time to the Farm Bureau work, largely in demonstration work.

Poultry Raisers Dine.—One of the big events of the year in Mercer County poultry circles was enjoyed during the past week when the annual banquet of the Mercer County Poultry Association was held at Trenton. More than 60 members, their wives and friends attended.—L.

COUNTY NOTES

Clearfield Co., Pa., (C.) March 11.—Apples give good promise for a crop in so far as can be told at this time. Buds are in sufficient evidence to make a good bloom sure and wood growth was good last season. Cherries, at least the sour varieties, are all right yet. Pears are somewhat uncertain as some buds seem quite brown. Peaches of the better varieties are believed almost all killed in bud, so very little, if any, bloom will appear. Some natural fruit buds are all right yet. Grapevines made a good growth last year and show good promise, as wood is well ripened and solid. Bush fruits seem to be in good condition, but it is hard to tell yet as to possible winter damage to canes. Strawberries made good growth last season, and are yet well covered with snow, but were exposed a good deal during the winter, especially in January.—T. L. Wall.

Venango Co., Pa., (N.W.) March 6.—Weather variable but generally cold for the season. Live stock doing well. Some demand for live stock. Crops have been pretty well protected by snow during February. Butter, 35c; eggs, 28c; potatoes, $1.20 bu; apples, $1.20 bu; beef, 11c; pork, 11c; veal, 15c; hay, $20 ton; straw, $12 ton. Many farmers are hauling ties and pit props to the station and lime back home. General conditions are favorable.—W. J. Pringle.

Lancaster Co., Pa., (S.E.) March 10.—Cold at present. Weather has been stormy and very changeable. There was much snow and zero weather during February. Live stock is in good condition. Quite a lot of live stock is changing hands at present, due to farm sales. Good milk cows sell as high at $80 and $90. Good shoats are scarce and bring $7 to $8. Fat cattle are rather scarce and sell for a little better than 8c. Fat bulls 6½ to 7c. Good farm horses bring $175. Wheat seems to be wintering well. Twenty-five to fifty percent of the peach buds were frozen during the extremely cold weather of February. Hay is being baled and marketed at $19.50. Not very much wheat on hand, price $1.10; corn 80c; oats, 50c; straw, $10. The bulk of the tobacco has been delivered. Farmers are not very busy just now. Repair work is being done, some manure is being hauled when the weather is not too rough.—J. Henry Haverstick.

Crawford Co., Pa., (N.W.) March 15.—Weather cold; a blizzard on. The roads have been drifted; just opened up and are now all full again. Cold and blustery March. Public sales plentiful. Eggs, 22c; butter, 30c; potatoes, 82c; poultry 13c live; pork, 10c; hay, $13 at sales. Some lime being hauled; more will be used than usual. Manure is generally drawn out; not much else can be done.—J. F. Seavy.

Juniata Co., Pa., (S.C.) March 13.—Very blustery weather thru early March, with a great deal of snow. Prices rather higher on most produce. Butter, 36c; eggs, 20c; wheat, $1.07; corn, 60c; oats, 40c; beef, 11c dressed; hogs, 9c dressed. Cows are selling rather low in price. Good horses are high.—Walter C. Barton.

Lawrence Co., Pa., (W.) March 11.—The winter has been mild and open with only a few nights below zero. The first week of March was the coldest of the the last of our virgin forests and all kinds of lumber are going higher in price. Farm produce is generally high. Apples, $1.10 bu; potatoes, $1.50; wheat, $1.35; ear corn, 45c; eggs, 40c; butter, 40c. Cattle and sheep are high but horses are low. Lawrence county is now ''wet'' and lies between two dry counties. Considerable interest here over brick roads. Many favor bonding county for $400,000 to brick the roads according to state-aid plan. The time is ripe and it is probable that something will be done in the matter.—J. C. M. J.

FARM MEETING CALENDAR

Penna. Cattle Feeders' Convention, State College, Pa.	Apr.12
American Jersey Cattle Club, New York City	May 3
Holstein-Friesian Association of America, Detroit, Mich.	June 6
American Forestry Association Reading, Pa.	June26-27
American Assn. of Nurserymen, Milwaukee, Wis.	June28-30
International Apple Shippers' Association, New York	Aug. 2
National Dairy Show, Springfield, Mass.	Oct.12-21

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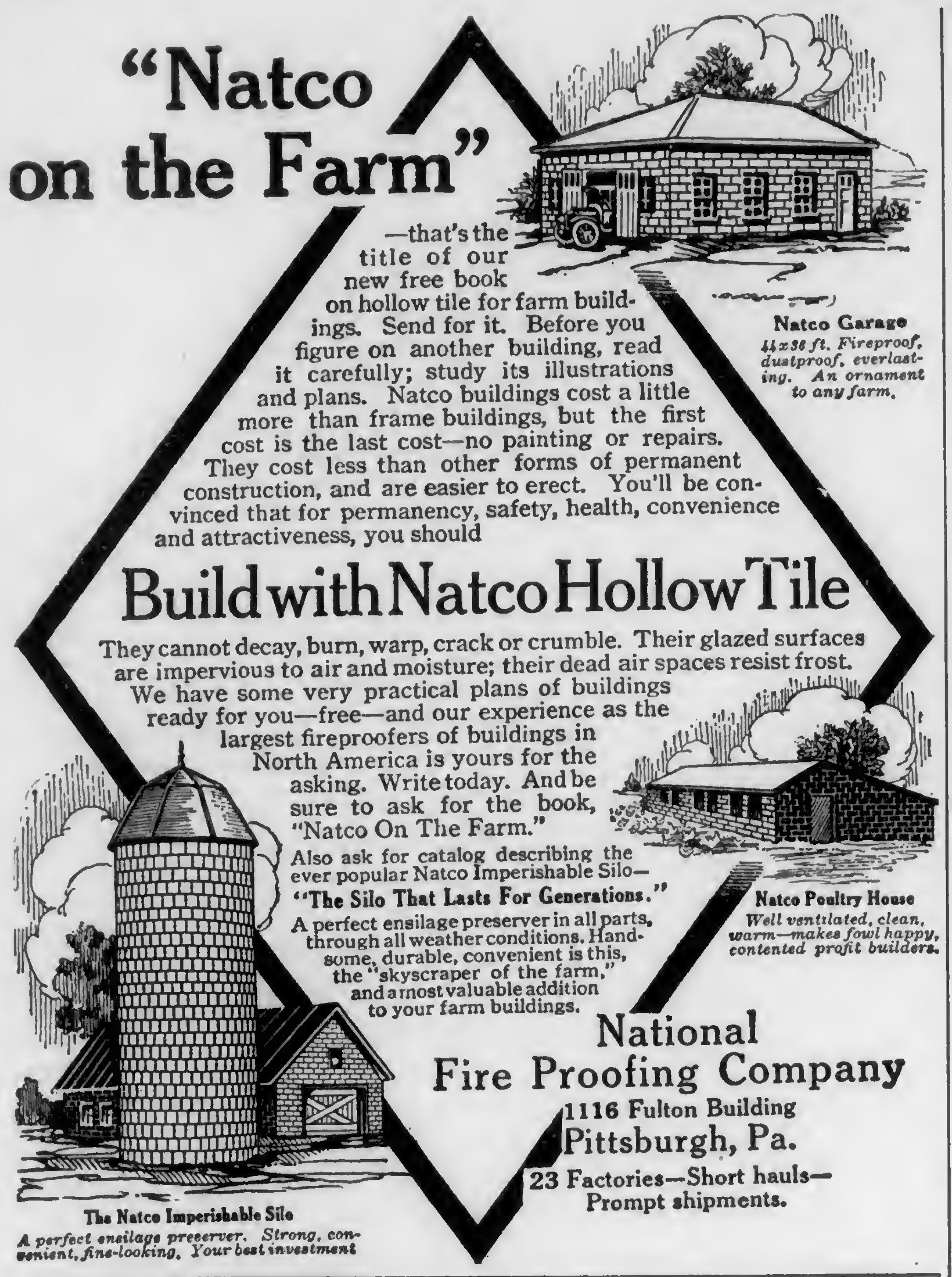
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Foundation of the Dairy

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Most men do not enjoy doing that at which they are not proficient. This accounts for the great dislike of some men for calf-raising. The sickly, scrawny calves and consequent undersized, unprofitable cows into which they grow, disgust them and discourage them from further effort. The premium that large well-grown cows demand on the market is sufficient argument for the production of better calves; for it is seldom indeed that a poorly nourished calf attains to its fullest possibilities in growth and consequent capacity for food and milk.

Mistakes

Probably the most common mistakes made in calf raising are due to the feeders' generosity. Over-feeding the young calf is certain to be disastrous. The calf is usually allowed to suck the cow two or three days, but if the cow is a heavy milker, the calf should not be allowed to take all he will. Failure of attention to this point often causes scours, which may not appear until the day after taking him off the cow. When feeding begins, only 5 to 8 pounds of milk should be fed daily, depending upon the size of the calf. This should be divided into at least two feeds, and should always be near blood heat in temperature. This amount of milk should be slowly increased until at the end of 3 or 4 weeks the amount is doubled. Sometimes in his zeal to have the milk warm the feeder overheats or scalds the milk. This coagulates the albumins of the milk, which renders them insoluble and they rise to the top in a scum and are mostly lost to the calf. The albumins are not only the most easily digested of the milk proteins but have a beneficial effect in regulating the calf's bowels. This is probably due to its association with other substances called vitamins, the exact nature of which is not well understood.

Standing second as the cause of unthriftiness in young calves and perhaps standing first among older calves, is the practice of feeding calves in filthy, sour, germ-ladened pails. This introduces all manner of bacteria into the calf's alimentary tract, some of which are pathogenic in nature and a calf that maintains his health under such conditions must indeed have remarkable vitality. Calves should be fed in metal pails, which should be kept free of all feed residue and scalded after each feeding. This is especially necessary in hot weather, when bacteria are most active. The seeming success of many patent calf-feeds is due in a great measure to the fact that they direct the feeder to scald the feed well in the pail before feeding. The beneficial effect of scalding is due to sterilization, and not to increased digestibility, as 95 percent of all feeds are rendered less digestible by cooking.

Another common mistake in calf feeding is due to neglect to give the calf hay as soon as he will eat it. Water should also be furnished, for while some calves do not need much, others will drink large amounts in the course of a day, especially in warm weather.

Rations

On most farms skimmed milk is the basis of calf feeding. However, the change from whole to skimmed milk should be made gradually. The length of time that whole milk should be added depends upon the natural vitality of the calf. As a general rule, however, the whole milk should be added until the calf has begun to eat some grain. Usually at this time the percentage of whole milk can be decreased gradually until none is given. One need never give whole, undiluted milk. The whole milk may be diluted with skimmed milk, from the first, to such an extent that the milk fed has about 2 percent of fat in it. This gives as good growing results as when whole milk is fed.

The nutritive ratio of skimmed milk is about 1 to 2.1; being much narrower than whole milk which has a nutritive ratio of about 1 to 4.4. Not recognizing this fact, some of the early investigators recommended feeding oil-meal and other high protein concentrates as supplements for milk. Now we recognize this as poor economy to supplement an already too narrow ration with a high-priced protein concentrate. The thing that would logically suggest itself to our minds is to feed some feed high in fat, as fat is the substance removed from the natural food. This is not practical, however, because of the inability of the calf to digest fats other than those highly emulsified like those of milk and egg-yolk. Thus to narrow the ration carbohydrates must be used. In Wisconsin bulletin 192, Otis recommends the following five different feed combinations, any one of which gave him satisfactory results, in experiments:

1. Corn meal, gradually changed to shelled corn in 4 to 6 weeks (with or without bran). 2. Whole oats and bran. 3. Whole oats and chopped corn, the latter replaced by whole corn in 4 to 6 weeks. 4. Ground barley with bran or shelled corn. 5. Whole oats, ground barley and bran.

Otis found that calves fed whole corn were less subject to scours and hence more thrifty than when ground corn was fed. However, grinding was in most cases necessary to accustom them to eating corn. After they are several months old they chew their food much less thoroly and then grinding is desirable. When first teaching calves to eat grain, it may be necessary to put it in with the milk, but when practicable it should be fed dry after they have had their milk. This will usually prevent their sucking each others' ears and udders, which is so often done when they have access to each other while their mouths are still wet with milk.

Kansas Bulletin 14 recommends mixing from a teaspoonful to a tablespoonful of dried blood in the milk fed to sickly calves. They found this usually proved a successful regulator and cure for scours.

Altho milk contains a relatively large amount of ash, yet calves that are growing rapidly often suffer from insufficient supply; especially lime and phosphoric acid. Legume hays furnish large amounts of lime, and bran is rich in phosphoric acid, and these may be used as ash suppliers as well as suppliers of other nutrients. Even when these are fed, calves often lack ash as evidenced by their gnawing at wood, etc. In this case a little chalk of better phosphate rock (floats) finely ground, should be supplied. Insufficient ash in their food retards the growth of calves greatly.

On Whole Feed

The time when the milk ration shall be discontinued depends upon what product the dairyman is selling. If he is selling whole milk, he naturally would like to discontinue milk feeding as early as possible. The age at which this may be done depends upon how well the calf has learned to eat grain. In no case should the milk ration be discontinued until the calf has learned to eat something else. If skimmed milk is plenty it may be profitably fed for from 5 to 8 months. In all cases changes in feed should be made gradually to avoid getting the calf "off his feed". Too many farmers go by the hard and fast rule that when a calf is three months old he can shift for himself, and is accordingly turned out to grub a meagre existence in the summer-burned pastures and to be worried the rest of the summer by the cruel flies which he is powerless to fight.

Proper feeding is indeed an important item in successful calf raising, but sanitary stabling quarters are equally important. Dark, filthy stables are as undesirable to raise a calf as to keep a dairy cow in. Sunlight is the best and cheapest germicide. Calves that have been given the proper food and environment and kept in a thrifty condition during their first winter, are worth much more as yearlings than those that have suffered a period of scant food and have had their growth checked.—Earl E. Barnes, Erie Co., Pa.

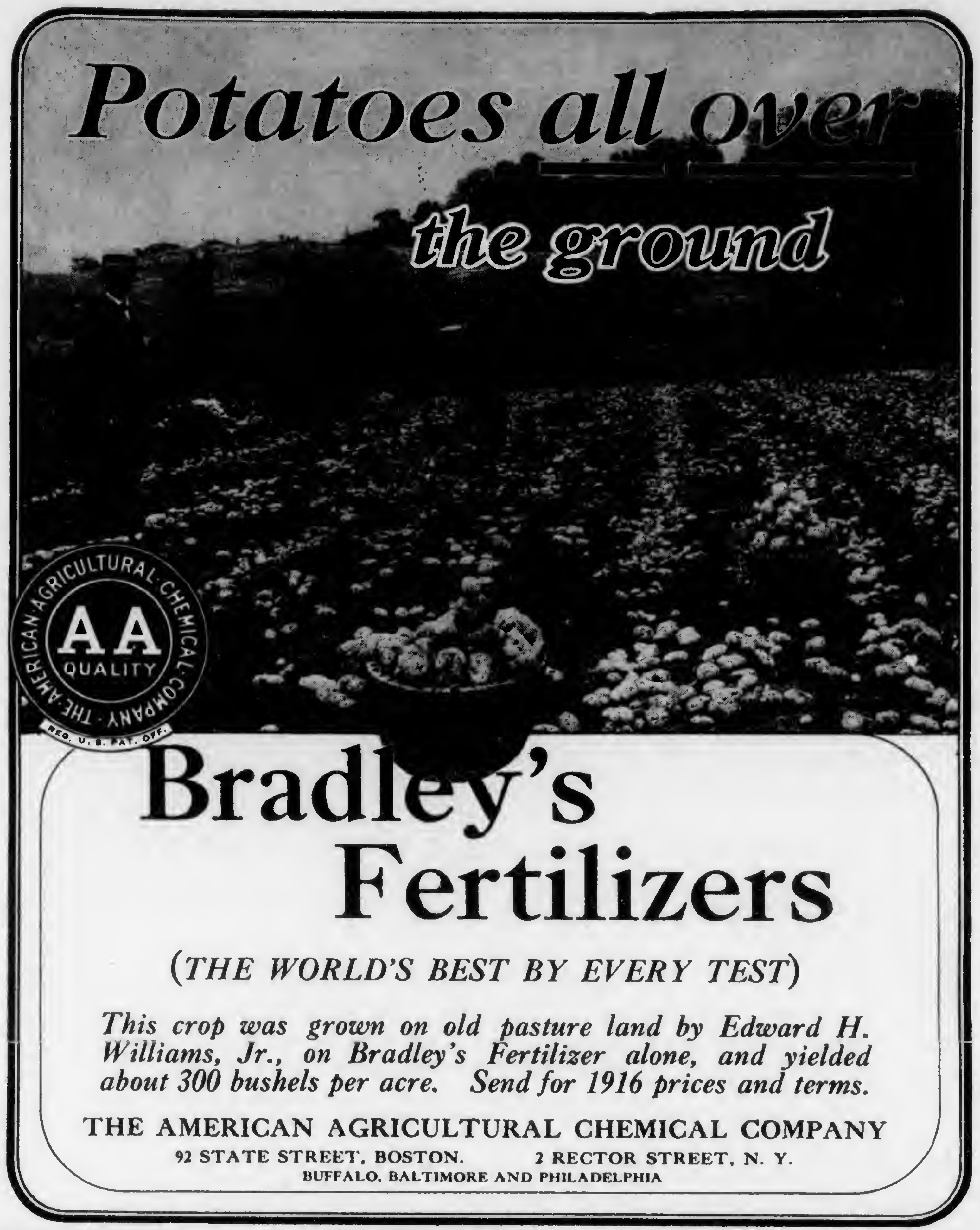
GOOD COW-TESTING ASSOCIATION RECORDS

The Conewango Valley Cow-testing Association, Cattaraugus Co., N. Y., is turning in some high class records. During the month of January, 60 cows, comprising 17.6 percent of the total number, made over 1,000 pounds of milk each. The 60 cows gave a total of 80,448.1 pounds of milk, or an average per cow for the month of 1,340.8 pounds. The average test was 3.45, giving a total of 2,782.65 pounds of butter fat, or an average of 46.37 pounds per cow for the month. A purebred and registered Holstein cow headed the list with 2,828 pounds of 3.2 percent milk, making over 90 pounds of butter fat for the month.

BETTER CARE OF FARM MANURE

How can the average farmer take better care of the manure? One authority says that horse manure in a loose pile exposed to the action of air so that aerobic fermentation proceeds without check, loses nearly one-half its fertility in six months, this being 40 percent of nitrogen and 10 percent of the gross manure value. According to this, the cleanings from the stable thrown out loosely each day and accumulating say from fall to spring will amount to about one-half of what they would if cared for properly. What can the farmer who cannot build expensive sheds to cover it, do to preserve the fertility of the animal wastes until he can use them? These suggestions may help toward a partial solution of the problem at least:

If the horse and cow manure are thrown together in layers the loss is not so great, altho in the loose heap, the loss still goes on. This can be done by spreading out the horse manure and then throwing over it the cleanings from the cow stable. Now if soiled or discarded bedding is thrown upon this and well trampled each day, a long step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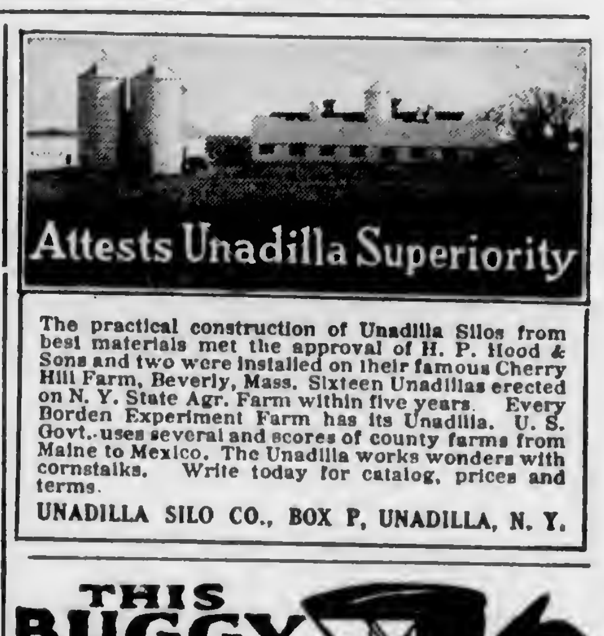
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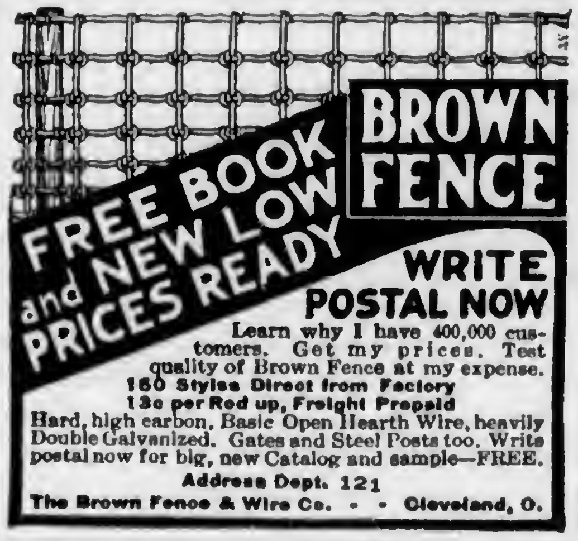
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Delivered any R. R. Station in Penna. Sires two nearest Dams average 30.22. No Tuberculosis. No Abortion.

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4 months old, Sire carries 50 percent of Toma of Hillstead Blood, record 715 lb. butter.

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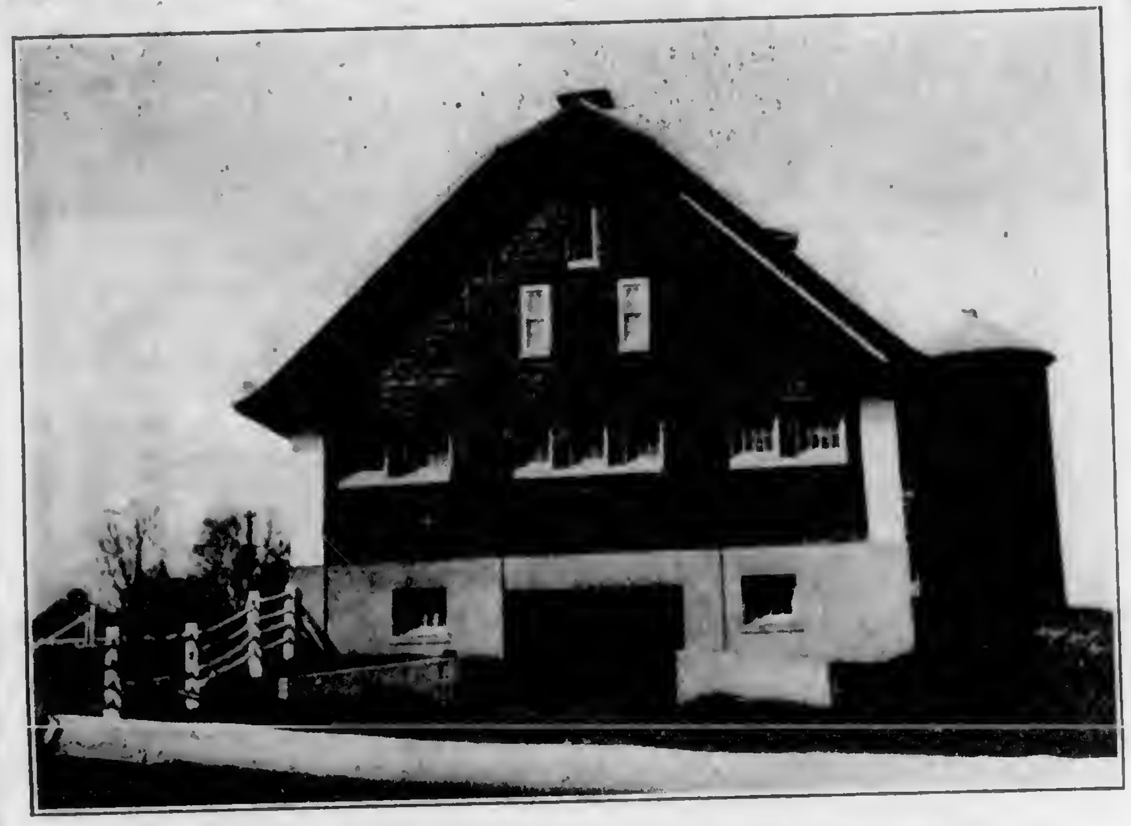
is made toward its preservation. Saving measures should begin in the stable. Plenty of bedding as an absorbent is a step in the right direction. One pound of land plaster spread upon the wet parts of each horse's stall is another important step. This fixes the nitrogen.

A manure pit sloping gently toward the center should receive the wastes that are to be held for some time. A layer of manure, old straw or peat should be laid upon the bottom, then a layer of acid phosphate may be used. The other available wastes may be added from time to time and wet down. The finished heap is covered with earth or peat and left to itself for several weeks before being used.

Spreading manure on hilly fields means unequal fertilizing unless plowed in at once. When a good absorbent has been used regularly and the manure spread upon the field, the loss by exposure to the air and rains is not so great. It is the fresh manure, untreated by any nitrogen-fixing materials that suffers in this way. Where undecomposed straw forms one of its constituents, however, the exposure in open field results in the leaching away of the rotting agents and the drying out of the straw instead of its decay.

Sheds to protect compost are too expensive unless they serve a two-fold purpose and protect the animals as well. If the manure is thrown out under these sheds covered with litter and trampled by the cattle, it is preserved until needed. It is often advisable to have manure carted direct to the field. A waiting manure spreader or cart receives the cleanings and when full is drawn away. The spreader or cart should be protected from rain. A projecting shed roof or a specially constructed roof to extend over it may be devised. The accompanying illustration shows the manure outlet of a cattle barn. The cart is backed into the wide opening in the front and cleanings from the barn floor above are dumped into it. The manure is then hauled directly to the field.—C.



A NEW JERSEY DAIRY BARN IN WHICH MANURE IS DROPPED INTO SPREADER STORED IN THE BASEMENT.

WHY DOESN'T THE BUTTER COME?

A minister's wife wrote to a dairy paper saying her Jersey cow was giving a fine mess of milk, was fed the same feeds and in the same quantities as heretofore, the milk and cream were managed in the same way as formerly, but that the butter would not come. The editor replied that when cows had been a long time in milk, the cream is difficult to churn. That there were several remedies prescribed of more or less value; but she had better trade her cow to the deacon for a fresh milker. In case the deacon would not trade, then try some of the world's people.

I have had difficult churnings which were not caused by the cow having been long in milk. The butter would come readily enough, but would not "gather." It would float on top of the buttermilk in little round globules about the size of bird shot, or nearly so, and just as round. These little particles seemed to have a repulsion for each other. In desperation I strained the buttermilk out thru a cloth then emptied the butter into the butter bowl, and with the ladle soon worked it into a fine roll of yellow butter. This same trouble happened a number of times.—J. W. Ingham, Bradford Co., Pa.

GROWING GRAIN MIXTURES

The growing of grain crops in mixtures has been quite commonly practiced during the last ten years, by the farmers of Ontario. This has become the custom, largely as a result of the rapid development of late in the stock raising industry. On the majority of farms very little if any of the home-grown grains now find their way to the market except in the form of meat or dairy products. Because experiments have shown that a considerable increase in yield may be expected from a suitable combination, this point has been taken advantage of in the seeding operations thruout the province.

According to the latest crop estimates practically 500,000 acres are sown to mixed grains in Ontario, being about three-fourths as great as that sown to barley alone. The grains most commonly grown together are barley and oats, altho other combinations are frequently made up from oats, barley, peas and wheat. Sometimes a small amount of flax is included. There is a popular belief, in some instances, that one crop or the other is improved in quality by being grown in a mixture, while others contend that wheat grown with oats is less likely to be affected by rust, is more plump and of better quality than when grown alone. Various tests have, however, shown that there is no difference in the milling value of wheat grown separately and in mixtures, and it seems rather doubtful whether it differs in any other particular.

Just why a mixture of two grains should produce more to the acre than when either is grown separately no one has yet been able to determine satisfactorily. An Austrian investigator claims that mixed crops fill the surface soil much more completely with roots than do the same crops when grown separately, which would indicate that there may be a more complete use of available plant food. Perhaps the slightly different requirements of the two crops may be a factor, or the increase may be due to a mutual stimulation of growth from the intermingling of the roots in the soil. Whatever the explanation is, the practice is productive of results and many farmers are benefiting thereby.

The most complete experiments with mixed grains in America are those of Prof. C. A. Zavitz, of the Ontario Agricultural College. Taking the class of grains before mentioned, he found that nearly all the mixtures made from them yielded more pounds of grain than when each was sown separately; sometimes the increase being as much as two hundred pounds to the acre. The best possible combination for yield of grain proved to be that of barley and oats sown in proportion of one bushel by weight of each. Further, the total yield was invariably decreased if half a bushel of some other grain was added.

In making up the mixtures, only high-yielding varieties that mature at the same time should be used. Prof. Zavitz recommended for our section six-rowed varieties of barley. The results of experiments covering fifteen years show the Mandscheuri variety to be more pronounced than that of any of the two-rowed barleys used in combination with oats. In every instance there was over 50 percent of barley in the resultant crop from the different mixtures sown. It is medium early in maturing and ripens uniformly with a variety of early maturing oats. When a better two-rowed barley is better adapted to a locality the Chevalier type combined with a medium maturing variety of oats like the Siberian is probably the best.

Peas, altho a valuable grain when mixed with oats for the production of green fodder or for hay, occupy a comparatively low place when grown in a mixture for grain production. This is an important point to remember, as there seems to be a wrong impression among some farmers that a few peas added to a seeding mixture will increase the yield of grain and at the same time improve the feeding quality. The feeding quality is improved, but as peas grown in combination with other grains do not fill out well in the pod it is advisable to grow them separately and do the mixing afterwards.

Quite a number of farmers mix a little flax in their seed oats with the object of raising their feed value. This appears to be a good practice and is highly recommended by many. No decrease in the yield of oats can be noticed and whatever yield is obtained from the flax is pure gain. Of course, if the crops from these various combinations were to be marketed the components would have to be separated in many cases and the additional cost thereby incurred would make such a system less profitable. But where the grain is intended to be fed on the farm or is sold for feed purposes it is a great deal less labor to mix the seed before sowing than to perform the same separation with the whole crop before it is fed. Any thing that will lessen labor and increase yields is worth trying.—J Hugh McKenney.

Note.—The crops and combinations here suggested are not suitable to our more southern latitudes. But the benefits derived from such plantings hold true in such combinations as do well here, such as rye and oats, oats and peas, soy beans and corn, etc. Mixed seedings are becoming more and more common among our dairy farmers.—The Editors.

PENNSYLVANIA FARMER BEST OF ALL

"The issues of the Pennsylvania Farmer of January 8 and 15, 1916, failed to reach me. Will you kindly mail me the two numbers; they are too good to miss. I am reading a half dozen farm papers, but I think the Pennsylvania Farmer is the best of them all. Hope you have a very prosperous year." H B. Larned, Huntington Mills, Pa.

Health First

If a cow is well—if her organs of production are doing their duty—she will yield well. Time was when the cow that became sluggish and seemed to be going backward was promptly sold to the butcher.

Thousands of cow owners have found that in most cases proper treatment will save them the difference between the price of a beef cow and a vigorous milch cow.

Most dairy cow ailments are simple if the source of the trouble is reached. If the organs of production or reproduction are not doing their duty, try Kow-Kure—the medicine for run-down cows. It has worked wonders in many herds, and is especially recommended for the prevention and cure of Abortion, Barrenness, Milk Fever, Scouring, Lost Appetite, Bunches, Retained Afterbirth, etc.

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who will, on request, send you a copy of *"The Breeders' Horn"* with complete advance information regarding the sale.

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Tidy Pontiac Bodora, (registered Holstein) born May 27, 1915.

Sire, Tidy Abberkerk Prince, who has 8 30-lb. daughters, and is a 27.29-lb. bull. The dam of this bull we offer has a record of 23.47 lbs. at four and one-half years, and is a good daughter of King of the Pontiacs. This is a fine individual in every way and you'll have to act quickly to get him.

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Registered A. R. O. Holstein Bull

CALF, born January 30, 1916. more white than black. Average A. R. O. record of dam, sire's dam and sire's granddam, 7 days, 537.3 lb. milk, 26.28 lb. butter; 30 days, 2,354.3 lb. milk, 105.9 lb. butter; semi-official, 1 year, 19,991.9 lb. milk, 953.52 lb. butter; average fat per cent for the year, 3.8 percent. First check for $125 takes him. Catalogue for stamp.

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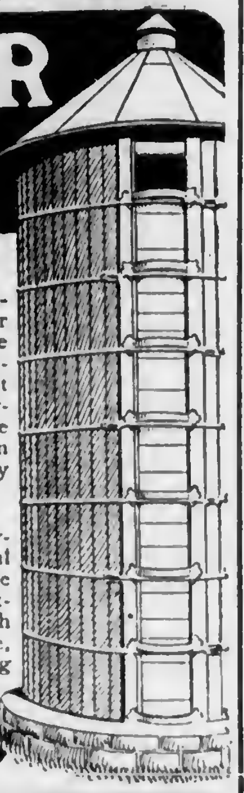

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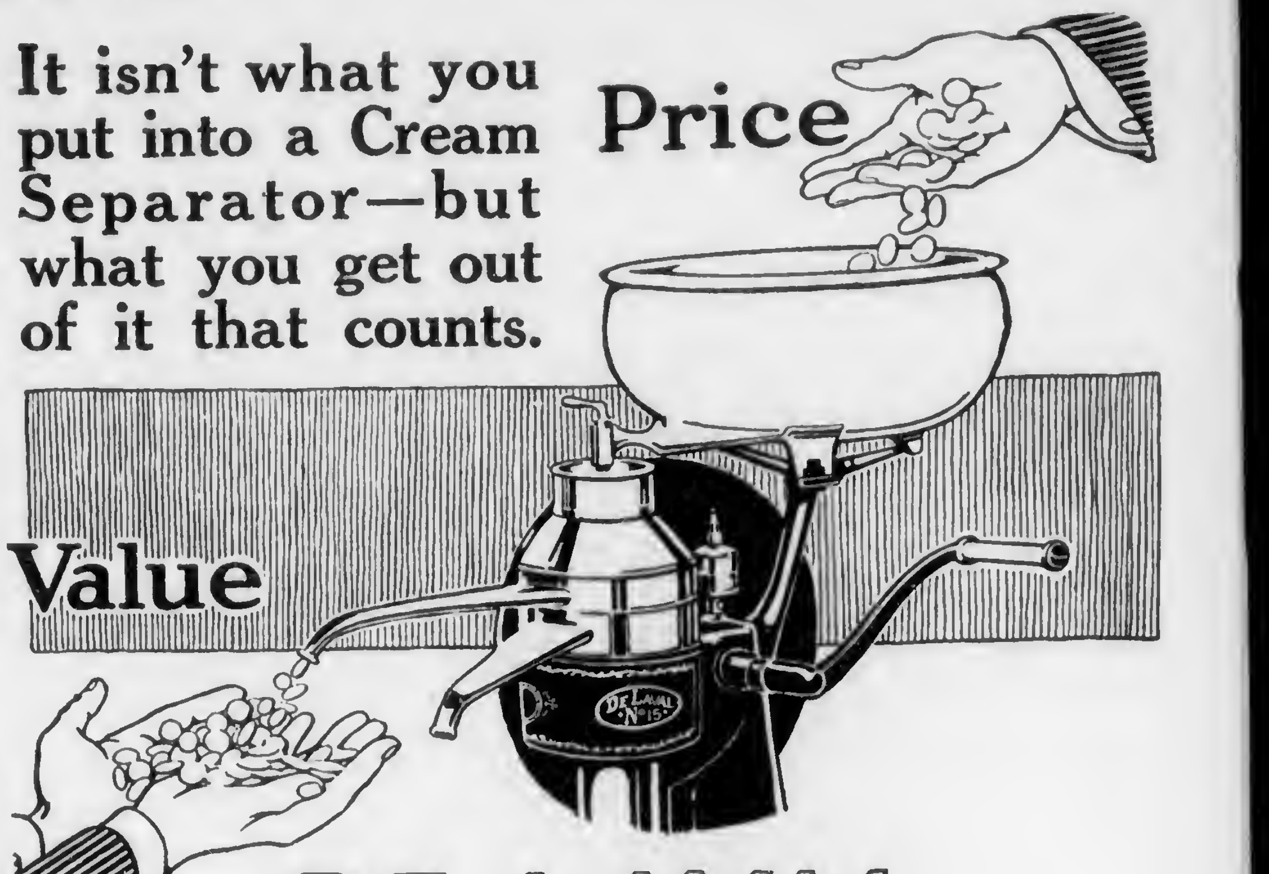

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50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

Before you buy lumber for any purpose, look into its quality—its strength, durability, beauty and cost. By doing so you will avoid many disappointments, and save many dollars.

North Carolina Pine
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This wood comes in a great variety of grades, each one adapted to some one purpose—timbers and weatherboarding for your house, flooring for your rooms, staves for your silo and lower grades for your gates and pens.

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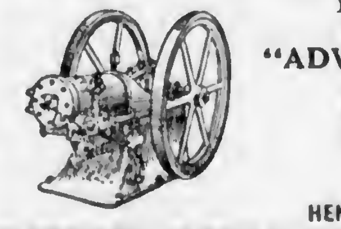

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It's your fault if you don't buy the best, for we have it for you.

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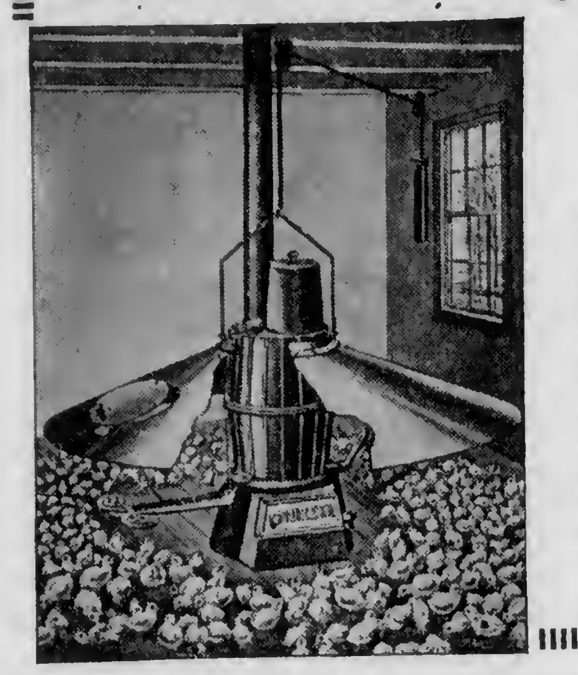

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When you buy a Eureka Brooder, you run absolutely no risk. If after 30 days' trial you are not entirely satisfied with this brooder, return it to me - at my expense - and I will refund the purchase price to you without a quibble. The

Eureka Colony Brooder
Price $11 and $15

is a brooder that I have absolute confidence in. I am a large manufacturer of stoves and make every part that goes into it. I eliminate useless expense. This brooder has a corrugated fire pot, is self-regulating, and is made of solid cast iron. It will burn hard coal or natural gas, as desired. I honestly believe it will raise more chicks and better chicks at a lower cost and with less labor than any other brooder on the market. So confident am I that this brooder will satisfy, that I will gladly send it to you, on receipt of purchase price, freight prepaid, so that you can try it and see for yourself. At the end of 30 days if you are not entirely satisfied return it to me and I will refund your money at once. This is a guaranteed offer. Write me today - now - for descriptive literature, and more about my guarantee offer.

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No More White Diarrhoea.

Last season several thousand poultry raisers found a way to prevent White Diarrhoea. One of these was Mrs. C.G. Richards of Piqua, Ohio. For the benefit of other poultry raisers she gives her experience below:

"Last year I hatched 700 little chicks, but lost over 300 of them from White Diarrhoea before I found anything to prevent it. Then I learned about Chictone, sent for a box, and after using it I never lost another chick. I think this wonderful remedy has no equal and will always keep a supply on hand." Mrs. C.G. Richards, Piqua, O.

Chictone gets results! Resolve TODAY that you will save YOUR chicks from White Diarrhoea. Chictone is guaranteed to save 90 percent. There are lots of substitutes, but there's only one Chictone. Chictone is not a poison. Sold in 50c boxes. Delay is dangerous. Order today from

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Ideal Colony Brooder

The IDEAL eminently successful under all conditions of WEATHER, CLIMATE and TEMPERATURE broods without loss and delivers Three PRODUCERS where only One CHICK grew before.

SPECIFICATIONS: Heavy Castings, large fire-pots, accurate automatic regulation, unlimited capacity and through the POUCH FEED enough coal can be administered at one time to maintain a steady fire Twelve to Twenty-four Hours. Vastly superior to the magazine or self-feed. Equally adapted for large or small flocks.

THE MARVEL. Price $15.00
For large or small flocks. Efficient heater with Automatic control of the drafts. Coal Burning, Self Regulating and adapted for large or small flocks of either Chicks or Ducks.

Write for Booklet describing the Up-to-the-Minute methods of brooding with complete information about the IDEAL and MARVEL Hovers.

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WHITE LEGHORNS
"With The Lay Bred In Them"

Husky, vigorous, farm-grown birds, bred from many generations of pedigreed layers
EGGS—CHICKS—STOCK
of superior quality at moderate prices. Bred for business—sure profit-payers. Official Laying Competition records prove it!
We produce on our own plant every bird and egg we sell so can guarantee satisfaction to each customer.
FREE CATALOG will set you right on Leghorns. Write for it today!
SPRECHER BROS.
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Raising Poultry $1500 Yearly in Backyard

New 100-page book—just off press—by recognized poultry authority—gives the very information you need. Hundreds of women pay for homes raising poultry in back yard—healthful, interesting. This book tells how to avoid beginner's costly mistakes—gives experience successful breeders—how they started, grew and made money. Describes America's greatest money-saving line of guaranteed incubators, brooders. Book in large demand—write immediately. Free Book Tells How
Model Incubator Co., 23 Henry St., Buffalo, N.Y.
Also 20 Barclay St., New York City

Biggest Hatches

Bad luck and side or end heating plants go hand-in-hand. X-Ray Duplex Central Heating Plant—directly underneath—where it ought to be—chases bad luck and gives *biggest hatches.*

X-Ray Incubators

and Brooders too are scientifically correct in every detail. *One gallon of oil—only one filling—*for the entire hatch. X-Ray Hinged Glass Top—X-Ray Ventilating System—X-Ray Automatic Trip (heat regulator)—are some of the X-Ray fifteen special features. *Express prepaid* to practically all points. Send postal for free book No. 84.

The X-Ray Incubator Co.
Box 84, Des Moines, Iowa

Tells why chicks die

E. J. Reefer, the poultry expert, 4403 Reefer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure it." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

CHAMPION LAYERS.
SINGLE COMB WHITE LEGHORNS.
Baby Chicks, $10. per 100
Hatching Eggs, $6. " 100
INDIAN RUNNER DUCKS.
Baby Ducks, $18. per 100
Hatching Eggs, $10. " 100
Cockerels & Pullets. Ducks & Drakes.
"RICHLANDS MANOR" FARMS
233 Acres
QUAKERTOWN, PA., R. F. D. 4

Day Old Chicks Single Comb Buff Leghorns, Etc. 8c and 10c. Open front system assured. Hearty chicks; guarantee safe delivery. Pamphlet free.
JACOB NEIMOND, No. 2, Box 20, McAlisterville, Pa

Eggs 15 $1; 40 $2; purebred Rocks, Wyandotts, Reds, Leghorns, Hamburgs. 35 years experience. Catalog. White Orpingtons, Houdans, Campines, Brahmas; 13 $1; 30 $2. S.K.MOHR, Coopersburg, Pa.

Chicks $6.95 to $9.95 per 100. Broilers, B. Rocks, White, Brown & Buff Leghorns. Satisfaction and safe delivery guar. Let us book your order. Circular free. Keystone Hatchery, Box 45, Richfield, Pa.

Eggs for Hatching Barred Plymouth Rocks, S. C. Rhode Island Reds, White Orpingtons. $2.25 per 30; $5 per 100. Fertility guaranteed. Circulars. SUNNYSIDE FARMS, Pittsville, Md.

60 Page Book Free Describing varieties Poultry, Pigeons, Ferrets, Dogs, Hares at lowest terms. Fancy colored catalogue 10 cents. J. A. BERGEY, Telford, Pa.

EGGS for hatching, White Leghorns, Sprecher Strain. 1400 farm range sel. breeders, $5.00 per 100; $40.00 per 1000. I want your trade.
A. S. HUBER, R. 1, Lititz, Pa

Barred Rock Chicks 50- $7.75, 100- $15.00 Express prepaid.
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60 BEST BREEDS Chickens, ducks, geese turkeys guineas, dogs and hares. Stock for sale. Valuable catalog. Free. H. A. SOUDER, Box P, Sellersville, Pa

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PRAIRIE STATE INCUBATORS,
Famous for hatching "chicks that live." Reliable—economical—leaders for 35 years. Only incubators that have top radiant heat, downdraft ventilation and applied moisture. Write us today.
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Baby Chicks S. C. White Leghorns, 8½c to 10c each, according to season. Greatest of laying strains.
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White Wyandotte Eggs Chickens bred for quality, good layers, free range. Eggs $1 for 15; $5 per 100. CLAUDE L. DRAPER, Chestnut Ridge Farm, Wyoming, Del.

Thoroughbred Poultry Best 20 varieties. Eggs $1 for 15, $2 for 40. Cat. free. Henry K. Mohr, R 3, Quakertown, Pa.

Black Leghorns Day old Chicks and Eggs
HAMPTON'S - - Pittstown, N. J

Reds S. C. Rhode Island. Great Winter Layers. Eggs 30 for $2.00. Circulars. AL-RICH POULTRY YARDS, New Milford, Pa. Box 143.

Ringlet Barred Rocks the kind that lays and pays. Eggs $1 and $1.50 per 15, prepaid.
E. B. PARKER, Tuppers Plains, Ohio.

AMERICAN DOMINIQUES, S.C. White Leghorns Eggs for hatching $1 for 15; $4 per 100.
CLARA AUSTIN, R. D. 8, Wellsboro, Pa.

Poultry

GUINEAS

The common idea is that guineas must be paired so as to get the best results. But it is the conviction of the writer that if two or even three females are kept to one male better all-around results can be obtained. Thus the fault of going away in some out-of-the-way place and concealing their nests is largely overcome. It is the common thing for a half a dozen or more guineas to lay in the same nest and continue to do so, if they are not disturbed too badly, until one becomes broody. A broody guinea can be easily broken up by removing the eggs and disturbing the the nest.

Full grown young guineas begin to lay a trifle earlier in the spring but the old hens lay slightly larger eggs and consequently give stronger chicks.

The writer prefers to take all eggs from the guineas until about the first of July and hatch them with hens. After that each guinea will usually raise a brood of young ones without any care and with little or no feed. If infertile eggs are substituted for the fresh ones, the number gradually increased as the guineas continue to lay in the same nest, the nest will not be deserted very soon.

The eggs should be set under hens of a medium sized breed, preferably Reds or Rocks. Care should be taken to make the nest so as the much needed supply of moisture can be supplied. Moist earth covered a few inches with nest material makes an excellent nest. If moisture is not provided in some way the air space becomes excessively large and consequently gives a weak guinea.

DEVELOPING AN INTEREST.

One of the secrets of guinea raising is to move the weather-proof shelters of ample size away from the buildings and other poultry. One of the best locations is under a tree that is some distance from the buildings. The tree will give the much-needed protection from the sun as well as a roosting place for the growing birds. A pen of small mesh wire should be provided as it will allow the much-needed exercise and prevent the young guineas from wandering away from their foster mothers. When the young guineas are about two weeks old the hens should be left out and started to go out over the fields.

The young guineas should not be given any food until they are about thirty hours old. Pure water should be provided at all times. Any good baby chick food will do all right for young guineas. Green food must be supplied while the guineas are small. Finely chopped lettuce makes an excellent green food. Feeding three times a day while small and only twice a day when they are larger and forage more, seems to be most satisfactory. Since guineas are light feeders overfeeding must be guarded against, especially while they are small. The food of the growing birds should be largely of cracked corn, wheat and pin head oats. The proportions of the different grains will depend upon the appetites of growing birds. As the birds become large enough for market the proportion of corn should be increased as it causes them to gain more rapidly.

In the long run it is best for the average farmer to market his birds alive. The inconvenience of killing packing, and shipping as well as loss due to delay in transit will thereby be obviated.

Besides bringing a good profit with little labor, guineas are great destroyers of many weed seeds and insects. They go to all parts of the farm after their favorite food. Fruits and vegetables are very seldom molested by them.—J. M. A., Adams Co., Pa.

Poultry Queries

White Diarrhea

Four years ago I lost so many chicks from white diarrhea that I decided to use hens for hatching and brooders for rearing. This plan gave better results than incubators until last year, when I again had great losses. Don't you think white diarrhea originated from hatching chicks year after year in an incubator? Would chicks placed in brooders used last year by flocks affected with the disease be likely to contract white diarrhea, if the brooders were thoroly cleaned and disinfected with a carbolic acid solution? What disinfectant would be most effective? What is the best way to disinfect the felt in brooders? Why is my first hatch usually thrifty while mortality increases with each succeeding hatch? Will excessive heat over night in the brooder, say ten degrees too high, cause white diarrhea in chicks ten days old? B. M., Pennsylvania.

Tests have shown that there are no more cases of white diarrhea in artificially hatched chicks than in hen hatched flocks. Many persons are misled in their observations in this regard owing to the fact that a very large majority of chicks are artificially raised compared with those brought up by the so-called natural method. A greater number of artificially reared chicks come under observation and their numbers make a deeper impression, thus leading to hasty conclusions as to the percentage of chicks affected. Reliable tests conducted with equal numbers of artificially reared and hen raised chicks grown under like conditions, will show that fully as large a percentage of hen hatched chicks are lost with diarrheal diseases as are artificially incubated chicks.

It is the writer's opinion based upon both experience and observation that fully ninety-five percent of the bowel troubles of small chicks are due to chilling and exposure, which causes the chicks to take cold in the bowels. The chicks should be kept comfortably warm, but not overheated, and should be protected from cold winds and drafts on the brooder floor. Allowing the brooder lamp to go out during just one night will cause untold trouble.

Improper feeding and overfeeding, or the use of moldy material is often a cause. Too heavy grain and meat feeding with an insufficient supply of raw green food, or perhaps none at all, is a common cause. A regular supply of grass clippings or mangels will be found good. The latter is particularly good. In a recent issue of the Pennsylvania Farmer I gave our methods of feeding

and rearing the chick flock which have, in our experience, proven very successful.

There should be no trouble caused by using the brooders if they were thoroly disinfected and cleaned. It would be best to destroy the soiled felt and replace it with new, and secure fresh ground for the yards. A five percent solution of formaldehyde or creolin will prove effective in disinfecting. The only reason for the increased mortality in the late hatched flocks is that they are perhaps not given the same care as the early flocks. Clean and disinfect the brooder thoroly after each flock is removed and if a small portable coop is used, move it to clean ground for each new flock. This combined with careful feeding and proper attention to the heat should overcome the trouble.

At the first appearance of trouble give the chicks paregoric, using five drops to a quart of drinking water, allowing no other water for a few days. Scalded sweet milk with a little nutmeg added is good in slight cases. The feeding of boiled rice is also helpful.

The avoidance of fatal results is entirely dependent upon correcting the cause and the use of effective remedies as soon as trouble is noticed. Overcrowding should be avoided and extra care taken to keep the quarters clean. —J. Raymond Kessler.

Depluming Mite

I keep purebred White Plymouth Rock fowls and aim to give them good quarters and care. For the last 2 years I have had trouble with them shedding their feathers and remaining half bare for months. I do not have many roosters with them at any time but the hens are the worst in this respect. Have about a dozen pullets even now that have bare spots on their backs. Feathers seem to drop out easily and do not come in again very fast. Do you think that the depluming mite may be the cause? How shall I correct it? Thanking you for reply thru the columns of the Pennsylvania Farmer. W. F. H., Huntingdon County, Pa.

There is little doubt but what the trouble mentioned above is caused by a small mite (Sarcoptes Laevis) found on the bird's body near the base of the fallen feathers. Isolate the affected birds and rub bare patches and neighboring portions of body with sulphur ointment. This is made by mixing together: 1 part sulphur, 1 part kerosene, and 2 parts lard. Two treatments should be given, a week apart. The hump and breast are most frequently attacked.

SUMMARY OF BULLETIN

Bulletin No. 86 of the Storrs Agricultural Experiment Station on the subject "Some Lice and Mites of the Hen" by Lamson and Manter places emphasis on the following points:

1. That there is much confusion regarding the relative harmful effects of the lice and mites owing to the fact that the lice are more easily seen with the result that they are often accused of causing injury actually done by mites.
2. That the lice can be easily controlled by the use of blue ointment rubbed on the hen.
3. That one of the coal tar products will kill or repel the mites if applied once a year by the right method to the roosts.
4. That caraway oil proves the best control measure for the scaly leg mite.

This bulletin is the product of much experimental work covering considerable length of time with studies of these pests on a large number of hens and chickens, both out of doors and by observation in the laboratory. Several facts regarding the life histories of these parasites are new to science.

Copies may be had by applying to Storrs Station, Storrs, Conn.

THE IMPORTANCE OF TESTING

The importance of testing the eggs in the incubator can be seen when it is stated that an infertile egg is at least two degrees colder than one that contains a developing embryo. Were no testing done, and the thermometer made to register 103 degrees, with its bulb resting on an infertile egg, the real temperature of the fertile eggs would be 105 degrees.

Testing out should be done for the further reason that eggs containing dead germs will give off a foul odor that may kill or weaken the germs in good eggs.

A good way to test eggs is to use an ordinary flashlight, the kind used to light you around the house or barn. Have the room dark. Place the tray on top of the machine, allowing about half of it to extend over the edge. Support the tray with one hand and run the flashlight underneath the tray, turning it on every egg. The condition of the egg can be quickly noticed and those that are infertile or contain dead germs can be removed in a moment's time.—T. Z. Richey.

POULTRY NOTES

Eggs and poultry will bring good prices in most markets the coming season. Now is the time to hatch the profit makers to be in season for high prices.

* *

Don't set hens in the laying pens unless you want to get them all broody. The habit is "contagious" and spreads rapidly.

* *

How about oyster shells, granulated bone, charcoal and grit? Are the boxes full? If not, why not? Fill 'em up!

* *

Keep your eyes open for feather pullers. They are particularly in season now. Plenty of sprouted oats and other green stuff with a well-seasoned codfish hung up for the birds to pick at makes a good preventive.

* *

Empty water pails at night. If neglected and they freeze solid, set in cold water or pour cold water over the outside and bottom to free the ice. It works better than pounding and saves the pails.

* *

Were you intending to buy an incubator or brooder this season? It is high time to get about it, for manufacturers are now so busy that they will be liable to soon get behind on orders. Make up your mind what you want and order now. No time like the present.

* *

It is comparatively easy to hatch a lot of healthy, vigorous chicks with a good incubator, from good eggs. The management after hatching is chiefly responsible for the chicks losses. A good brooder, and skill and judgment in its use can be made to help wonderfully in eliminating chick losses.

* *

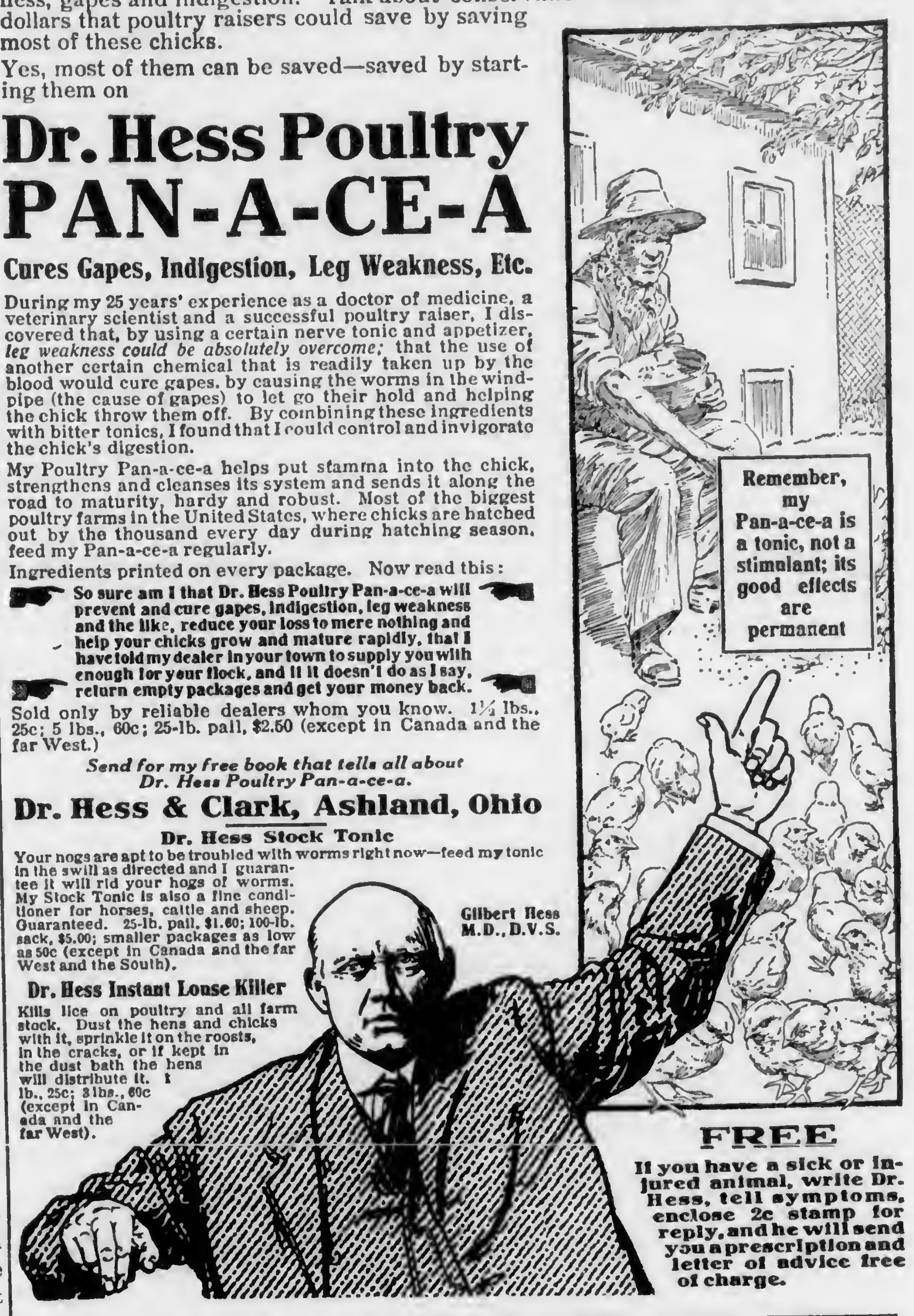
A good ration is dry mash, bran two parts, corn meal one part, middlings one part, gluten meal one part, beef scrap one part. Equal parts wheat and oats in the morning; corn at night; cabbage, mangels, cut clover, beet pulp or sprouted oats for green stuff.

* *

If there is a cigarmaker in your town secure a supply of tobacco stems from him. There is nothing better than tobacco stems to put in nests for sitting hens; they free the hen of lice.

* *

Keep a record of the flock. Do regular and systematic poultry bookkeeping. Don't leave it to guess work. Find out what they cost and what they pay, how many eggs they produce, what they sell for and whether or not you are making the profit you should.



The Spring Hatch
I'll Saves Your Chicks GILBERT HESS, M. D., D. V. S.

The annual loss of young chicks in the United States is staggering. *More than one-half* the yearly hatch die before reaching pullet age—die through leg weakness, gapes and indigestion. Talk about conservation! think of the millions of dollars that poultry raisers could save by saving most of these chicks.

Yes, most of them can be saved—saved by starting them on

Dr. Hess Poultry PAN-A-CE-A

Cures Gapes, Indigestion, Leg Weakness, Etc.

During my 25 years' experience as a doctor of medicine, a veterinary scientist and a successful poultry raiser, I discovered that, by using a certain nerve tonic and appetizer, *leg weakness could be absolutely overcome;* that the use of another certain chemical that is readily taken up by the blood would cure gapes, by causing the worms in the windpipe (the cause of gapes) to let go their hold and helping the chick throw them off. By combining these ingredients with bitter tonics, I found that I could control and invigorate the chick's digestion.

My Poultry Pan-a-ce-a helps put stamina into the chick, strengthens and cleanses its system and sends it along the road to maturity, hardy and robust. Most of the biggest poultry farms in the United States, where chicks are hatched out by the thousand every day during hatching season, feed my Pan-a-ce-a regularly.

Ingredients printed on every package. Now read this:

So sure am I that Dr. Hess Poultry Pan-a-ce-a will prevent and cure gapes, indigestion, leg weakness and the like, reduce your loss to mere nothing and help your chicks grow and mature rapidly, that I have told my dealer in your town to supply you with enough for your flock, and if it doesn't do as I say, return empty packages and get your money back.

Sold only by reliable dealers whom you know. 1½ lbs., 25c; 5 lbs., 60c; 25-lb. pail, $2.50 (except in Canada and the far West.)

Send for my free book that tells all about Dr. Hess Poultry Pan-a-ce-a.

Dr. Hess & Clark, Ashland, Ohio

Dr. Hess Stock Tonic
Your hogs are apt to be troubled with worms right now—feed my tonic in the swill as directed and I guarantee it will rid your hogs of worms. My Stock Tonic is also a fine conditioner for horses, cattle and sheep. Guaranteed. 25-lb. pail, $1.60; 100-lb. sack, $5.00; smaller packages as low as 50c (except in Canada and the far West and the South).

Dr. Hess Instant Louse Killer
Kills lice on poultry and all farm stock. Dust the hens and chicks with it, sprinkle it on the roosts, in the cracks, or if kept in the dust bath the hens will distribute it. 1 lb., 25c; 3 lbs., 60c (except in Canada and the far West).

Remember, my Pan-a-ce-a is a tonic, not a stimulant; its good effects are permanent

Gilbert Hess M.D., D.V.S.

FREE
If you have a sick or injured animal, write Dr. Hess, tell symptoms, enclose 2c stamp for reply, and he will send you a prescription and letter of advice free of charge.

Chix from S. C. W. Leghorns mated to Eglantine cockerels, the strain that produced the world's champion Lady Eglantine; S. C. Reds, heavy layers.
WY-HAR FARM, Route 1, Box 12. DENTON, MD

S. C. White Leghorns 250 egg strain. Long Deep Bodies, yellow legs and beaks and large red combs that lop to one side. Hatching Eggs. Day old chicks and pullets all ages.
A. R. GRAVES, R. D. 2, Rexville, N. Y.

Barred Rocks "Perfection" (Ringlets). Eggs from prize winners $3 per setting, 4 settings for $10. Utility eggs from same blood, $1.50 per setting; $4 per 50; $8 per 100. Few choice cockerels, $4 and $5, worth $5 and $8.
Dr. HAYMAN, Box 40, Doylestown, Pa.

Cockerels Choice S. C. Buff Orpington, White Orpington, Black Minorcas, R. C. Golden Wyandottes, $2. each, 2 for $3.50.
EGGS For hatching, $1. for 15; $5. per 100. Infertile eggs replaced half price.
W. J. WIDNEY, Doylesburg, Pa.

S. C. Snowy White Leghorn baby chicks. Wyckoff strain, ten cents each. Eggs $1.50 for 15 or $6 a hundred. Eggs and baby chicks are from trapnested stock. Satisfaction guaranteed.
DWIGHT GRIFFIN, Poultry Farm, Greenwich, Ohio

Eggs for Hatching From stock on free range. Leghorns (Young strain), Barred Rocks (Park strain), and Turkeys (Bird Bros strain). Write for mating list and get acquainted with our free range system. W.J. PEARSON, R4, Jersey Shore, Pa.

Chicks that Live, $15 per 100 Silver, White and Partridge Wyandottes; White Leghorns $12. per 100. Pekin and Rouen Ducklings, 25c each.
Aldham Poultry Farm, R. 39, Phoenixville, Pa.

30000 Chicks for 1916. Barred Rocks, S.C. White, Brown Leghorns. Broiler chicks 7 cents each and up. Circular free.
CYCLONE HATCHERY, Box 52, Richfield, Pa.

Turkey Eggs from large M. Bronze, Narragansetts, W.H. and Bourbon Reds, $3.50 per 13 by Ex. or P. P. prepaid. Orders booked now. Safe arrival guar. N. M. CALDWELL, Jacobsburg, Ohio

Eggs For hatching, Black and White Langshan, Light Brahma, B. P. Rock, M. P. Duck, $1.25 per 15, prepaid. M. Toulouse and White Emden geese, $1.50 per 5, prepaid. M. H. MYERS, Edom, Va

Thoroughbred Golden Buff Orpington Cockerels $2 each. Eggs for hatching 15 for $1.50. Prize stock. Dr. E.L. SELTZER, Marumsco, Md

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Live Stock

HORSE BREEDING

Prof. M. W. Harper, of Cornell University, discussing horse breeding before a state meeting of breeders said that New York gets from Western states 95,000 horses annually. If we want to breed and raise our own horses we must consider the kind demanded in eastern markets. The saddest part is that the average farmer does not raise the horses he uses. The farmers in New York pay over $8,000,000 per year for the horses they use. Carloads of Western horses are being sold in Tompkins county, costing $80,000 per year, often to farmers with mortgaged farms. This is a greater tax than the land will stand.

Some say they can buy a horse cheaper than they can raise one. This is misleading. When you buy a horse you often pay for the kind of horse you do not want, and you pay freight and commission on the horse in addition to the value of the horse on the farm where raised. Even if we could buy, there are difficulties to consider. One is the ease with which a horse can be misrepresented. The horse may be unsound and it takes time to acclimate a horse from the West. Horses are especially susceptible to diseases in transit, or "shipping disease".

We want to know what it actually costs to raise a horse. My figures are in general taken from Cornell University records. There it costs about $125 to produce a horse to 3 years largely because of the higher cost of the feed at the University. The selling value of the 3-year-old horse raised at Cornell is $175. It should be considered that the roughage the farmer feeds the colt costs him a lower market price and often would not be sold for cash. The value of purchased grain is the main cost. The farmer's time in feeding and training a colt is not always a cash cost, for such time might not be used to bring in cash.

In reply to a question Prof. Harper said that the mares at the University work twice as long as the average farm horse, and yet raise colts. These mares are worked up to foaling time and they lose only about ten days. The difficulty in raising fall colts is getting the mare to conceive. When you can it is very desirable. The colt goes out on grass in the spring about the right time. If for any reason both the mare and colt are not doing well, wean the colt at three months or sooner. If both are prospering and the mare does not work too hard, wean at five or six months. When you breed a young filly, breed to a stallion of known value to produce good colts, because you do not know the value of a two- or three-year-old filly for a breeder.

No one knows what the effect of the farm tractor will be on the horse market, but as yet it has not caused a less demand for farm draft horses. Most farms are too small to afford a farm motor or tractor as yet. For many years there is likely to be a good demand for work horses. Autos will sooner effect the demand for carriage horses. The good weight draft horse raised from good working mares on the farm is still a good proposition.—J.

GRADE PERCHERON MARE AND HER COLT.

SOME BARN CONVENIENCES

In visiting a large horse-sales stable recently I was impressed with some novel features of construction which I thought might profitably be adapted to farm use. I recognize and to a great extent share the dislike which exists against novelties and innovations in construction in farm buildings. But, on the other hand, I feel that there is room for improvement. Take for example, the old overhanging construction where a large cattle shed was left in the basement. This has been superceded by later and better construction. The same is true of a great many other features of barn construction formerly believed to be standard and as such held sacred. Moreover, the features noted are not mere novelties, having been in successful use in that stable for years; and many of them are to be found in numerous livery and boarding stables and some cattle barns.

Large farm barns are about the most permanent structures we have in this country. A house is torn down, added to and modified in a dozen ways, but this seldom occurs with a barn, and as only a few new barns are being built each year many of the structures in old localities are out of date. The reason is plain in old settled communities. Certain conformations of the land and qualities of the soil have made a certain number of farms of a certain size and type the logical thing for a region and, except under the most extraordinary conditions, it is not necessary to reduce the size of the farms and consequently increase the number of barns. In the newer regions, as the Middle West, the barns have mostly been constructed in recent years and much building is still going on.

One of the features which seemed to me most adaptable to farm practice was the harness room. The harness room did not exist formerly in the medium-sized barns. Nowadays it has practically become standard, even where only one team is kept. It is essential that this apartment be closely adjacent to the horse stable, a thing easily secured in planning a new barn but sometimes difficult in remodeling an old one. One of the best instances of overcoming this trouble I have seen was where the open shed along the end of the horse stable was taken in, making an open and well lighted room. It is perhaps better for both convenience and the preservation of the harness to have racks in the center of the room if there are a large number of horses, but if only a few are kept, hooks on the wall are quite as good and give more room to work in in the center of the room.

An elevator or lift capable of lifting carriages to an upper floor where they will be out of the way is a most useful thing in the large barn, but would, of course, be out of place in ordinary sized barns. Still the principle is a good one and is capable of much simpler application. Numerous farmers of my acquaintance dispose of their hayladders after the harvest season by hoisting them up into the barn loft with block and tackle. How many of us have not seen sleighs hoisted up in the wagon shed in a similar manner? In one instance I knew of the granary was located above the wagon shed and the sacks of grain were hoisted thru a trapdoor on an improvised elevator. In the sales stable which I mention, all the grain was handled in this way and wagons and equipment were regularly taken up from the main floor where the space was needed for stabling. The lift was operated by hand and altho slow was free from the dangers of the rapid power-operated freight elevators. When not in use it was locked into place as a part of the second story floor, so that there was no shaft and practically no space taken up by the apparatus. A counter-balance made the operation easy. Such outfits are now quoted at prices as low as about $100; this for lifts with a 2,000-lb. capacity and large enough platform to lift small vehicles. Increased platform capacity is largely a matter of the cost of extra timber.

Another feature, and one still more cheaply applicable to moderate needs is the buggy-washing room. When not in use some vehicle is usually left stored here so that it is a matter of only trifling expense to keep up this part of the equipment. The floor is made of concrete, sloping rather sharply toward the center where there is a large removable grating over the drain. This, in livery parlance, is called "the sink". The largeness of the drain and the fact of its being removable makes it easy to keep clean, a more or less necessary feature as considerable silt is deposited by water which has been used in washing vehicles. A hose is desirable in the operation of buggy-washing, but even if nothing more than a sponge and a bucket of water are available a quick draining place like this is appreciated, for the work is likely to become sloppy, hose or no hose.

Grain chutes connecting bins in the upper part of the barn with the stables are parts of the equipment of the large barns which may also be profitably modified to suit farm conditions.—David Porter, Lawrence Co., Pa.

SUCCESSFUL BERKSHIRE SALE

The Pennsylvania Berkshire Breeders' consignment sale held at Reading, March 1, was a complete success. Thirty-eight head sold for a total of $2,127.50, or an average of $57.50. The high figure of the sale was $110, paid by M. R. Thomas, Douglassville, Pa., for the sow Rookwood Lady 115, No. 217649, consigned by Prof. C. F. Curtiss, of Iowa. Samuel Kolb, of Mt. Claire, Pa., paid

$102.50 for the sow Second Masterpiece Fancy Exit 4th, consigned by D. W. Buckley, Broad Axe, Pa. The third sow to reach $100 was Successor's Pearl, consigned by G. W. Bowsher and Sons, of Ohio, and purchased by P. F. Krause, Boyertown, Pa. In quality of offerings the sale was declared to be the best held held as a consignment sale in this state, and second only to the Congress sale at New Brunswick, N. J., last week.

A most encouraging feature from the standpoint of Pennsylvania swine growers was the fact that practically all of the stock went to farmers of the state. About one-third went to Berks County farmers; the remainder to farmers of Montgomery, York, Lancaster, Lebanon and Lehigh counties. Only one or two head went to breeders. Farmers are showing increased interest in swine growing, and with the present high prices for feed they appreciate that they must have good purebreds to yield a paying profit.

ABUNDANT EXERCISE WILL PREVENT "THUMPS" IN PIGS

Sow and pigs should have a suitable place in which to exercise. Over-feeding and lack of exercise very frequently cause "thumps" which is spasmodic contraction of the diaphragm. In most cases "thumps" may be prevented by judicious feeding and care to have the pigs get plenty of exercise.

The department of animal husbandry at Pennsylvania State College recommends that a place be provided where the young pigs will have access to feed and thus become accustomed to it before it is time to wean them. Pigs should be weaned when from 6 to 8 weeks old so that the sow will be able to recuperate before being bred for the next litter.

CAUSES OF FAILURE WITH HOGS

In discussing the subject of cost, one expects to have some figures presented. But like many of the farmers of the East we have not yet arrived at the point where we can do things as well as we know how, or think we know. But drawing from our experience and observation we will attempt to state what we think enters into the increased cost of pork production here in the East.

One cause for the increased cost is the prevalent contempt for the hog. There are many farmers who will take the greatest possible care of their horses, cattle or hens, but neglect the hogs simply because of their contempt for this animal. They will curry, pet and fondle the horse or cow, but the hog gets only kicks. They fail to realize that an occasional application of soap and water, crude oil, coal-tar dip and elbow grease will sometimes turn loss into profit. Hogs will respond to and show the result of good, kind treatment as well as any other animal on the farm.

Another reason is the poor equipment provided for these animals. There is usually provided good warm, substantial quarters for all other animals of the farm, but the hog is supposed to get along the best he can. Successful pork production demands that the hog be kept comfortable; cool in summer, warm in winter and clean and free from vermin at all times. One can scarcely feed hogs intelligently unless he is provided with a pair of scales with which to weigh his hogs frequently. The farmer who intends to make pork production a leading branch of his farming operations should provide himself with a convenient, accurate and quick method of weighing. If weighing could be conveniently done, once a week would not be too often. It would be a great index to feeding and to the selection of breeders also. I once reared and fed out a bunch of twenty. They were from three different litters and all about the same age. They were March pigs. They were all fed together. During the fattening period they were all weighed individually each week. The results showed a wide variation in the rate of gains made by the pigs of the different litters.

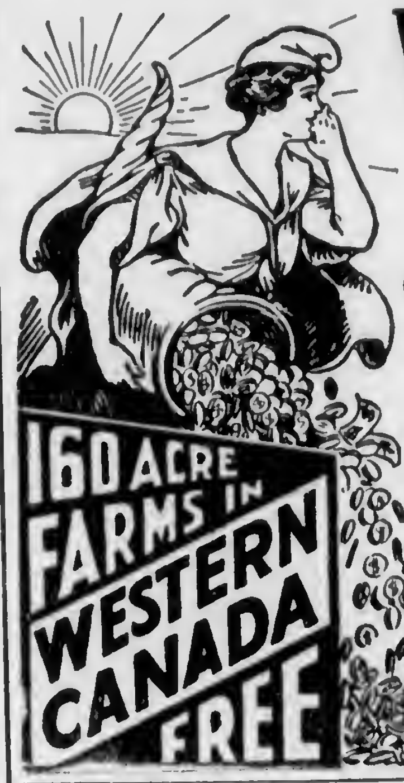
And lastly, the failure to recognize the fact that the hog is a forage animal. Experiment station records and practical experience show conclusively that dry-lot feeding is not economical. The hog should be provided with forage suitable to his needs. Hogs while growing or while being wintered can make use of considerable bulk in their ration. Especially in winter is the lack of bulk in the ration a source of loss. Usually the hogs in winter are fed only corn or, perhaps, mill feed. If he wants bulk he must eat straw or corn cobs where clover hay or alfalfa could be fed to great advantage to the hog and profit to the feeder.—V. Ross Nicodemus, Blair Co., Pa.

HIGHER FEE ON IMPORTED PERCHERONS

At a recent meeting of the Board of Directors of the Percheron Society of America, the registration fee on imported horses was increased to $100 per head, taking effect July 1st, 1916. The object sought is to discourage the importation of inferior horses, and it is believed this high fee will have the desired effect. Provision is further made to refund $85 of the $100 paid to importers, on horses that are good enough to win at fairs recognized by the Percheron Society. It is believed this action will effectually bar inferior horses without interfering with the importation of really valuable animals. Members of the Percheron Society have already been advised of this action, and breeders generally appear to be heartily in accord with the new ruling.

Cost of Steer Feeding.—Prof. W. H. Tomhave of the Pa. State College discussed the "Cost of Meat Production in Penna.," at recent Breeders' meeting. In steer feeding work with 5 lots of steers in 1914-15 it was found that the cost per cwt. was the lowest with a ration of corn silage and cottonseed meal for 56 days and corn added the last 84 days. The cattle getting this ration also made the greatest net gain when the pork produced was counted. The tests show the value of corn silage for beef production and the economy of utilizing rough feeds to the maximum. An experiment thru four years on maintaining beef cows on cottonseed meal and corn silage showed that winter cost was a little over $17. Three years' average of summering cows was slightly over $7. All costs including the yearly maintenance cost was between $33 and $34 per head. This means that a 600-pound calf at weaning time costs about $40, which is cheaper than they can be purchased. In speaking of pork production, Prof. Tomhave brought out the value of forage crops for reducing work and the cost of production. In experiments at Pennsylvania State College an acre of rape returned over $67 worth of pork.

Where a mixed grain ration of corn, oats, oil meal and bran is fed, clover hay is equally as efficient, if not a little superior, to timothy for horses at hard work. There is no observable difference in the effect of clover and timothy upon the spirit of the horses or their ability to endure hot weather. Those receiving clover have a glossier coat of hair and their bowels are more loose, but not too loose to endure hard work. A saving of 10 percent may be made by grinding the grain for farm work horses when at hard work.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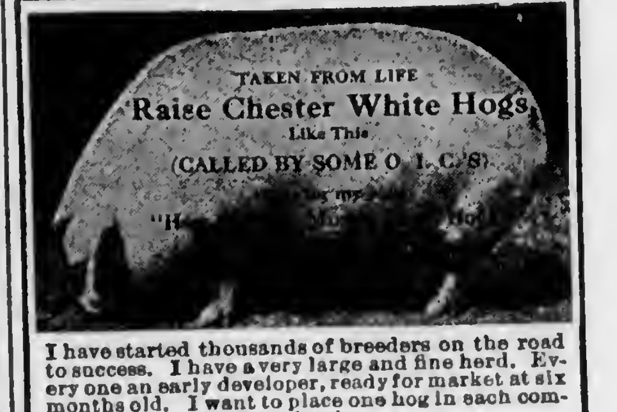

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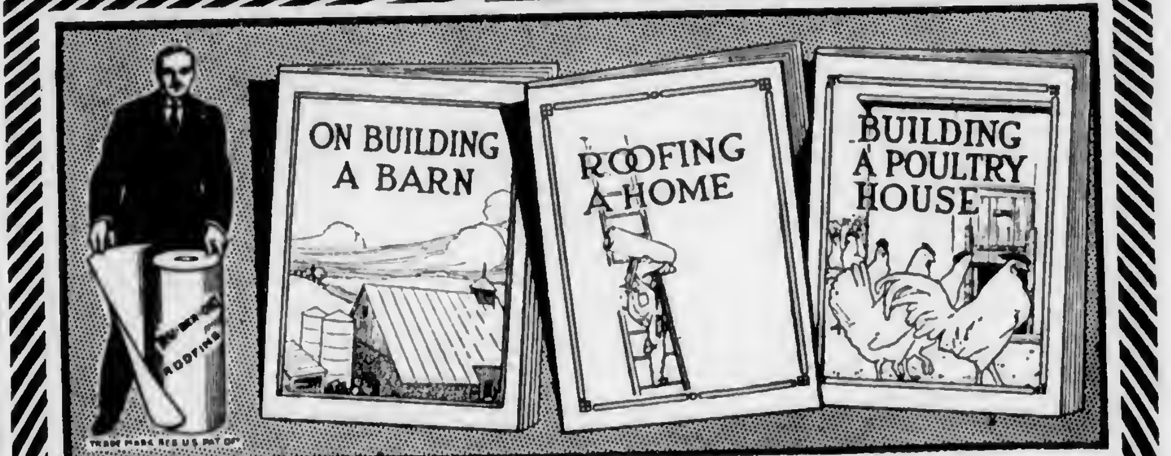

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By Mrs. C. A. Deakin, Union County, N. J.

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PULLETS ON LAWN AT JILL YARDS.

I found a most interesting backyard poultry business, started by Jack but continued by Jill after it grew too big for a hobby, for the ''Jill Yards'' were first a hobby, altho they are now run on a purely business basis, and made to pay for time, trouble and money invested. Jack and Jill's interest in poultry was first aroused by keeping a few bantams. These laid well—but the eggs were so small and it took so many birds to fill the pot for dinner that they began to study up on other breeds, with the result that they substituted for the bantams White Orpingtons because of their beauty and value as table fowls and layers.

In the spring of 1913 fifty baby chicks were purchased for $25, and a brooder to care for them until they were old enough to live in a piano-box house was rented for $1. Of these 50 chicks 38 grew to maturity—24 roosters and 14 pullets. For the first winter's housing an open-front portable coop, 6 by 8 feet, costing $15, was used.

LADY FLUFF, FIRST AT PLAINFIELD.

As Jack and Jill were inexperienced in feeding chickens, they appealed to the New Jersey experiment station, and have followed the station instructions closely ever since except in the feeding of wee chicks, which they now feed every two hours for the first week. The infertile eggs are cooked, then are put, shells and all, thru the food chopper, and mixed with equal parts of stale bread crumbs. The amount fed is just short of what the chicks appear to wish to eat, in order to maintain a healthy appetite. Grit, charcoal, water and bran are before them all the time.

Economy has been the watchword at Jill Yards, but never to the extent that efficiency of the plant has suffered. Square oil cans are converted into mash and charcoal receptacles, and homemade weather-proof mash feeders are made of odds and ends. What does it matter so long as the chicks thrive? There is a distinct air of neatness and order about the place, and the homemade furnishings seem to be in the most convenient spots to make it easiest to do the work.

QUEEN BESS. FIRST PULLET AT SOMERVILLE.

The first year, Jill told me, the pullets laid at 7 months. Jack and Jill must have contracted a love for only the very best stock away back in their old Kentucky home (they were both brought up in the bluegrass region). From the first they resolved to have nothing but the best, so they had the courage to cull closely, a courage which few beginners have. They measured their success by quality rather than quantity, and their results have proved this practice the most profitable. They have made it a rule never to save a cockerel that does not weigh 7 pounds, nor a pullet that weighs less than 6 pounds at the same age.

These first birds were so much admired by their friends that Jill's curiosity as to the exact value of the best of them caused her to venture to exhibit them at the Somerville Show in 1914. With four entries she took first and second prizes on pullets, third on hen, and first on pen. At the Plainfield Show the same year, with strong competition and only seven entries, she took first on cock and hen, first and second on pullets, first on cockerel and first on pen, besides six special prizes, including a silver cup for best display of all Orpington varieties. Jill told me that with this success, her pleasure scarcely knew any bounds, as there are more high-class Orpington breeders within the radius of 20 miles of her town than in any other section of the country.

Still not completely satisfied, she courted failure by making entries for this year's Madison Square Garden Show, and surprised herself by taking, with only two entries, fourth on hen in the strongest class of White Orpingtons ever shown at Madison Square—there were 25 hens in the class, and not one that would not have been placed at any other show in the country.

Jill Yards have a most economical and compact backyard equipment. From the street the home is most attractive. A high hedge hides all the poultry buildings; even when the yard is discovered, it is hard to imagine it a thriving poultry plant, as there is not the usual chicken-yard appearance. Everything is shipshape; the coops for the hens and chicks are hidden in the shrubbery; the houses are attractively painted and hidden by the garage. Grape vines and climbing roses on rustic supports add to the beauty of the yard. Even with the chickens on the grass during the entire season, the thick lawn is not destroyed. It is an attractive place in the suburbs, and the beautiful birds on the lawn were an important feature of the attractiveness.

The cellar of the house was a most interesting place. There we found ingenious contrivances for promoting the health of baby chicks. Chickens in a house cellar, indeed! But one could not object under the conditions at the Jill Yards. It seems that Jack is an authority on air-washing and ventilation, and he helps Jill apply to the baby chicks surroundings as nearly as possible the conditions that promote the health of human beings. A second-hand incubator had attached to it a humidifier to do away with sprinkling the eggs and sand trays. The exact degree of moisture is thus known at any time, and this humidity is kept constant. For registering the humidity, they use an instrument called a hygrometer. On the portable brooder they made their own gas attachment, and for $1 they bought an automatic regulator, for they would not risk an overheated or cold brooder when science furnishes such accurate safeguards at so little expense.

After the baby chicks arrive, they have the nicest sort of place to live in. In the lightest part of the cellar is a 7 by 9 foot table, about which runs a 12-inch board for a fence, and above this is chicken wire. Thus all side drafts are kept out. The cellar temperature is kept as near to 70 degrees as possible, and is well ventilated. On this table is placed a quantity of peat moss, in which the little chicks scratch. This moss prevents all odors in the cellar and house, as it is a deodorant and absorbent, and excellent for keeping the chicks in good health. Just as soon as the weather permits, the chicks are put out in the yard for free range, which is essential for rapid growth and the production of strong healthy birds.

KING IRVINE, FIRST COCKEREL AT SUMMERVILLE SHOW.

I was still curious about the name Jill Yards, so I ventured to ask. It seems that Jack's initials spell Jil, so another ''l'' was added to make Jill, because since Jack is away from home much of the time it has fallen to Jill to look after the poultry. So it is really a Jill who is looking after every detail and who does almost all the work of the plant.

WOMEN IN PENNSYLVANIA STATE COLLEGE WINTER COURSES

The seventeen women who joined the winter courses at Pennsylvania State College in December presented a new and refreshing view of women entering the field of agriculture, and demonstrated in a somewhat different manner the scope and practical character of these courses.

This is the largest group of women who have ever entered the short courses at Penn State. Among them were graduates and representatives of student life from Columbia, Cornell, Smith, Swarthmore and Wellesley colleges, and some had travelled rather extensively,

Two of these women are managing their own farms—one in Bucks Co., Pa., the other in North Carolina. The latter got out to the college barns early in the morning in order to take part in practical stock feeding.

One young woman from the heart of the Pocono region is preparing to start a dairy on the home farm. She is already launched in the small fruit business, and has discovered excellent markets in the summer resorts there.

Another, who is employed by the United Gas Improvement Co., as demonstrator of their gas ranges in one of the smaller Pennsylvania cities, was given leave of absence by the company, on salary, to take the domestic science course, and thus become a better demonstrator.

The majority of these women are returning to their own homes, some of them to do rural club work in their own communities.

During these short courses there have been many get-together meetings. There have been music and games and ''feeds'', and the spirit thruout has been superb.—Julia C. Gray.

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1632.—Ladies' Apron.—Cut in 3 sizes: Small, medium and large. It requires 5 yards of 36-inch material for a medium size. Price of pattern, 10 cents.

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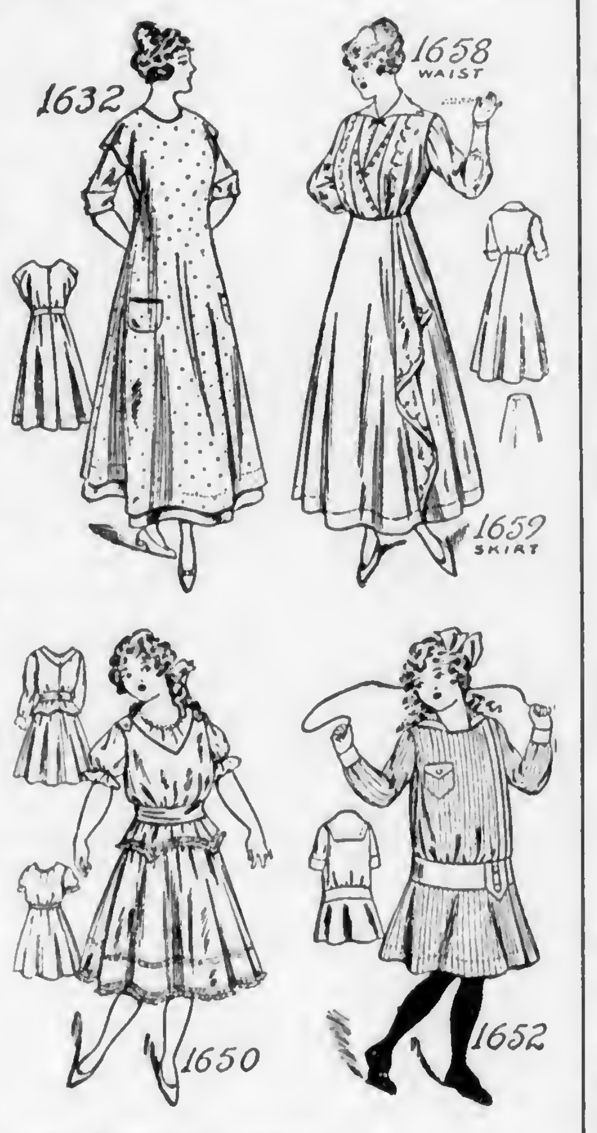

1650.—Girl's Dress, with or without Over Blouse.—Cut in 4 sizes: 8, 10, 12 and 14 years. It requires 3⅝ yards of 44-inch material for a 10-year size for the dress with 1½ yards for the over blouse. Price, 10 cents.

1652.—Girl's Dress.—Cut in 4 sizes: 4, 6, 8 and 10 years. It requires 2¾ yards of 44-inch material for a 6-year size. Price, 10 cents.

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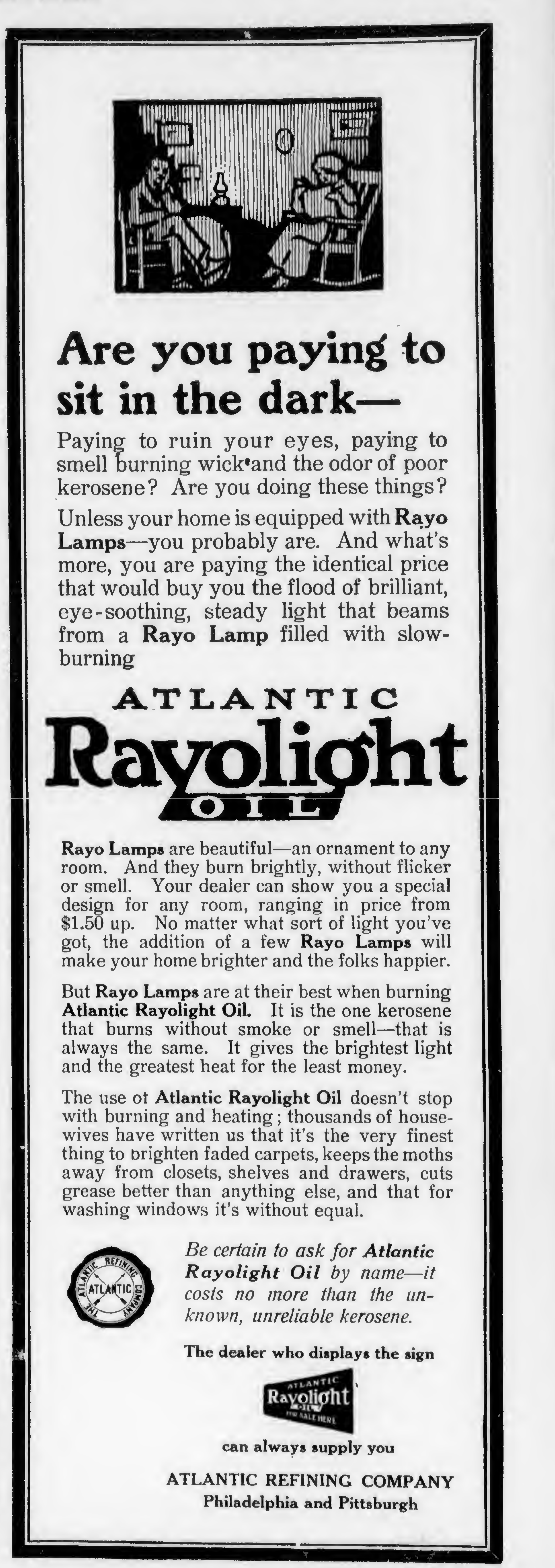
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Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., March 20, 1916.

Conditions existing in the potato market are the most favorable of the season. Receipts are running quite liberal, the demand is strong and the advance in prices made during the past week has been steadily maintained. The receipts of the past week have been principally from the West and with very little stock from Maine sections. Pennsylvania potatoes are in very light supply, with sales going as high as $1.80 on fancy stock. Maryland and Delaware are contributing a fair supply of Red Skins and Hoosiers. The various quotations on potatoes are as follows: Pennsylvania, $1.20 to $1.30; New York State, $1.15 to $1.20; Maryland and Delaware, $1 to $1.10; Western, $1.15 to $1.18.

Sweet potatoes continue in heavy supply and sales are being made at the low prices quoted last week. Jerseys are bringing 50 to 55 cents per basket; some fancy marks selling at a slight premium. In hampers the fancy stock is selling at 75 to 90 cents, with a few extra fancies bringing $1. Medium grades in hampers are moving at 50 to 60 cents.

Vegetables

It is reported that the onions remaining in storage thruout the country have been reduced nearly one-half in the past four weeks. The quantity remaining is considered very light and indications are favorable for the continuance of present prices. The movement on this market is good considering the quantity of poor grades arriving here. Best marks sold at $2.25 per 100-lb. bag, while the sales of average stock was from $1.50 to $1.75.

Cabbage receipts in the past week were very heavy, resulting in a sharp decline in prices. York State Danish was in liberal supply in the later part of the week and sold from $15 to $20 per ton, with only the strictly fancy marks bringing the full quotations. Florida cabbage sold at 75 cents to $1 per hamper. South Carolina cabbage is arriving and selling at $1.25 to $1.50 per crate.

Root crops continue at the advanced prices of last week. Carrots are jobbing quite freely at $3 to $3.25 per barrel; beets, $2 to $2.25; white turnips, $1.50 to $2; rutabagas, $2.60 to $3. Parsnips are offered at buyers' prices, selling largely at $1 per barrel.

Southern Vegetables

Shipments of southern vegetables continue to arrive only in light supply and the prices on practically all items are well maintained. Shippers have been successful this season in marketing Texas spinach in this city. Several cars were sold last week at $1.25@1.50 per bu. The market has been well stocked with Florida tomatoes, and fancy stock has been going at $1.75 to $2 per crate, with choice stock selling at $1.50.

New cabbage from Florida is selling at $1 to $1.25 per hamper; green beans, $2.50 to $3, with wax beans about 50 cents in advance of green beans. Lettuce has been rather poor, with only limited receipts of fancy stock. Prices have ranged at $1.75 to $2 for fancy and 75 cents to $1.50 for choice stock. Peppers are rather scarce on the market and selling at $1.75 to $2.50 per hamper. Eggplants are arriving from Florida and Cuba and selling at $2 to $2.50 per crate.

Fruits

The receipts of apples from New York State have been heavy in the last week and quite a few were moved from the local storage houses. Quality and conditions of the stock arriving were generally good, altho large quantities of the Greenings showed scald to some extent. The best Greenings sold at $2.75 to $3, and average receipts sold at $2.25 to $2.50 per barrel. The prices have been slightly lower owing to the heavy receipts.

Quotations are as follows: Kings and Gills, $3 to $3.50; Greenings, $2.25 to $2.75; Baldwins, $2.50 to $3; Spys, $2.50 to $3.25; Russets, $2.25 to $2.75; Ben Davis, $2 to $2.50. Southern Black Twig, Winesap, Rome Beauty and Stayman, $2.50 to $3.50; York Imperial, $2.25 to $2.75; Ganos, $2.25 to $2.75. Number two grades sold around $1.50 to $2. The movement of boxed apples is slow with receipts light. Western fruit is selling at $1.25 to $2 per box, according to varieties and sizes.

Poultry

Practically all lines of dressed poultry are meeting with excellent demand and prices are being well maintained. Fowl were in light supply and sold at an advance of ½ to 1 cent, with good demand. Turkeys continue at unusual prices under scarcity. Quotations are as follows: Extra heavy, near-by fowls, 21 cents; medium sizes, 19 to 20½ cents; smaller sizes (around 3 pounds), 17 @18 cents. Dry picked old roosters sold at 15 cents. Fancy soft-meated chickens sold at top prices but the bulk of receipts were poorer quality and were draggy. Jersey broilers, fancy, sold at 24 to 26 cents, other near-by fancy broilers, 22 to 24c. Near-by fancy turkeys, young hens and toms sold at 31 cents, fair to choice stock, 25 to 30 cents; old toms, 25 cents. Spring durks sold at 18 to 20 cents; geese, 15 to 20 cents.

Receipts of live poultry have been light, shippers holding back in anticipation of the Jewish holidays. Quotations follow: Fowl, 18 to 19 cents; roosters, 12 to 13 cents; fancy spring chickens, 19 to 20 cents; others, 14 to 16 cents. Turkeys sold at 20 to 22 cents; ducks, 18 to 20 cents; geese, 17 to 19 cents.

Eggs

Desirable fresh eggs are meeting with a good demand and the daily receipts are being well sold up. Quotations are as follows: Fancy near-by extras, 26 cents; near-by firsts, 21½ cents; near-by current receipts, 21 cents. Western extra firsts, 21½ cents; firsts, 21 cents; seconds, 20 cents. Fancy selected candled fresh eggs are jobbing at 27 to 29 cents.

—Selmarad.

NEW YORK PRODUCE

New York City, March 20, 1916.

The week opens with the butter market in good shape. Small quantities in transit. No new export business in cheese and price remains as last week. Egg trade firm and light receipts. Feeling is weak in live poultry market. Arrivals of dressed poultry are of poor quality and irregular value. Continued cold weather interferes with shipment of potatoes. Some arrivals are frozen and prices remain firm. Apples in liberal supply and prices a shade higher.

Butter. — Creamery extra, (92 score) per pound, 38c; higher score, 38½@39c; thirds to firsts, 32@36c; state dairy, 35@37½c; packing stock, 20@22c.

Cheese.—Whole milk specials, 18@18¼c; daisies, 18@18½c; skims, 13½@16¼c.

Eggs. — Fresh gathered, extra, 23@24½c; firsts, 23c; thirds, 21½c; dirties, 19c; near-by whites, fine to fancy, 27c dozen; ordinary to good, 25@26c; browns, 25c.

Dressed Poultry.—Philadelphia and Long Island, fancy, 8 to 4 pounds to pair, 45@50c; Philadelphia fancy roasters, 25@28c. Fowls, 16@19c; old roosters, 14½c; squabs, $2.50@5.75 dozen. Spring ducks, per pound, 20@21c. Turkey, dry picked, 26@30c.

Apples.—These prices show the range from "B" to "A". Jonathan, bbl., $2@5; York Imperial, barrel, $2.50@3.62; Winesap, barrel, $2.25@4.25; Greening, barrel, $2@3.25; King, bbl., $2@3.25; Northern Spy, $2@4.50; Baldwin, bbl., $2@3.25; Hubbardson, bbl., $2@2.50; Ben Davis and Gano, bbl., $1.75@3.

Vegetables.—Beets, per bbl., $1@1.25. Carrots, bbl., $2.50@3. Cabbage, Danish, ton, $10@18. Turnips, bbl., $1@1.25. Onions, yellow, $2@2.75 bag. Squash, Hubbard and Marrow, $1.75@2 bbl. Potatoes, Pennsylvania, $3.40@3.65; Jersey, $2.50@3 bag. Long Island, $4 bag. Sweets, 60c@$1 per basket.

Country Dressed Veals:

Choice	16 @16½
Prime	15 @15½
Fair to good	13½@14½
Coarse, heavy	13½@14½
Common	12½@13
Buttermilks	11 @12
Grassers	10 @11

YORK PRODUCE MARKET

York, Pa., March 20, 1916.

The various city market houses were well filled with eager buyers. Especially was this true of the Saturday afternoon markets. Prices in general have an upward trend, owing, doubtless, to the fact that much of the fall produce has been disposed of. Cabbage is still advancing. Eggs are weak at 21@22c. Butter firm. Potatoes firm at $1.15. Apples are sought more closely. The meat market has advanced rapidly, dressed pork now bringing 12 cents and going upward.

Eggs.—20@23c per dozen.

Butter.—Country, 28@35c lb; separator, 32@35c lb. Milk, 6 cents a quart.

Poultry.—Hens, 15@17c lb; dressed, 45c@$1.25 each.

Vegetables.—Potatoes, 12@18c ½-pk; $1 to $1.25 per bushel. Cabbage, 5@10c each. Lettuce, 6@10c per head. Beets, 4@5c bunch. Radishes, 5@7c a bunch. Onions, 4@5c a bunch; 10@12c ½-pk. Lima beans, 16@18c quart. Soup beans, 14@18c quart. Lard, 12@15c lb. Turnips, 8@10c ½-pk. Sauer kraut, 8@10c quart. Spinach, 15@20c ½-pk.

Fruit.—Apples, 12@30c ½-pk; 75c to $2 per bushel. Pears, 12@15c ½-pk. Strawberries, 25@35c box.

Retail Grain Market.—Wheat, $1.18; corn, 85c; oats, 60c; rye, 90c; bran, $1.40 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.08; corn, 73c; oats, 50c; rye, 80c; bran, $26 per ton; middlings, $32 per ton.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., March 20, 1916.

Receipts for the week ending Saturday evening, March 18:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,048	7,922	6,567
Previous week	3,192	5,030	7,512

Calves. — Total receipts of calves for this week were 1,498 against 1,106 last week.

Beef Cattle.—Pennsylvania and Western cattle were mainly in evidence, shipments being about equal to current needs; demand was active and prices showed an upward revision all along the line. Cows and bulls of the most desirable offerings brought stronger values. Calves ruled steady at former rates.

Best steers	$9.25@9.50
Choice	9.00@9.25
Good	8.75@9.00
Medium	8.50@8.75
Common	8.00@8.25
Bulls	6.00@7.50
Fat cows	5.00@7.00
Thin cows	2.75@4.25

Veal Calves.—

Exceptional lots	$11.50@12.00
Good to choice	11.00@11.25
Medium	9.00@10.00
Common	7.00@ 8.00
Southerns and barnyards	4.00@ 6.00

Sheep and Lambs.—While lambs showed no material chance in prices, the better grades of sheep showed a fractional advance. Trade was fair and arrivals were on the increase.

Wethers, extra	$ 9.50@ 9.25
Choice	8.50@ 8.75
Good	7.75@ 8.00
Medium	7.00@ 7.25
Common	5.00@ 6.00
Ewes, heavy, fat	7.00@ 8.00
Lambs, extras	11.75@12.00
Good to choice	11.25@11.50
Medium	10.00@10.25
Common	8.00@ 9.00
Hothouse, apiece	6.00@ 8.00

Hogs.—A weak undertone was noticeable, in touch with outside conditions, and values sagged a fraction. Inquiry was about normal. Quotations: Western, $11 gross weight, $13.75 net weight.

City Dressed Stock.—With the exception of hogs, which were easier, all choice and prime meats of every variety closed steady to firm, under a better demand.

Steers	10@14
Heifers	9@13
Cows	8@11
Veal calves	14@16
Extra calves	17@
Southerns and barnyards	10@13
Country dressed	12@14
Extras	16@
Sheep	14@15
Extra wethers	16@
Lambs	17@18
Extra lambs	19@
Hogs	14@

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., March 20, 1916.

Cattle.—The supply on sale was 50 loads compared with 90 loads last Monday. With the light supply on sale the market ruled active and generally 25c higher, with some sales as much as 40 to 50c per cwt. higher. Not many good heavy cattle on sale; the bulk of offerings was light. Heifers in fair supply and market ruled higher on all fat grades. Cows higher on all grades, from bologna to choice. Bulls higher on all grades. Fresh cows steady on best, while the medium grades and springers were slow. Cattle supply, 70 loads; market slow and barely steady with last week's prices.

Good to choice	$9.00@9.50
Good, 1300 to 1400 lb.	8.75@8.85
Medium to good, 1200 to 1300 lb.	8.10@8.40
Tidy, 1050 to 1150 lb.	8.15@8.40
Fair to medium, 1000 to 1100 lb.	7.50@8.00
Fair, 900 to 1000 lb.	6.75@7.50
Comon, 700 to 900 lb.	5.50@6.25
Rough, half-fat, 1000 to 1300 lb.	6.25@7.25
Common to good fat oxen	4.00@6.75
Common to good fat bulls	4.25@7.75
Common to good fat cows	4.25@7.00
Heifers, 700 to 1100 lb.	4.75@8.00
Bologna cows	3.75@4.25
Fresh cows and springers	$25@85

Calves.—Calves in fair supply all week and prices closed 25c per cwt. below Monday's prices. There were 700 head of calves received today; market lower.

Veal calves	$8.50@11.50
Heavy and thin calves	5.00@ 8.50

Hogs.—The suply on sale during the week has been fair and with lower prices at western points our market ruled lower here and the close for the week was about 25c per cwt. lower. There were 40 double-deck loads of hogs received today; market lower on all grades.

Prime heavy	$9.95@
Heavy mixed	9.95@
Prime medium weights	9.95@
Best heavy Yorkers	9.90@
Light Yorkers	9.25@
Good pigs	8.25@8.65
Common to good roughs	8.50@9.40
Stags	7.00@7.75

Sheep and Lambs.—The supply of sheep and lambs has been light and with a fair demand the market ruled slow at about steady prices on the best handy weight grades. Sheep and lamb receipts today totaled six double-deck loads; market fairly active and steady prices on all grades of sheep and lambs.

Prime wethers	$9.10@ 9.25
Good mixed	8.50@ 8.90
Fair mixed ewes and wethers	7.00@ 8.00
Culls and common	4.00@ 5.50
Spring lambs	7.50@11.75
Heavy lambs	7.50@11.75
Culls to choice yearlings	6.00@ 9.50

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., March 20, 1916.

Hay and Straw.—The hay market is steady. All top grades are in fair request and move at top quotations. Under grades are dull and slow. Straw is selling slowly at prices steady with last week.

Grains.—There has been a further decline of 3 cents per bushel in price of wheat, due largely to bearish speculative advices. The demand, however, is also slow. The corn market is slow with little active demand, but prices advanced slightly during the week. There is not much good corn in the country and the light demand keeps the market well cleaned up. The demand for oats is light and the market is weak. Feed offerings are moderate and the market is steady under light trade.

Hay.—No. 1 timothy, medium bales, $21.50@22; No. 2 do., $19.50@20; no grade, $10@14. Light mixed clover, $19@19.50; No. 1 do., $18.50@19; No. 2 do., $15.50@16.50.

Straw.—No. 1 straight rye, $13@13.50; No. 2 do., $12@12.50; No. 1 tangled rye, $11.50@12; do., No. 2 $10.50@11. No. 1 wheat straw, $10@10.50; No. 2 do., $9@9.50. No. 1 oat straw, $10@10.50; No. 2 do., $8.50@9.

Wheat.—No. 2 red, $1.10@1.13; No. 3 red, $1.10@1.13; rejected A, $1.07½ @ 1.10½; rejected B, $1.06@1.09.

Corn.—No. 2 yellow western, 81@81½c; steamer yellow, 79@80c; western, No. 3 74@75c; No. 4 yellow, 76@77c; ear corn, 78@79c per 70 pounds.

Oats.—No. 2 white, 51½@52c; No. 3 do., 48½@49½c; No. 4 do., 46½@47½c; standard white, 49½@50½c; sample oats, 43½@44½c.

Feed.—Winter bran, 100 lb.-sacks, $24.50@25; spring bran, do., $22.50@23.

Flour.—Car lots, winter clear, $4.90@5.15; straight, $5.15@5.40; patent, $5.50@5.75. City mills, choice to fancy patent, $6.15@6.65; do., regular grades, $4.90@5.15. Rye flour, $5.00@5.50 per bbl.

NEW YORK HAY AND GRAIN

New York City, March 20, 1916.

Hay and Straw.—The market is holding steady to firm on all higher grades of timothy hay. The poorer sorts are dragging, with considerable low grade stock around the market offering at $18 and $19 per ton. High grade clover and mixed hay are firm, but poor clover and poor alfalfa are very hard to move. Straw is dull but steady.

Grain.—Wheat is down nearly 10 cents from last week. The market is weak under the influence of light export demand and continued talk of European peace. News of the growing crop is varied. It seems assured that winter damage is heavier than last year, but some important sections make favorable reports. Corn holds fairly steady under normal demand and a scarcity of good marketable stock. Oats also hold steady.

Hay.—Large bales—No. 1 timothy, $26@27; No. 2, $25@26; No. 3 $20@22; fancy clover, light mixed, $23@25.50; No. 1, $20@$22; No. 1 clover, clear, $18@20.

Straw.—Per ton, No. 1 rye, $14@14.50; do., No. 2, $13@13.50; oat straw, $10.

Wheat.—No. 1 Northern, $1.39; No. 2 $1.36; No. 2 hard winter, $1.20¾.

Corn.—No. 2 yellow, 83@83½c; No. 3 yellow, 81@81½c.

Oats.—No. 8 white, 49@50c; No. 4, 48½@49c; ordinary to fancy, 49¼@50c.

Rye.—$1.02 bu.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $22.50. Standard middlings, $24.50; flour, do., $28.50 to arrive. Red dog, to arrive, 140-pound sacks $32@33. Oil meal, $35.50@36. City feed, bulk bran, $23. Heavy feed in bulk, $24. Red dog, $33. Flour middlings, $32.50.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., March 20, 1916.

Hay.—Receipts of hay are exceptionally light. Top figures are realized on No. 1, No. 2 and even good No. 3 timothy, also No. 1 light mixed and No. 1 clover mixed. No. 1 timothy, $19.50@20; No. 2 timothy, $17@18; No. 3 timothy, $14@15; No. 1 light mixed, $16.50@17.50; No. 1 clover mixed, $15.50@16.50; No. 2 clover mixed, $13@14.50; No. 1 clover, $13.50@14; No. 2 clover $8.25@11.25; No. 3 prairie, $10.75@11.25; No. 4 prairie, $8.25@8.75.

Straw.—Straw receipts are easing up a trifle but not enough to warrant any heavy shipments. Market was overloaded some time ago with straw and buyers have their warehouses fairly well stocked; they are, therefore, out of the market. Market dull and quiet. No. 1 Oat, $7.75@8; No. 2 oat, $7@7.25; No. 1 wheat, 7.75@8; No. 2 wheat, $7@7.25; No. 1 rye, $8.75@9.25; No. 2 rye, $7.50@8.

Ear Corn.—Fair demand for good, sound, dry No. 2 yellow and No. 2 high mixed and can be sold at market quotations. Off grade corn unsalable. New No. 2 yellow, 74@75c; No. 3 yellow, 65@68c; No. 2 high mixed, 70½@71½c; No. 2 mixed, 68@69c.

Oats.—Demand limited; receipts also light but market shows a little improvement in prices in sympathy with western markets. No. 2 white, 48@48½c; Standard, 46½@47c; No. 3 white, 45¼@45¾c; No. 4 white 43½@44½c. Rejected, 36@41c.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., March 20, 1916.

There is a fair demand for butter and the market rules firm under light offerings at an advance of about 1 cent over last week. Receipts of western creamery continue light. The demand is good and supplies are closely sold up. Ladies are in moderate supply and quiet at last week's quotations. Arrivals of prints are not equal to current trade wants. Fancy goods are wanted at top prices. The cheese market rules firm under light offerings but trade is quiet.

Butter.—Solid packed creamery, fancy specials, 40c; extras, 38c; extra firsts, 37c; firsts, 35@36c; seconds, 83@34c; ladle packed, 22@24c; nearby prints, fancy, 41c; average extra, 39@40c; do. firsts, 35@37c; do., seconds, 33@34c; special fancy brands of prints, 44@47c.

Cheese.—New York, full-cream fancy, 18½@18¾c; fair to good, held, 17¾@18¼c; do., part skims, 11@16c.

NEW YORK MILK MARKET

New York City, March 20, 1916.

The supply continues to increase and the surplus grows. Receipts last week exceeded those of the previous week by 8,704 cans, while those of cream fell off 226 cans. The Borden contract rates for the summer period were made public March 15. For the first three months they are the same as for the corresponding months of last year. For July, August and September, however, they are ten cents higher. The company, however, has taken another step toward the development of dairies furnishing milk containing a higher average percentage of butterfat. The lowest percentage for which they quote a rate or will contract, is now 3.3. The rates for this percentage on the short haul are: April, $1.40; May, $1.15; June, $1.09; July, $1.35; August, $1.51; September, $1.60. As in previous contracts 3 cents is added for each point above this percentage, the rates for 5 percent milk being: April, $1.91; May, $1.66; June, $1.60; July, $1.86; August, $2.02; September, $2.11. The market value is approximately 3⅞ cents a quart for Grade B in the so-called 26-cent zone.

The receipts of milk and cream in 40-quart cans for the week ending March 18 were as follows:

Railroad	Milk	Cream
Erie	43,348	2,340
Susquehanna	11,227	262
West Shore	18,115	1,028
Lackawanna	59,720	1,475
N. Y. Central (long haul)	90,320	1,589
N. Y. Central (short haul)	22,560	40
Ontario	40,021	3,373
Lehigh Valley	40,827	906
Homer Ramsdell Line	3,695	37
New Haven	6,940	28
Pennsylvania	8,025	220
Other sources	1,225	27
Totals	346,023	11,325

TOBACCO MARKET

Since July 1st, the beginning of the fiscal year, there has been exported from the Pennsylvania tobacco section a total of 1,200,000 pounds of leaf tobacco and some 500,000 pounds of scrap, most of the latter going to Holland and Belgium. During the same time vast quantities have been shipped to various ports of the United States. Deliveries of the 1915 product continued during the week amidst more or less adverse conditions of bad roads and unseasonably cold weather. The unusual absence of friction between sellers and buyers was a feature of much favorable comment. Never before has a crop been taken with so little dissention. Packers reported considerable demand for their holdings of old tobacco and quite an amount of the 1909 product was sold at prices ranging from $8 to 9.50 per cwt. It was announced that Mr. Kimbrough, the organizer, together with a competent helper will hold a series of meetings at various points in the tobacco section. In the Ohio cigar leaf section not more than one-half of the crop has been sold at this late date. Prices have shown a wide range of from $4.50 to $10.50 per cwt. for crop lots, the difference representing the variations in a crop which upon the whole was rather undesirable. Naturally growers are not pleased with the situation and it is thought the acreage will be considerably reduced as compared with last year. However, there is a fascination in tobacco growing that it seems is hard to overcome. The more or less attractive prices of other farm products should encourage these farmers to other pursuits.—H. E. Tweed, March 20, 1916.

ELGIN BUTTER MARKET

Elgin, Ill., March 18, 1916.

Butter sales today were made at 36 cents per pound. Sales of 35 tubs were made at 35 cents.

CHICAGO HORSE MARKET

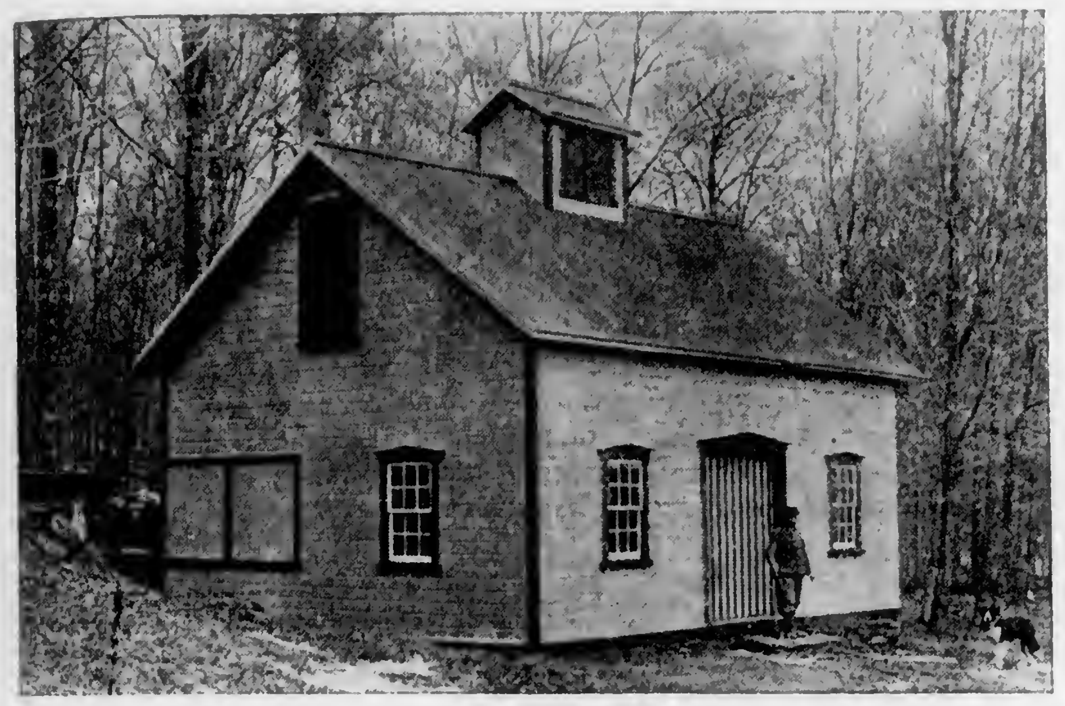
Chicago, Ill., March 20, 1916.

Horses were in smaller supply and in moderate demand last week at no particular changes in prices, the principal business being in army horses. Little southern horses brought $45@65, and ordinary to fair farm workers sold at $60@100, while drivers were quoted at $100@200. A good class of chunks weighing from 1,300 to 1,400 lb. brought $165 to 185, and better ones sold up to $200. Drafters were worth from $225 to $300 for good to prime offerings.

IN THE MAPLE SUGAR ORCHARD

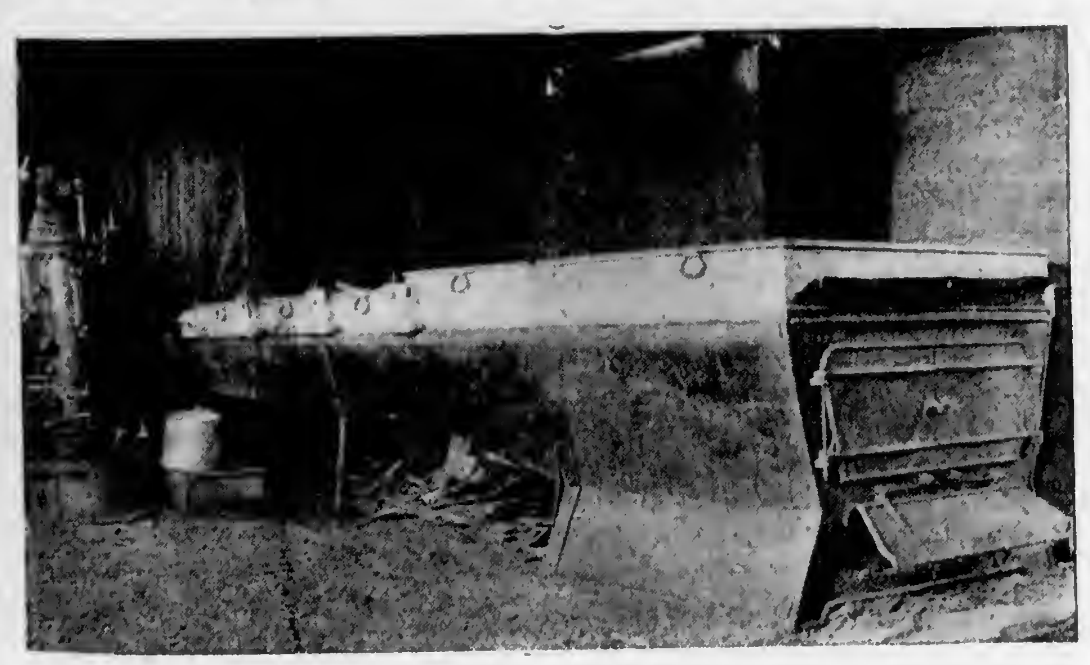
Some twenty-five years ago the maple sugar industry was one of considerable importance in quite a large portion of Delaware County, New York. A large proportion of the best "bushes" were destroyed about twenty years ago by the ravages of the forest worms and but little is now done in that line. Yet there are some neighborhoods where quite an amount of maple sugar and syrup are made in its season.

Among those who have gained a more than local reputation in the manufacture of maple products is C. W. Wilcox, proprietor of "Mountain View Farm". He is a leader, especially as regards the quality of his products. And his reputation is more than a local one; in fact, almost national, as he has in recent years furnished sugar and syrup from this "camp" to the families of two of our presidents, ex-president Roosevelt and President Wilson. He also holds a diploma from the St. Louis Exposition of 1904 for an exhibit of maple sugar shown by him there which scored the highest in quality of any in competition from the whole union.



EXTERIOR VIEW OF THE WILCOX SAP-HOUSE. DELAWARE CO., , N. Y.

The illustrations given herewith show an exterior and also an inside view of Mr. Wilcox's sap-house. It is about 20x30 feet in size and so constructed that the sap when gathered is delivered at a higher level so that it descends by gravity to the storage tank and thence to the evaporator. The evaporator is of a capacity designed for 700 trees. He finds it more than amply sufficient in the best "sap-runs" for that number of trees or, ordinarily, he says it answers well for as high as 1,000 trees.



700. TREE EVAPORATOR IN THE WILCOX SAP-HOUSE.

This storage tank is constructed from one-inch matched boards. It is built in rectangular form, 8 feet long, 4 feet wide and about 3 feet high. It holds something over twenty barrels of sap. Altho some sugar makers have recommended doing away with the storage tank when the evaporator is used, Mr. Wilcox thinks it is a great advantage as it entirely obviates the necessity of boiling sap on Sunday by carrying over the store until the following day. He finds it very convenient and almost essential in all large runs of sap.

For use in gathering in a time when the ground is bare, Mr. Wilcox has devised an inexpensive arrangement of his own which he uses on an iron truck. It can be used in any wagon or on a sled. This is a tin tank about 2 feet wide by 7 feet in length, and of a capacity of about six barrels. The tank is covered with matched pine for protection. A tin breaker is placed inside the tank to break the force of the sap, so as to prevent it from bursting the tank. The sides are held in place by a rod passing thru the center of tank from outside to outside and drawn up with a nut on each end. Where the rod passes thru the tin it is soldered to prevent leaking, thus rendering the tank absolutely water tight. With a properly-fitted cover for closing, it is nearly perfect for its use.

The general equipment of his sap-bush outside consists of covered tin buckets and sap-spouts of various types. For small or second growth trees he uses a patent tin spout taking a ⅜-inch bit instead of the ½-inch bit to which other spouts are guaged. He finds the leading essential to production of high quality products is cleanliness in every department of the work, even to an extreme degree, and no loss of time in converting the sap into syrup or sugar. His product in this line is for the most part disposed of to private customers in the form of both syrup and sugar at paying prices. He has a generous home trade and besides receives orders from all parts of the country and has also at different times furnished orders for shipment to England.

Mr. Wilcox's experience in sugar making extends back for considerably more than half a century when, as a lad of five years, he accompanied the sugar makers to the sap bush. He has seen the evolution of methods in sugar-making from the use of the old-fashioned sap trough, hewed from basswood, hemlock or red beech logs, in which to catch the sap, thru the various stages up to the equipment now used.—E. J. Brownell, Delaware County, N. Y.

OUR TAX SYSTEM

How Taxes are Raised

By Hon. Wm. T. Creasy

In Pennsylvania we collect taxes for state, county and local purposes. Our tax laws differ from those of many of the other states because our farms and homes are not taxed for state purposes. The state tax on real estate was repealed in 1866, by the Act of February 23. (Pamphlet Laws, page 83). The tax on horses and cattle for state purposes was repealed by the Act of March 21, 1873 (Pamphlet Laws, page 46). The inauguration of our present tax system dates to the Acts of 1844 and 1846.

The money raised to meet the expenses for county and local purposes is collected mostly from real estate and from horses and cattle over 4 years old, from taxes on occupations, license and the real estate of certain corporations such as manufacturing companies, coal companies and several similar corporations holding real estate. The land, stations and freight houses of railroads are exempt from taxes for local purposes, except in the cities of Pittsburgh and Philadelphia.

The valuation of real estate in townships and boroughs is fixed by a local assessor, who is elected by a vote of the people for a term of four years. The valuation fixed by the assessor is subject to review by the board of county commissioners, and upon this valuation the taxes for county and local purposes are assessed. The exception to this plan for the valuation of real estate is in cities of the first, second and third class where the valuation may be different for local purposes from that used for county purposes. The reason why a city should be permitted to use a different valuation for local purposes than for county purposes is not very clear to the ordinary layman. It may be possible that large concerns located in any of these places can more easily manage to keep down their valuations and thereby save money in lower taxes for local purposes.

A law creating a board for the assessment and revision of taxes in counties having a population according to the last census between 800,000 and 1,400,000 was passed by the legislature a few years ago. The board is appointed by the county commissioners for a term of four years. This act applies to only a few counties in the state.

Road and School Taxes

Under our road laws a township can levy a road tax of 10 mills, and an additional tax of 10 mills with the approval of the county court. The limit of the rate that can be levied for school purposes in school districts of the first, second, third and fourth class varies from 6 to 25 mills, the latter rate being for 4th class districts which include townships and boroughs. Just how the law can be twisted to limit the tax rate in a city of the first class at 6 mills and on a similar piece of property in a township at 25 mills requires considerable legal knowledge to explain.

The limit of county tax is fixed at 10 mills, as is borough tax. Overseers of the poor may, with approval of any two justices of the peace of the county, also levy a tax not exceeding 10 mills on the dollar of valuation. In cities of the first and second class councils fix the rate of municipal taxation, but in cities of the third class the rate for general purposes is limited at 10 mills on the dollar of valuation.

The Legal Maximum

In summing up the maximum of the tax rate on our farms in the various townships of the state, we may have 20 mills road, 25 mills school, 10 mills county, and 10 mills poor tax, or a total rate of 65 mills. And by giving the law further learned legal interpretation, this rate can no doubt be made still higher.

According to careful estimates made a few years ago the assessed valuation of real estate was equal on the average to three-quarters of its selling value. The valuation of farms and small homes exceeded the average valuation, while valuable properties on the more important thoroughfares of the cities and larger towns fell below the average assessed valuation.

Occupations and professions are taxed for local and county purposes. The exception to this is the occupation of a farmer, but only one farmer can be credited to the same farm.

In 1913, by an Act of the Legislature, the tax on buildings in the cities of the second class (Scranton and Pittsburgh) were permitted to reduce the tax rate on buildings until they reach a value of one-half the rate on land. This is the only change of importance that has been made in any of our tax laws for many years.

The general tendency of all taxation has been to pull the greatest amount of feathers with the least amount of "squawking." The farmer and the little home owner on the back alleys in our cities are paying taxes out of all proportion to their income or their ability to pay tax.

I believe that no system of taxation, regardless of what is claimed by its advocates, will be fair or just, unless the people see to it that it is honestly administered. From reports the tax rate for county and local purposes is being increased for the year 1916. The debts created by the headlong borrowing mania of several years ago in these units of government are now coming due. Additional money is necessary to meet the interest and sinking fund charges. Then again, the additional burdens placed on the people the last few years by an extravagant legislature can only be met by increased taxation.

The increased expenses of the state government indirectly increase local taxation by reducing appropriations for schools and roads. Our State Superintendent of Public Instruction, Dr. Schaeffer in his last report says:"Under Governor Stuart the biennial appropriation was raised from 11 to 15 million dollars. If the money had been distributed on the present basis, the allotment per teacher would have been $89.43, and the allotment per pupil would have been $2.31. Since that time the former amount has sunk to $69.40, and the latter to $1.77.

"In fact every new idea is apt to be fostered by taking money out of the general school appropriation. From a financial point of view, the rural schools are worse off and in greater need of help than they were five years ago. Can this downward tendency in the amount which reaches the rural schools be checked? There seems to be no affirmative answer to this question, unless increased sources of revenue can be provided for the state treasury."

The appropriations for township dirt roads, which was fixed by law at $20 per mile, providing the amount appropriated per mile did not exceed 50 percent of the amount raised by taxation, was dropped because of a lack of revenues. The primary election expenses

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formerly paid by the state were placed on the counties for the same reason. This kind of legislative work with others of a worse nature makes it necessary to increase local taxation.

In another article I will take up the revenues of the state and how they are raised and how spent.

Among the Granges

Lycoming County, Pa. — The regular meeting of the Lycoming County Pomona Grange was held in Hughesville, Thursday, March 9th, a large number of grangers representing nearly every grange in the county attending the sessions. The morning was given over to the work of the grange. Reports from different granges were read, the regular business was attended to, and the installation of officers took place.

The afternoon session opened as a closed meeting. The value of having open meetings in the afternoon was discussed at length by a number of grangers. It was decided to hold part of the afternoon session open, many persons wishing to hear the address of Prof. Orton, of State College, on ''Plant Diseases''. Prof. Orton declared that the farmer today is striving for one thing, to increase the production of crops, and that one of the things that is causing him trouble are the diseases which attack his crops. The different diseases of potatoes, oats and wheat were handled, during the address, suggestions as to the best methods in combating these diseases being offered. Last year, late rot caused a loss of 25 percent in the potato crop in this state, the speaker said. Five things must be considered in combating wilt, early blight, and scab. The preparation of the soil, crop rotation, the selection of seeds, cultivation, and spraying. In connection with wheat and oats, Prof. Orton discussed the grain smuts and how to overcome these. For oats smut, and one kind of wheat smut, the use of formaldehyde is advised; for the loose smut the hot water method alone is successful. Prof. Orton explained both preparations, and told how to apply them.

BUILDING WHERE THE FIRST NORMAL SCHOOL IN U. S. WAS HELD LEXINGTON, MASS.

''Our Rural Schools'' was the question for open discussion. This was taken part in by men and women, and a number of good points were brought out. That the rural boy and girl needs playground supervision as much as the city child was emphasized. This discussion was carried over for the next meeting in June, to be held in Montgomery. Dinner and supper was served by the ladies of the Canusarago Grange.

. . . . .

The members of the West Branch Grange held a Masquerade at their hall near Fairfield on Saturday, a large number of granges being present on this occasion. Many unique costumes were seen, the women and men appearings in many prominent characters. The prizes of the evening were carried off by Mrs. J. B. Riley and Mrs. Abe Harris. Refreshments were served.

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Oriole Grange held their annual banquet on Thursday night in their hall near Oriole. A large number of members and their friends were present. A delicious supper was served, and the evening spent in games and sports. This grange is growing in numbers and interest, this annual banquet being one of the pleasant social affairs of their valley during the year.—D. D.

Monmouth County, N. J. — Pomona Grange No. 12 held their spring meeting with Raritan Grange No. 156, at Keyport, on Saturday, March 11, with the Worthy Master J. L. Pittenger in the chair.

The reports from the subordinate granges were very satisfactory as nearly all reported additions, one even reporting an increase of nearly twenty percent.

Some discussion was had on several of the bills now before the Legislature, and the Secretary was instructed to notify our Senator that the members of Pomona Grange were opposed to paying a license of $1 for the privilege of keeping a cat, as they thought they were of great use in destroying mice and rats on the farm.

After hearing the report of the Committee on the Chamber of Commerce of the County, the Pomona Grange voted to withdraw as a member from the Chamber of Commerce.

After partaking of the sumptuous collation provided by the entertaining grange, the Pomona reassembled at 1.30 P. M. for Lecturer's Hour which was an open meeting.

The address of welcome was given by the Rev. Hand, pastor of the First Baptist Church of Keyport, in a most hearty and cordial manner, and was responded to by the Worthy Master of Monmouth Grange, E. Clarence Conover.

Piano duets were given by Mrs. Stout and Miss Yerke. A reading was given by Susie Ketchum, Worthy Lecturer of Farmingdale Grange No. 157.

Brother Lippincott, Past Master of Burlington Pomona Grange made an address, and gave some very good advice stating that if you expected to get any benefit from the grange, you must attend the meetings, and be ready and willing to take part in whatever way you may be called upon. A poem was read by Mrs. Brower of Raritan Grange.

The Worthy Overseer of the State Grange Bro. W. H. Havens, of Cranbury, gave some of the impressions that he had of Monmouth County. He said one place where he was entertained he was told it was the Garden of Eden, and as he was interested in children, he asked a little boy where he went to school? His answer was, ''In Paradise.'' Asked where Paradise was: ''Next to the Garden of Eden.''

Brother W. E. Duryee, Farm Demonstrator, gave an address, and answered questions. Mrs. Danforth rendered vocal solos, ''A Perfect Day,'' and ''That Will End It.'' The Lecturer's Hour closed with a piano solo by Miss Tyler. A rising vote of thanks was extended to the Raritan Grange for their entertainment.

Notice was given that Monmouth Pomona Grange would be entertained by Millstone Central Grange No. 202 on June 10th.

On September 9th Pomona will meet at Matawan with Olive Branch Grange No. 142, and on December 12th will be entertained by the Glendola Grange No. 168. An invitation was accepted from Adelphia Grange No. 196 to hold our June meeting in 1917 with them.

Monmouth Pomona Grange is very much opposed to any laws legalizing Sunday amusements, as it would undoubtedly lead to more Sabbath desecration.—W. B. Hales.

. . . . .

Captain John Brady Grange held a Package Social, in their Grange Hall at Pennsdale. They had two objects in view. First to promote sociability, and second to raise some money to help pay off the debt on the hall. This Grange frequently hold social affairs, box socials, dinners and suppers. On this occasion packages were sold, for from ten to twenty-five cents, the purchaser not knowing what the package contained until after the purchase was made Ice cream and cake were served and a social time followed.

. . . . .

Rev. Abner S. Dechant, Pastor of Reformed Church, Hanover, who is an intensive farmer, delivered an address mainly on the three C's of the farm: ''Cows, Corn and Clover.'' Brother Dechant, who is a granger, made his remarks entertaining as well as instructive. H. C. Brinton, of Bala Fruit Farm, made the last speech. His subject was ''Do We Appreciate What We Get for Our Money''. His conclusion was that we could get more out of the grange if we were more faithful in making use of the opportunities it presents. A closed meeting was held in the evening, presided over by Mr. Etters, when the officers were elected and installed by Worthy Master McSparran.

The next meeting of Pomona Grange will be held at Hopewell Grange in May next. Altogether, this meeting of the Pomona at Hanover was one of the most enjoyable we have ever had.—D. P. F.

One of the things the Post Office Department encourages is the purchasing on the part of patrons of Postal Money Orders, and for the reason that the fee is so small and that it is next to impossible to lose the cash invested.

FARMERS' INSTITUTES IN CLEARFIELD COUNTY

The series of farmers' institutes held on what may properly, I believe, be called the Clearfield County Plan, began at Pine Grove, February 29th and closed at East Ridge on Thursday evening, March 9.

About 25 sessions were held in all in 5 small towns and country places in the county with an attendance in all of over 2700. These institutes were asked for by the people of each community in which they were held. An amount of money, usually from $7.50 to $10 or $12, was raised by individuals in each of these communities paying n to the County Agricultural Society 25 cents each, thus securing membership and raising a fund that was sufficiently added to by the Society to cover the expenses of each institute. By this method, and the work of the local committee in each community in sending in names of persons and subjects for discussions to the Executive Committee, interest was created in advance and the success of the institutes assured.

This year Mr. C. L. Goodling was secured from State College, and by courtesy of the State Division of Institutes, Mr. J. T. Campbell, of Crawford County, came and ably helped with the institute work.

The work of both gentlemen was very much appreciated by those in attendance, altho, unfortunately, Mr. Goodling was compelled to go home on account of sickness in his family, before the series was quite finished. At Curwensville the Institute was very agreeably surprised to have Mr. C. E. Carothers, State Institute Director, drop in and address the meeting.

Mr. Wisegarber, County Superintendent of Schools, and Mr. W. E. Tobias ex-superintendent, were among those who took prominent parts in the discussion of educational and other questions at the different sessions.

A noticeable feature of these local meetings is that farmers feel quite well at home in a meeting where they and their friends and neighbors expect to and do take a prominent part in the discussions of many of the subjects on the program.

Then the one or two prominent speakers from the College or the State Institute force, add interest without seeming to overshadow the meetings entirely and give an oportunity for questions and discussions of much value.

A neat little booklet was printed containing the programs of all the institutes and sufficient advertisements were secured to more than cover the cost of printing.

Much of the credit for inaugurating this method of holding County Local Institutes must be given to Elisha M. Davis, a Veteran Granger of the Grampian Hills community, who some years ago worked out the plan and at one time held 12 institutes in the county, one after the other, in one winter season.

Full reports of the Institutes have been published in the local daily and weekly papers of the county, the Secretary having kept careful notes which have been eagerly sought for by the newspaper men. So you see the farmer is now fairly on the map in our county and by a plan that we can confidently recommend to agricultural societies in other counties.—T. L. Wall, Clearfield Co., Pa.

MARYLAND COUNTY AGENTS

At the meeting at College Park of the agricultural agents of 12 counties of Maryland for a week's conference, G. H. Alford, state agent of the Farmer's Bureau of the Department of Agriculture, gave a most interesting report that every Maryland farmer should have heard.

As corn demonstrators the 12 agents did work with 114 farmers of the state. The acreage of corn raised under methods advised by these instructors amounted to 1,181 and the yield per acre was 47.91 bushels, this being an increase over the average for the state of 20.56 bushels; 13,302,565.72 bushels of corn would have been the addition to the 10-year average production of the state, if every acre had produced the average yield of the 1,181 acres demonstrated. Wheat demonstrations by the 12 agents numbered 109, the demonstration farms yielding an average of 23.85 bushels; 7.35 bushels per acre more than the average for the state. Wheat grown under the improved conditions would yield an increase of 5,000,000 bushels annually. On the forty farm where oats was demonstrated, the average yield per acre was 42 bushels, an increase of 18.5 bushels above the average yield per acre for the state.

Tobacco is grown on only 9 percent of the farms of the state and in only 5 counties out of the 23. On the last census reports, 684.5 pounds of tobacco was the average per acre and its value about $55.89 per acre. John H. Drury, one of the county agents and a tobacco expert, conducted four tobacco demonstrations. Twelve hundred pounds was the average yield per acre or 515.5 above the average as quoted on census report. It is estimated that the tobacco crop would have increased $1,559,026.16, if Mr. Drury's advice as to soil preparation, proper cultivation and improved varieties could have been heard and practiced by every tobacco farmer of the state.

The county agents have done much to encourage the Maryland farmers to buy better live stock and have been instrumental in bringing to the state 36 purebred dairy bulls and 118 purebred dairy heifers. To determine good milkers 541 cows have bee ntested, and a better balanced ration has been given to dairy cattle by their 116 owners who followed the agents' advice.—Marylander.

NOT A SESSION MISSED

Having attended Farmers' Institutes in Section 2 in Pennsylvania, the territory extending from Fayette to Northumberland County and south to the Maryland line, comprising 200 sessions, not one session was a blank or was held over till the next half day. This too in all sorts of weather and roads. I wonder if any other meetings in the Teachers' Institutes can put up as good showing on 200 appointed meetings?

The writer attended one teachers' institute where out of 50 teachers enrolled for the district institute, only 5 were present and the session was postponed until afternoon and this was a day of moderate weather.

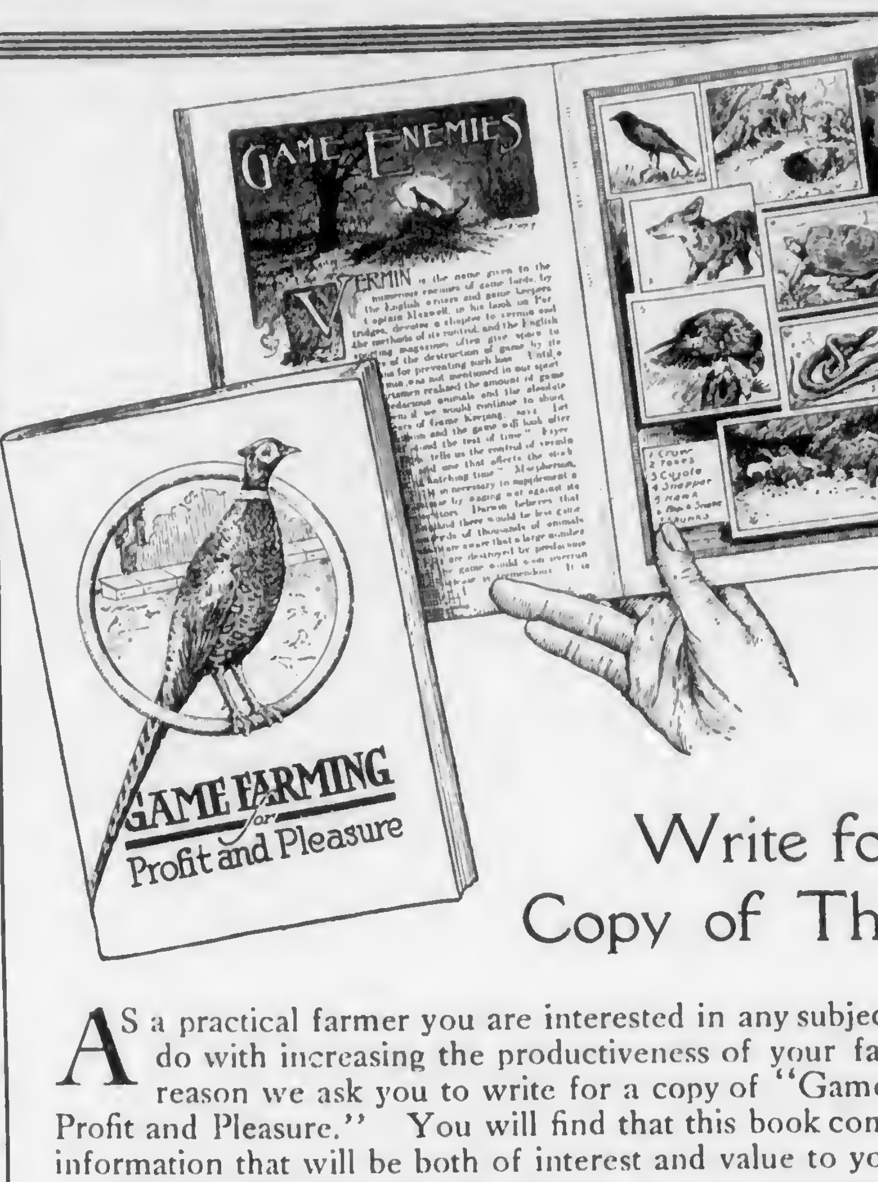
It is also a pleasant reflection to find that nearly all places favored with an institute put in a bid for one the next season.—D. H. Watts.

TOM AT THE INSTITUTE

This winter I laid my wood-pile axe and manure fork, as well as my prejudice, aside and went to a farmers' institute for better or for worse, just as we all get married, and this time I surely went for ''worse''—the worst was to come all thru till it wound up with a negro dialogue. Then thinking I probably got to the wrong place and was taking in a ''Last Day of School'' performance, I inquired of the man at my elbow, and he assured me that this was the institute, and that the automatic speaker who eulogized and ''theologized'' between acts was the County Chairman, and that he knew just what he was doing for he had acted as such many, many times and all would end well.

Fortunately for me I went over the line into the next county and attended two sessions and got the worth of my money, because live subjects were ably discussed, by men who knew what they were doing—the same men who were obliged to sit still and smile at the last place.

These questions were intelligently handled: Alfalfa; Soil Conditions; Lime and Its Uses; The Potato and How to Grow It; Getting Winter Eggs; Better Poultry Houses. I believe in institutes but only for learning how to farm and how to live as a farmer ought to live.—Tom.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The Fur Bringers

By Hulbert Footner

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SYNOPSIS OF OPENING CHAPTERS

Peter Minot and Ambrose Doane are partners in the fur business, with their trading camp located at Lake Miwasa. They are known as "free traders" in the country controlled by The Company. Offering better prices, they enjoy the friendship of the Indians and the white trappers, but are opposed by the Company officials. Peter, like many another white trader, had married a half-breed woman and is established in a fur country. Ambrose, however, is unmarried and feels the loneliness of life where there are few white people to associate with. He was feeling particularly rebellious against fate, when a visiting Indian, Poly Goussard, stops at camp and tells of the wonderful white daughter of the Company boss at Fort Enterprise. Poly is enthusiastic in his description of her and tells of how she saved the life of a fellow trapper.

CHAPTER II (Continued.)

The Indian visitor grew enthusiastic in his description of the wonderful white girl at Fort Enterprise.

"It was the Tuesday after Easter," Poly finally began. "It was when the men went out to visit their traps again after big time at the fort. There was moch frash snow fall, and heavy going for the dogs. Colina Gaviller she moch friends with Michel Trudeau for because he was bring her in on his raf' las' fall.

"Often she go with him lak she go with me. Michel carry her up on his sledge, and she hunt aroun' while he visit his traps. Michel trap up on the bench three mile from the fort. He not get much fur so near, but live home in warm house, and work for day's wages for John Gaviller."

Poly paragraphed his story with luxurious puffs at the cigar and careful attention to keep it burning evenly.

"So on Tuesday after Easter they go out toget'er. Colina Gaviller ride on the sledge and Michel he break trail ahead. Come to the bench, leave the dogs in a shelter Michel build in a poplar bluff. Michel go to see his traps, and Colina walk away on her snowshoes wit' her little gun.

"Michel not ver' good lok that day. In his first trap find fool-hen catch herself. He is mad. Second trap is little cross-fox; third trap nothin' tall!

"Come to fourth trap, wa! see somesing black on the snow! Wa! Wa! Him heart jomp up! Think him got black fox sure! But no! It is too big. Come close and look. What is he catch you think? It is a black bear!

"Everybody know some tam a bear wake up too soon in winter and come out of his hole and roll aroun' lake he was drunk. He can't find somesing to eat nowhere, and don't know what to do!

"This bear him catch his paw in Michel's little fox trap. It was chain to a little tree. Bear too weak to pull his paw out or break the chain. He lie down lak dead.

"Michel him ver' mad. Him think got no lok at all after Easter. For 'cause that bear is poor as a bird out of the egg. Michel mak' a noise to wake him up. But always he lie still lak dead. Michel think all right.

"Bam-by he lean over with his knife. Wa! Bear jomp up lake he was burn wit' fire! Little chain break and before Michel can tak a breath, bear fetch him a crack with the steel trap acrost his head!

"Wa! Wa! Michel's forehead is bus' open from here to here lake that! Michel drop his knife in the snow. Him get ver' sick. Warm blood run all down his eyes, and he can't see not'ing no more.

"Bear grab Michel round his body and squeeze him pretty near till his eyes jomp out. Michel say a little prayer then. Him say him awful sorry he ain't confessed this year.

"But always he fight that bear and fight some more. Always he is try get his hands aroun' that hairy throat. Bear tear Michel's shoulder with his teeth. Michel feel the hot blood run down inside his shirt and get cold.

"Michel, him always thinkin' Colina is not far, but he will not call to her. She is only a girl him say; she can't do not'ing to a crazy bear. Bear hurt her too, maybe, and John Gaviller is mad for that.

"So Michel he jus' fight. He is ver' tire' now. And always they stamping and tumbling and rolling in the snow, and big red spots drop all aroun'.

"Colina, she tell me the end of it. Colina say she is walkin' sof' in the poplar bush looking sharp and all tam listen for game. All is ver' quiet in the bush.

"Bam-by she hear a fonny little noise way off. Twigs cracking, and somesing bumping and tromping in the snow. Colina think it is big game and go quick. Some tam she stop and listen. Bam-by she hear fonny snarling and grunting. She know there is a fight and she is a little scare. But she go more fas'.

"Wa! Wa! What a sight she see there! Poor Michel he pretty near done. She can't see his face no more for blood. She think he got no face now. Michel he see her come, and say to her loud as he can: 'Go way! Go way! You get hurt and John Gaviller get mad!'

"Colina say not know what to do. Them two turn around so fas' she 'fraid to shoot. She run aroun' and aroun' them always looking for a chance. Bam-by she see the handle of Michel's knife in a hole in the snow. She grab it up. She watch her chance. Woof! She stick that bear between the neck and the shoulder!

"That is all!" said Poly. "Bear, him grunt and fall down. Stick his snoot in the snow. Michel crawl away. Colina is fall down too and cry lak a baby. For a little while all three are dead!

"Then Colina wash his wounds with clean snow, and tear up her petticoat for mak' bandage. She put him on his snowshoes and drag him back where the dogs is. She bring him quick to the fort. In one week Michel is go to his traps same as ever. That is the story!"

"By gad, there's a woman!" cried Peter. Ambrose said nothing.

When Poly Goussard reembarked in his dug-out a heavy constraint fell upon the two partners.

Ambrose dreaded to hear Peter call attention to the remarkable coincidence of Poly's story following so closely upon their own talk together. He suspected that Peter would want to sit up and thrash the matter to conclusions.

At the bare idea of talking about it Ambrose felt as helpless and sullen as a convicted felon.

In this he underrated Peter's perceptions. Peter had lived in the woods for many years. He intuitively apprehended something of the confusion in the younger man's mind, and he was only anxious to let Ambrose understand that it was not necessary to say anything one way or the other.

But he overdid it a little, and when Ambrose saw that Peter was "on to him," as he would have said, he became still more hang-dog and perverse. They parted at the door of the store. Peter went off to his family, while Ambrose closed the door of his own little shack behind him, with a long breath of relief.

Feeling as he did, it was torture to be obliged to support the gaze of another's eye, however kindly. So urgent was his need to be alone that he even turned his back on his dog. For a long time the poor beast softly scratched and whined at the closed door unheeded.

Ambrose was busy inside. As it began to grow dark he lit his lamp and carefully pinned a heavy shirt inside his window in lieu of a blind.

Since Peter and his family went to bed with the sun it would be hard to say whom he feared might spy on him. One listening at the door might well have wondered what the activity inside portended.

Later Ambrose opened the door and, putting the dog in, proceeded cautiously to the store. Satisfying himself from the sounds that issued thru the connecting door that Peter and his family slept deeply, he lit a candle and quietly robbed the stock of what he required. Then he wrote a note and pinned it beside the store door.

Carrying the bundles back to his cabin, he packed a grub-box and bore it down to the water.

His preparations completed, he went to his shack to bid good-by to his four-footed pal. Job, instantly comprehending that he was to be left behind, whimpered and nozzled so piteously that Ambrose's heart began to fail.

"I can't take you, old fel'!" he explained. "You're such a common-looking mutt. Of course, I know you're white clear thru—but a lady would laugh at you until she knew you!"

Even as he said it his heart accused him of disloyalty. He suddenly changed his mind.

"Come on!" he whispered gruffly. "We'll chance our luck together. If you open your head I'll brain you! Wait here a minute."

Job understood perfectly. He crept down to the lake shore at his master's feet as quiet as a ghost. Seeing the loaded boat he hopped delightedly into his accustomed place in the bow.

During June it never becomes wholly dark in the latitude of Lake Miwasa. An exquisite dim twilight brooded over the wide water and the pine-walled shore. The stars sparkled faintly in an oxidized silver sea. There was no wind now, but the pines breathed like warm-blooded creatures.

Ambrose's breast hummed like a violin to the bow of night. The poetic feeling was there, tho the expression was prosaic.

"By George, this is fine!" he murmured.

Job's curly tail thumped the gunwale in answer.

"I'm glad I brought you, old fel'," said Ambrose. "I expect I'd go clean off my head if I didn't have any one to talk to!"

Job beat a tattoo on the side of the boat and wriggled and whined in his anxiety to reach his master.

"Steady there!" said Ambrose.

Presently he went on: "Three hundred miles! Six days for Poly to come with the current; nine days to go back! Fifteen days at the best! Anything might happen in that time. . . . Poly said no danger from any of the men there. But some one might come down the river! . . . If wishing could bring an aeroplane up north!"

After a silence: "I wish I could get my best suit pressed! . . . It's two years old, anyway. And she's just come in; she knows the styles. . . . Lord, I'll look like a regular roughneck!"

Next morning when Peter Minot threw open the door of the store b found the note pinned to the door frame. It was brief and to the point.

"Dear Pete:

You said I ought to go by myself ti I felt better. So I'm off. Don't expe me till you see me. Charge me with 5 lbs. flour, 18 lbs. bacon, 20 lbs. rice, 1 lbs. sugar, 5 lbs. prunes, ½ lb. tea, ½ lb baking powder, and bag of salt. Please take care of my dog. So-long!

P. S.—I'm taking the dog. A. D."

Peter, like all men slow to anger, lost his temper with startling effect. Tearing the note off the door and grinding it under foot, he cursed the runaway from a full heart.

Eva, hearing, hastily called the children indoors, and thrusting them behind her peeped into the store. Peter, purple in the face, was wildly brandishing his arms.

Eva closed the door very softly and gave the children bread and molasses to keep them quiet. Meanwhile the storm continued to rage.

"The young fool! To run off without a word! I'd have let him go gladly if he'd said anything—and given him a good man! But to go alone! He'll break an arm and die in the bush! And to leave me like this with the year's outfit due next week!

"I'll not see him again until cold weather — if I ever see him! Fifty pounds of flour — with his appetite! He'll starve to death if he doesn't drown himself first! He'll never get to Enterprise! Oh, the consummate young ass! Confound Poly Goussard and his romantic stories!"

CHAPTER III

Colina

John Gaviller and Colina were at breakfast in the big clap-boarded villa at Fort Enterprise.

They were a good-looking pair, and at heart not dissimilar, tho it must be taken into account that the same qualities manifest themselves differently in a man of affairs and a romantic, irresponsible young woman.

They were secretly proud of each other — and quarreled continually. Colina, by virtue of her reckless honesty, frequently got the better of her canny father.

"Well," he said now with a gesture of surrender, "if you're determined to stay here, all right—but you must live differently."

At the word "must" an ominous gleam shot from under Colina's lashes.

"What's the matter with my way of living?" she asked with deceitful mildness.

"This tearing around the country on horseback," he said. "Going off all day hunting with this man and that—and spending the night in native cabins. As long as I considered you were here on a visit I said nothing—"

"Oh, didn't you!" murmured Colina sarcastically.

"—But if you are going to make this country your home, you must consider your reputation in the community just the same as anywhere else—more, indeed; we live in a tiny little world here, where our smallest actions are scrutinized and discussed."

He took a swallow of coffee. Colina played with her food sulkily.

Her silence encouraged him to proceed: "Another thing," he said with a deprecating smile, "comparatively speaking, I occupy an exalted position now I am the head of all things, such as they are. Great or small this entails certain obligations on a man. I have to study all my words and acts.

"If you are going to stay here with me I shall expect you to assume your share; to consider my interests, to support me; to play the game as they say. What I object to is your impulsiveness

your outspokenness with the people. Remember, everybody here is your dependent. It is always a mistake to be open and frank with dependents. They don't understand it, and if they do, they presume upon it.

"Be guided by my experience; no one could justly accuse me of any lack of affability or friendliness in dealing with the people here—but they never know what I am thinking of!"

"Admirable!" murmured Colina "but I'm not a directors' meeting!"

"Colina!" said her father indignantly.

"It's not fair for you to drag that in about my standing by you and supporting you!" she went on warmly. "You know I'll do that as long as I live! But I must be allowed to do it in my own way. I'm an adult and an individual. I differ from you. I've a right to differ from you. It is because these people are my inferiors that I can afford to be perfectly natural with them. As for their presuming on it, you needn't fear. I know how to take care of that!"

"A little more reserve," murmured her father.

Colina paused and looked at him levelly. "Dad, what a fool you are about me!" she said coolly.

"Colina!" he cried again and pounded the table.

She met his indignant glance squarely.

"I mean it," she said, "I'm your daughter, am I not?—and mother's? You must know yourself by this time; you must have known mother—you ought to understand me a little but you won't try—you're clever enough in everything else! You've made up an idea for yourself of what a daughter ought to be, and you're always trying to make me fit it!"

Gaviller scarcely listened to this. "I'll have to bring in a chaperon for you!" he cried.

"Oh, Lord!" groaned Colina. "Anything but that! What do you want me to do?"

"Merely to live like other girls," said Gaviller; "to observe the proprieties."

"That's why I couldn't get along at school," muttered Colina gloomily. "You might as well send me back."

"You're simply headstrong!" said her father severely. "You won't try to be different."

"Dad," said Colina suddenly, "what did you come north for in the first place, thirty years ago?"

The question caught him a little off his guard. "A natural love of adventure, I suppose," he said carelessly.

"Perfectly natural!" said Colina. "Was your father pleased?"

Gaviller began to see her drift. "No!" he said testily.

"And when you went back for her," Colina persisted, "didn't my mother run away with you, against the wishes of her parents?"

"Your mother was a saint!" cried Gaviller indignantly.

"Certainly," said Colina coolly, "but not the psalm-singing kind. What do you expect of the child of such a couple?"

"Not another word!" cried Gaviller, banging the table—last refuge of outraged fathers.

Colina was unimpressed. "Now you're simply raising a dust to conceal the issue," she said relentlessly.

Gaviller chewed his mustache in offended silence.

Colina did not spare him. "Do you think you can make your child and hers into a prim miss, to sit at home and work embroidery?" she demanded. "Upon my word, if I were a boy I believe you'd suggest putting me in a bank!"

John Gaviller helped himself to another egg with great dignity and removed the top. "Don't be absurd, Colina," he said with a weary air.

It was a transparent assumption. Colina saw that she had reduced him utterly. She smiled winningly. "Dad, if you'd only let me be myself! We could be such pals if you wouldn't try to play the heavy father!"

"Is it being yourself to act like a harum-scarum tomboy?" inquired Gaviller sarcastically.

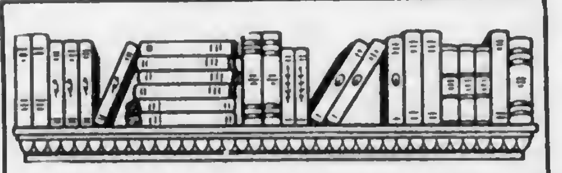
Colina laughed. "Yes!" she said boldly. "If that's what you want to call it. There's something in me," she went on seriously. "I don't know what it is—some wild strain; something that drives me headlong; makes me see red when I am balked! Maybe it is just too much physical energy.

"Well, if you let me work it off it does no harm. If I can ride all day, or paddle or swim, or go hunting with Michel or one of the others; and be interested in what I'm doing, and come home tired and sleep without dreaming—why everything is all right. But you insist on cooping me up!—well I'm likely to turn out something worse than harum-scarum, that's all!"

Gaviller flung up his arms.

"Really, you'll have to go back to your aunt," he said grimly. "The responsibility of looking after you is too great!"

(To be continued.)



PIECES *to* SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

WHEN FATHER CARVES

We all look on with anxious eyes
  When father carves the duck,
And mother almost always sighs,
  When father carves the duck.
Then all of us prepare to rise
  And hold our bibs before our eyes
And be prepared for some surprise,
  When father carves the duck.

He braces up and grabs a fork
  Whene'er he carves a duck,
And won't allow a soul to talk
  Until he carves the duck.
The fork is jabbed into the sides,
  Across the breast the knife he slides,
While every careful person hides
  From flying chips of duck.

The platter's always sure to slip,
  When father carves the duck.
And how it makes the dishes skip!
The potatoes fly amuck.
  The squash and cabbage leap in space
And father mutters Tindoo grace,
  Whene'er he carves the duck.

We all have learned to walk around
  The dining room and pluck
From off the window sills and walls
  Our share of father's duck.
While father growls and blows and jaws,
  And swears the knife is full of flaws,
And mother jeers at him, because
  He cannot carve a duck.

We have requests for the following poems:

Annie and Willie's Prayer
The Children's Hour
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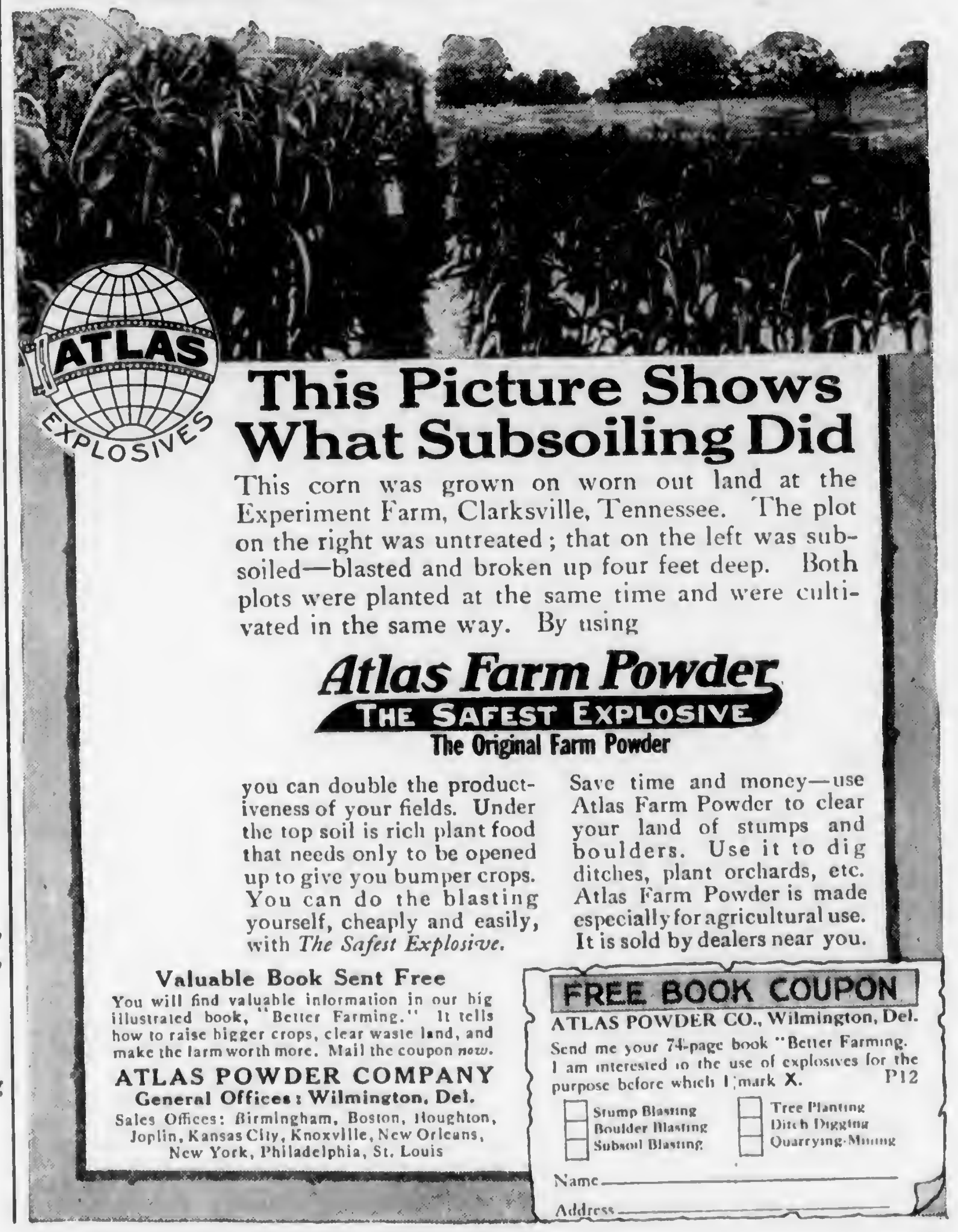

This Picture Shows What Subsoiling Did

This corn was grown on worn out land at the Experiment Farm, Clarksville, Tennessee. The plot on the right was untreated; that on the left was subsoiled—blasted and broken up four feet deep. Both plots were planted at the same time and were cultivated in the same way. By using

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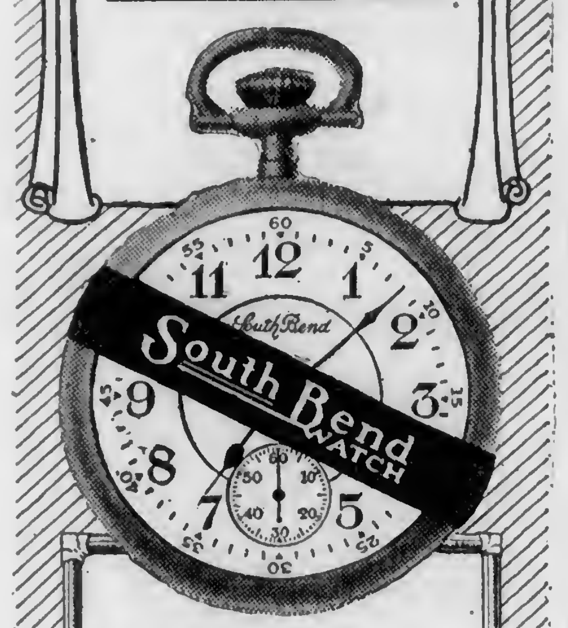

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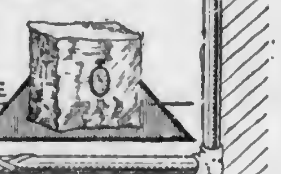

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Life Insurance Contracts and Their Uses

Use of Insurance Contracts for Investment

By Bruce D. Mudgett

Life insurance originated as a response to needs created by premature death, but it was soon found that this function did not exhaust its usefulness; that equally important needs might be served prior to death. Investment contracts were first emphasized in the United States in the years following the Civil War, and since that time their importance has steadily increased.

Investment policies may be divided into two classes: (1) pure investments, the sole purpose of which is the accumulation of capital and (2) combination contracts, which combine a plan of capital accumulation with insurance against death. When investment contracts are spoken of today one naturally thinks of savings-banks or building and loan associations. The principle governing these institutions is that small amounts set aside periodically from current income are compounded at a reasonable rate of interest from year to year, the accumulated fund under certain restrictions to be withdrawable at any time. The rapidity with which money accumulates when compounded at different rates of interest is shown in the following table:

Amount of $1.00 per year at the end of twenty years at different interest rates.

2 pct.	3 pct.	4 pct.	5 pct.	6 pct.
$24.78	$27.68	$30.97	$34.72	$38.99

The savings-bank principle of accumulation is not used by life insurance companies. The pure endowment policy, their only strictly investment contract, is issued for amounts of $1,000 or multiples thereof, and is purchased by premiums paid annually. This premium corresponds to the periodic payments made to a savings-bank and is increased likewise by interest earnings. The great difference lies in the fact that the premiums and interest can not be withdrawn at the option of the insured. Unlike a savings-bank investment, the insured must live to the end of the term in order to receive the promised sum. If death occurs before the term has been completed the insured forfeits his entire accumulations.

To counterbalance this posibility of loss thru death the amount he receives in case of survival is increased. By means of a mortality table it is possible to estimate the relative number of purchasers who will die before this policy matures and thereby forfeit their accumulations, and the relative number who will live and receive the amount insured. The premiums charged for pure endowments are not sufficient when accumulated at compound interest to equal the amount insured, the difference being the sum credited to each policyholder from funds forfeited by deaths. The following table shows the size of these two elements of the pure endowment investment, the "investment fund" comprising premiums and interest, and the "speculative fund" arising from forfeitures:

(1) Age at Issue	(2) Length of Term	(3) Net Premium	(4) Investment Fund	(5) Speculative Fund	(6) Amount Insured (sum of 4 & 5)
30	20 years	$31.89	$882.72	$117.28	$1000.00

The premium used in this table, known as the net or mortality premium, considers only the effect of mortality and 3 percent interest earnings on the investment. The premium actually charged will be slightly larger to provide for expenses and will be reduced at the end of each year by dividends arising from interest earnings in excess of 3 percent. These two items should approximately balance. The table shows why it is impossible to make a direct comparison of a pure endowment with a savings-bank investment. In the latter there is no forfeiture thru death of the investor.

The desirability of the pure endowment as a means of accumulating money depends entirely on the purposes for which the accumulation is made. If for future needs that will never materialize except by living, it serves the purpose admirably and its speculative character increases the return available. If, for instance, a man wishes to accumulate a sum of money with which to purchase a life annuity when he reaches age 70, and is willing to forego any other uses of the money so invested, a pure endowment maturing at age 70 is the best contract he can buy.

The life annuity itself, the purpose of which is a guaranteed income for life, is nothing more than a series of pure endowments. An annuity purchased at age 70 promises a payment at 71 if you live, another at 72 if you live, and so on. Its distinctive feature consists in the fact that the endowment principle has been applied to an individual case, and has furnished the exact protection desired, an income for life.

The peculiar character of a pure endowment makes it less generally available as an investment policy than a contract based on the savings-bank method of accumulation. The insurance companies have always discouraged its use and at the same time have failed to furnish any other kind of pure investment contract. It must be admitted that their failure has been due in part to fear lest their competition with savings-banks bring them into conflict with the law, but it must be regretted that the largest and safest investment institutions in the world, which can give the highest interest return consistent with safety, have not thus far supplied investment policies to fill all needs.

In large measure this failure has been due to the endowment insurance policy, a contract that combines a pure endowment method of accumulation with insurance against death during the term. This is the well-known policy that pays if you live or if you die. Such emphasis was placed on it in the early days of investment life insurance and so great are its inherent good qualities that a notion has developed in the minds of many persons that it is a cure for all insurance ills. Certain companies today flatly insist that the endowment policy, as it is popularly called, is the ideal policy, because it furnishes insurance against death and at the same time provides for the accumulation of an estate. This attitude serves only to obscure the issue, for it diverts attention from the possible development of a straight investment policy and holds to the illogical theory that there can be an "ideal" policy. No policy can fit all needs unless all needs are alike. This, we have seen, is not the case.

These remarks are not to be taken as a general condemnation of the endowment policy but only of its use for purposes for which it is not fitted. If, for instance, a man wishes to make provision for his old age and has no one dependent on him, he wants an investment policy without insurance against death and an endowment policy more fulfills his needs. The time to use endowment insurance is when accumulating investment needs the protection of insurance, that is, when a sum is to be saved within a specified number of years to meet a man's responsibility to others, his death before this time leaving the fund incomplete and his responsibility unfulfilled. A house mortgaged for several thousand dollars at the death of the owner might be taken from his wife and family thru her inability to pay off the mortgage. An endowment insurance policy for the amount of the debt maturing when the debt came due could be paid for by annual premiums, would guarantee the necessary money to pay the mortgage at maturity; and, if the owner died before this time, the entire sum would be available at once. In the same way a man may accumulate funds for the education of a child and be guaranteed against his failure thru premature death to save the required amount.

This combination of investment and protection exists in any policy on which a reserve is created; for the reserve represents money accumulated which has not been needed to pay insurance costs. This is true of the limited payment life and, in lesser degree, the ordinary life policy. The reserve on these contracts at any time represents the difference between the total accumulations from premiums and the cost of term insurance from the date of issue.

There are two main uses of investment contracts, as a provision for old age and as a means of creating capital that may be used in various ways. For old age provision it is best to have the funds paid in the form of a life income or annuity, thus assuring a level amount per year and its continuance for the lifetime of the recipient. The funds to purchase this annuity may be obtained from a maturing endowment or other investment, or the life insurance companies will sell a deferred annuity which combines in one contract the means of accumulating the money and then investing it and paying it back to the insured annually as an annuity.

For the creation of capital funds the habit of regularly and periodically investing small sums is usually considered the best guarantee. The defect of the savings bank investment lies in the fact that it makes no provision for regular and periodic payments. The purchaser of an endowment policy, on the other hand, clearly understands that the receipt of the amount insured twenty or thirty years hence depends on the continuation of his premium. He sees a close relationship between his premiums and his future estate. If capital is being saved with a specific purpose in mind he is able to measure his ability to supply future needs with current income and is thus more likely not to assume responsibilities that can never be met. This is one of the strongest arguments in favor of life insurance investments.

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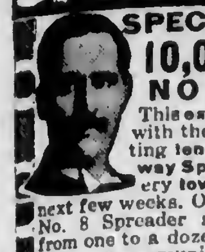

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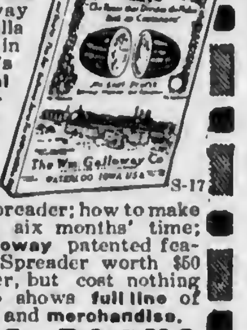

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Cash or time—one year to pay—installment plan—note settlement—half cash half note—bank deposit or cash, at prices so low you cannot afford to do without a manure spreader now. We sell direct at less than wholesale from factory to farm at the actual cost of material, actual cost of labor and only one small profit based on tremendous output.

All Steel Beater and V-Rake
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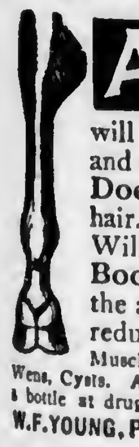

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Wart on Ear.—I have a 3-year-old colt that has a whitish, fungous-like growth coming in one ear. It does not seem particularly sore, but is increasing in size quite rapidly. The main or solid part is about the size of a walnut with branches one and one-half inches in length. F. E. G., Waymart, Pa.—Apply a saturated solution of salicylic acid in alcohol or apply tincture of iodine or cut out bunch and it will get all right. In removing a growth of this kind, care should be taken not to cut a hole thru the ear, or it will never close.

Contagious Abortion.—I bought a cow in March 1915. She dropped her calf in August, then she was bred and dropped another calf on January 2, 1916, but I cannot tell what caused her to do so. I would like to know how I can prevent her dropping her calves too soon. J. A. K., Panbrook, Pa.—I am inclined to believe that your cow suffers from contagious abortion. Give her 3 dr. of methylene blue in a gelatine capsule daily for 6 days. Then give her six more doses, commencing 10 days later, and giving the medicine every two days until the remaining six doses are given. If she has any vaginal discharge dissolve 1 dr. permanganate of potash in 3 quarts of tepid water and wash out vagina, twice a week. Do not forget to thoroly clean and disinfect your stables.

Eversion of Vagina.—I have a 3-year-old cow that came fresh first when two years old. She is now in calf but not due to freshen for 4 or 5 months. She has never been sick and is in good condition, but when laying down I notice a bulging out of the vagina and would [illegible] to know what to do. A. W. G., [illegible] Y.—She should be placed in a [illegible] the fore feet are 3 or 4 [illegible] than the hind ones. Dissolve 1 oz. of powdered alum in 3 pints of tepid water and wash out vagina daily.

Acute Congestion.—I have a flock of 20 sheep which apparently are in fine condition. I feed them corn, oats and hay. They are kept in a good basement barn at night and allowed to run out in pleasant weather. Four of them have had twins and triplets. The lambs are very large, but are weak. They cannot hold head up and die in a few hours. D. R. G., Vestal, N. Y. — The lambs coming weak and perhaps exposed to too cool a temperature suffer from acute congestion and doubtless die from the effects of it. When I was raising lambs I had the ewes lamb in a barn supplied with artificial heat and I seldom lost one. Had I not done so, I am sure quite a number of the young lambs would have died soon after birth. I bred my ewes so they would lamb in January and they invariably did well. but they were kept in this warm place until the lambs were 10 days old.

Chronic Indigestion.—I have a cow that freshened last August and gave a good mess of milk up to six weeks ago when, on account of eating too much corn fodder, she had an attack of indigestion; since then she has given very little milk and does not seem to thrive. Our local veterinarian prescribed for her, but his medicine failed to help her. S. A. H., Clyde, Pa.—Give your cow ½ oz. of hyposulphite of soda, ½ ounce ground gentian, ½ ounce powdered charcoal at a dose in feed twice a day.

Sheep Ticks.—Is there any way to rid sheep of ticks without dipping them? Nearly all of my sheep are quite ticky. I am afraid of dipping them for the reason that they are all heavy with lamb; besides, I do not like dipping in the winter time.. C. K., Eightyfour, Penna. — I know of no satisfactory treatment that you could apply other than sheep dip. By laying your sheep on her back and pouring on small quantity of the dip, it will work around body and destroy a good many of the ticks without wetting fleece.

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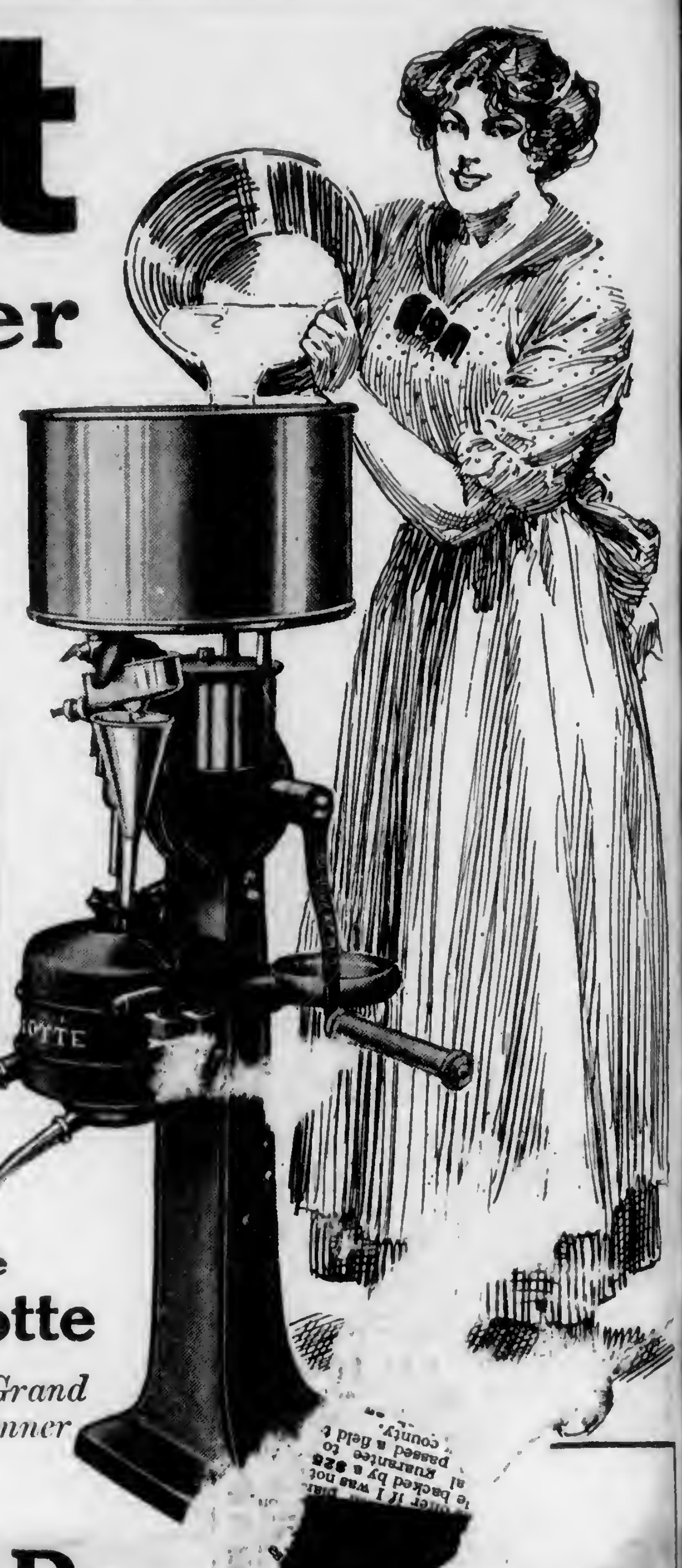

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PUBLISHED WEEKLY

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FERTILIZATION OF [illegible]RCHARDS

By J. P. STEWART
Pennsylvania State College

In these years of "bumper" fruit crops and of numerous exponents of the necessity for greater skill and improvement in methods of marketing the fruit already produced, it may seem strange that any one should have the temerity to re-open the subject of orchard fertilization. There are at least three reasons for this, however. In the first place, it is the orchards that have been producing well that are likely to be in need of some extra assistance, if they are to maintain their pace. Second, the man that continues to have good crops to sell is always in better condition than those who have not,—even in years of so-called over-production. And, finally, these advocates of better methods of marketing are beginning to get results now and then, and after the better methods are started, the most immediate need is again for better and larger production.

From this viewpoint, therefore, we again call attention to our present subject. Incidentally we may say that this is a subject upon which the writer has been conducting extensive experiments for 9 years. There are other experiments which are older but none reported which cover anywhere near so many soil types and localities, or so wide a range of varieties and tree ages. It is the latter characteristic, viz., the wide duplication of the experiments, over a great variety of soils and conditions, that has enabled us to secure definite and positive results, where so many others have failed.

When these experiments were started in 1907, there was a great deal of doubt and uncertainty as to the value of fertilization in orchards, especially with commercial materials. The idea was becoming established even among earnest and efficient horticulturists, that trees were different from other plants; that their wide root-range, long growing season, biennial bearing habits, and generally hardy nature made them indifferent to the usual need of other crop plants for at least occasional assistance in the matter of additional plant food. This impression also is undoubtedly correct in part,—a fact which makes fruit and nut production so well adapted to many of the eastern and southern soils. But even trees will not run along indefinitely and maintain their best growth and production without some assistance of the right sort and at the right times.

These facts have been abundantly demonstrated in the Pennsylvania group of experiments. In one case, for example, the unfertilized trees have averaged from 78 to 85 bushels per acre annually, during the last five years, while the adjacent trees receiving proper fertilization have averaged 180 to 216 bushels. These trees, moreover, were relatively young, the above yields being produced in their 10th to 14th years. In more mature trees the net annual gains from fertilization have ranged from 150 to 325 bushels per acre on the average for a period of seven years. In the latter case the best of the unfertilized trees have averaged a trifle over 208 bushels per acre.

It must not be supposed, however, that such gains as these can be secured in every orchard. In some cases the yields are being retarded by other conditions, such as a deficient moisture supply, a frosty or otherwise improper location, poor spraying, or too much pruning. These difficulties naturally can only be remedied by proper attention to them. But after these factors have received the proper attention, or wherever they seem to be satisfactory already, and the trees are still below normal in growth and bearing, it is quite likely that fertilization of the right sort is the most important need.

What Fertilizers are Needed?

Assuming then that we have an orchard in which the growth, fruiting and other general conditions indicate the need of fertilization, the next matter of importance is to make sure that one is using the right materials. The only certain method of doing this is to run a little test of the sort described later, but in the meantime in the light of all our experiments, we may say that in the average orchard, potash is needed least often and nitrogen most often. This incidentally happens to be a fortunate condition just at present in view of the fertilizer market. Phosphorus by itself has given no benefits, altho applied in four experiments and over a 5-year period. When added to nitrogen, however, this combination has generally resulted in greater benefits than any other fertilizer treatment, not even excepting the combination of all three materials. This does not mean that potash is never required by trees, as we have one important experiment in which it is still proving to be the leading element. It does mean, however, that in most cases proper additions of nitrogen

(Continued on page 4.)

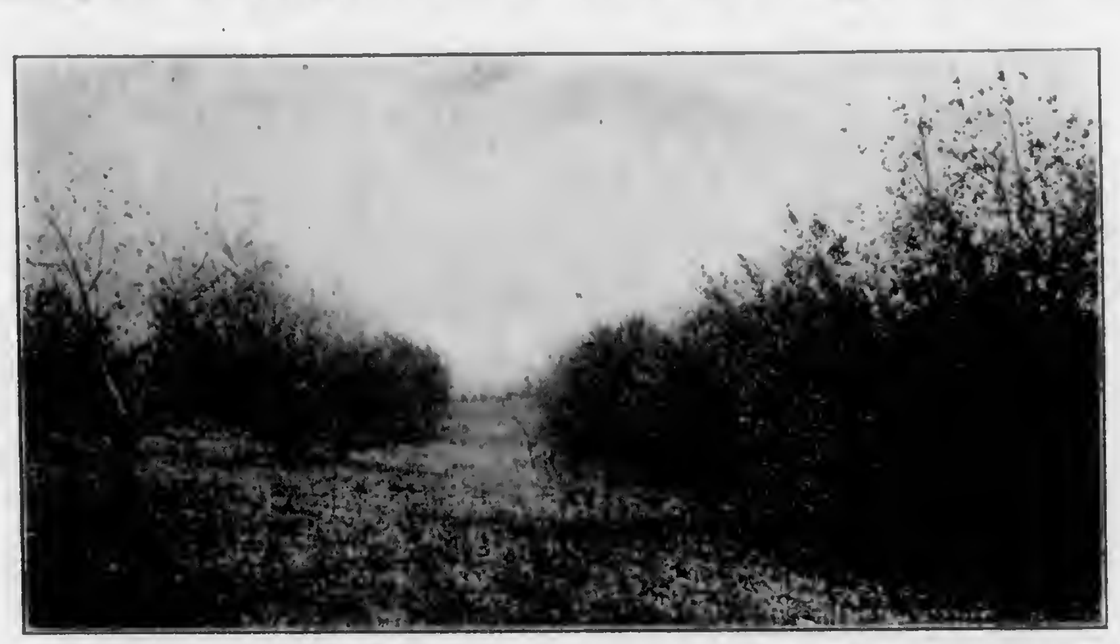


FIG. 1. EFFECT OF FERTILIZATION IN TILLED ORCHARD.

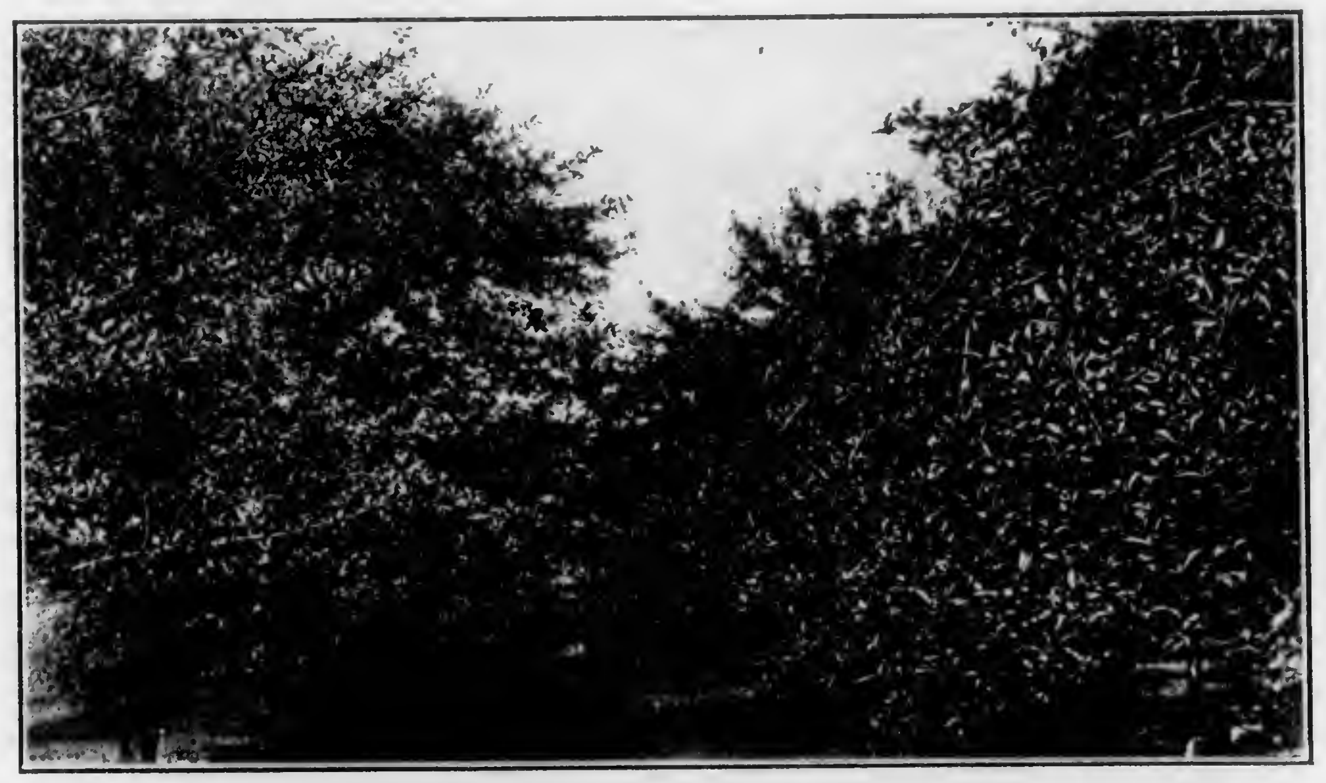


FIG. 2. SHOWING EFFECT OF FERTILIZATION OF BALDWINS ON SILT LOAM SOIL. MAKING DIFFERENCE OF 317 BUSHELS PER ACRE.

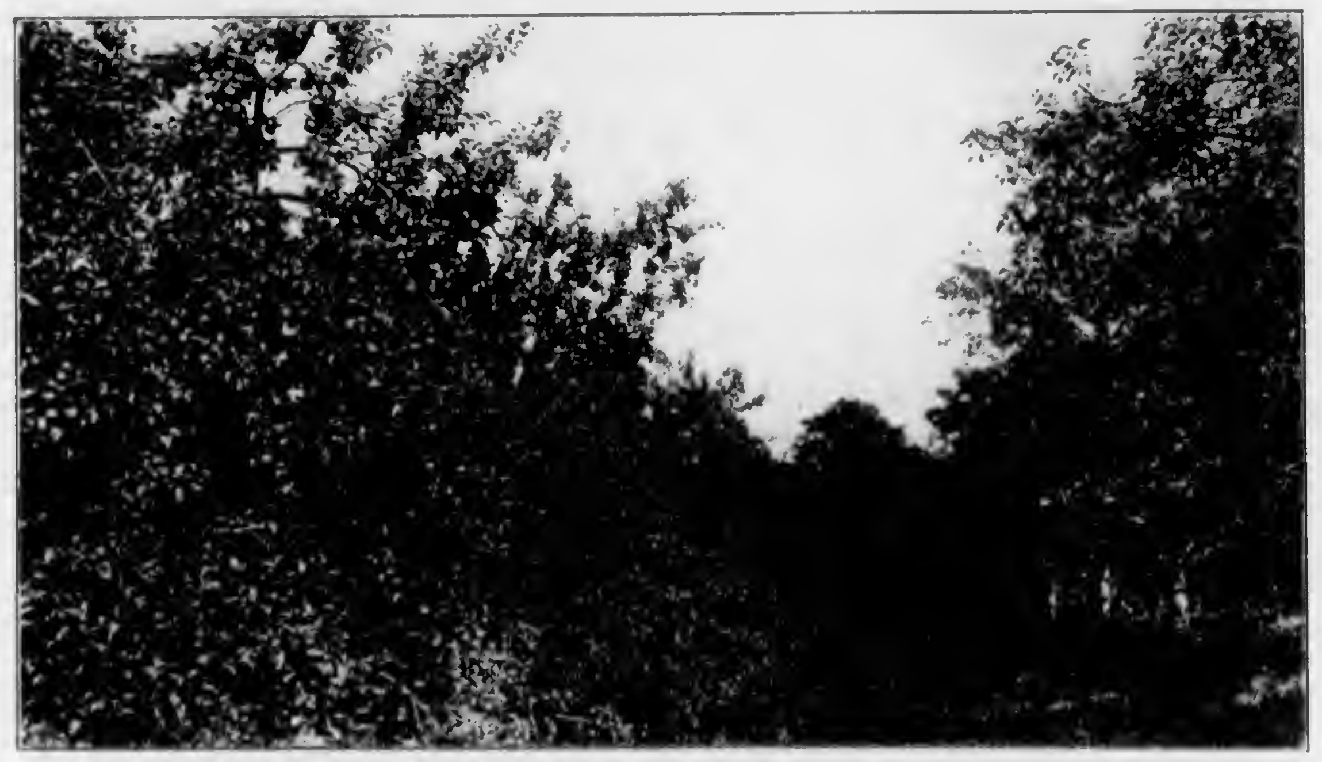


FIG. 3. RESULT OF FERTILIZATION OF YORK IMPERIALS ON A STONY LOAM. MAKING DIFFERENCE OF 248 BUSHELS PER ACRE.

Top Dressing Timothy Sods

Sussex County, N. J., Experiments

By Paul B Bennetch, County Agent

Hay is one of the most important crops in any locality in which live stock farming is followed intensively. Where dairy cows are kept, an effort should always be made to raise clover or alfalfa hay to supply cheap protein. Even in these sections, however, timothy hay has its place and sods are often allowed to remain unplowed for a series of years.

In Sussex County, N. J., some sods, largely timothy, are said to have been down since the '70's and are still producing fair crops of hay. Many farmers keep a field in sod as long as it produces profitable crops of hay, and plow up every year only the acreage which can be handled with the labor available. While this practice does not always conform with what is known to be the best farm practice, it is contended that it is the most economical under certain farming conditions. Where sods are allowed to produce hay for two and more years, too often they are not properly fertilized, and crops of hay are removed until the sod is thin and when plowed under, it adds but very little organic matter to the soil to aid in increasing its productive capacity.

While a number of farmers are using stable manure to top dress sods, comparatively few have used commercial fertilizers for this purpose. A sufficient supply of barnyard manure is seldom available for top dressing all the sod, so that very much goes without any feeding whatever.

AREA ON RIGHT WAS TOP DRESSED. AREA ON LEFT NOT FERTILIZED.

Experimental results show that the use of commercial fertilizers applied to grass lands will increase the yield of hay very materially and that this practice is usually profitable from this standpoint alone. In addition, results have been secured which demonstrate very clearly that the residual effect, the increase secured in succeeding crops, is of as much importance as the direct increase in hay yields. Regarding this, Dr. Hunt stated in a Pennsylvania bulletin, "I believe it safe to assert that the same money used in applying commercial fertilizers to grass lands will bring a greater profit than when applied to corn or wheat". Some Cornell experiments show that this residual effect is very important. The increase in yield of hay was in every case worth more than the cost of fertilizers, and there was, in addition, an increase in the corn crop amounting to several dollars per acre, which was clear gain.

Some demonstration work was conducted in Sussex County last spring with a mixture of 150 pounds of nitrate of soda and 150 pounds acid phosphate on timothy sods. About 50 men in all used this mixture on plots of one-fifth of an acre or more of sod. All of these applications were not made under ideal conditions. In some cases the sod was thin and in others the fertilizer was applied too late for good results. The results as a whole were an enthusiastic endorsement of top dressing with commercial fertilizer.

HAY MAKING IN SUSSEX COUNTY NEW JERSEY.

The results secured were actual weights in some cases while most of them were estimated by the farmers themselves. One man who top dressed about 40 acres estimated an average yield of about three tons per acre. Another who made weights reported 5,500 pounds of hay from an acre which was top dressed, and 2,100 pounds from an acre not top dressed. This man also noticed that where the fertilizer was used there were fewer weeds, especially plantain, owing to the thicker sod which crowded out the weeds. The sod was very noticeably thicker where the fertilizer was applied, which was the case in all the demonstrations. Another man reported more than double the amount of hay from the top dressed area. Another who top dressed one acre estimated two tons from the top dressed acre against one ton where no fertilizer was applied. He expects to treat about 20 acres this spring.

This is the evidence of a few men who top dressed small areas. They are convinced that it pays, and except to follow the practice. One man who has top dressed sods for several years with commercial fertilizer estimates that he can secure an extra ton of hay for every $5 worth of fertilizer applied. Another man who has followed the practice for some time states that part of a sod top dressed showed very clearly the effect for six years following in the increased crops. This is good evidence regarding the residual effect.

Two other tests where a mixture of 100 pounds nitrate of soda, 150 pounds acid phosphate, and 50 pounds muriate of potash per acre was used gave the following results. In test No. 1 the unfertilized plot gave 1,000 pounds of hay per acre. The fertilized plot gave 2,480 pounds per acre, showing an increase per acre of 1,480 pounds, which, valued at $15 per ton meant an increased value of $11.10 per acre. The fertilizer applied cost $4.50 per acre, making a net profit due to fertilizing of $6.60. In test No. 2 the unfertilized plot yielded 2,240 pounds of hay per acre as compared with 3,680 pounds on the fertilized plot. This increase of 1,240 pounds, valued at $15 per ton, meant a gain of $9.30 per acre. The cost of fertilizing was $4.50 per acre as in test No. 1, giving a net profit due to top dressing of $4.80 per acre.

A substantial profit is shown in each case without counting the cost of application which would be a small item. It costs but little more to harvest a crop of hay yielding two or three tons per acre than one yielding only one ton or less per acre. The outlay in money for commercial fertilizer is more than justified with much increased yields where the fertilizer is applied under proper conditions. These conditions are a good sod and application of the fertilizer at the time the grass starts in the spring.

With abnormal fertilizer prices this spring, many men will hesitate to make use of it in top dressing sods. Nitrate of soda is selling for about $80 per ton and acid phosphate costs about $20. The man who will top dress is the man who has a good sod, which he has reason to believe will be benefited by an application of fertilizer. It will possibly pay in some cases to reduce the amount of nitrate of soda to 100 pounds per acre, leaving the 16 per cent acid phosphate at 150 pounds. It is to be expected, of course, that the present abnormal condition in the fertilizer market is but temporary, and that we may return to former prices as soon as the European war is over. Perhaps most farmers will prefer to simply test out various fertilizer mixtures for top dressing small plots until that time.

What Broke the Stone?

One day there was an Irish laborer in the street of one of our prominent cities who was endeavoring to break a large curb-stone. He placed the stone flat on the ground and took his heavy sledge and proceeded to strike the stone continuously time after time in the same place. A man stood on the street watching him. The stone was thick and heavy. The day was hot and the Irish laborer had to stop from time to time and wipe the sweat from his brow. Finally he pried up one end of the stone and placed a rock under it. Then he continued to strike the stone as before. Finally it broke in two. After wiping the sweat from his brow, he turned to the man who had been watching him and said, "Me kind friend, can yez tell me which lick it was that broke the stone?" The man said, "I think I can. It was the last one." "Shure, now, and yez are badly mistaken," said the Irish laborer, "it was the first lick and the last lick and every lick between."

Probably, you will think the above has little or nothing to do with farming and especially with soil fertility, but last summer I visited a farm where a man had been using fertilizer since 1893 and he told me that he had proven that the larger applications of fertilizer were more profitable than the small applications, and that it was the last 50 pounds that were frequently the determining factor as to whether the crop would be large or small or whether it would return any profit on the investment. He emphasized the last 50 pounds. If there had been no first 50's, there would have been no last 50. It is true that the larger applications are usually the most profitable, tho many farmers have not realized it. They can well take a lesson from the Irish laborer in that it is all the fertilizer that brings the profit, but there must be a large and generous application to give us our greater net income from the investment from fertilizers. — J. W. Henceroth.

LARGE EXCESS OF LIME WASTEFUL

Field experiments recently completed at the Pennsylvania State College School of Agriculture and Experiment Station indicate that a large excess of lime or limestone is wasteful and that only a slight excess over that necessary to "sweeten" the soil or neutralize acidity should be applied.

For the average acid soil in Pennsylvania one ton of burnt lime or twice that amount of ground limestone per acre is sufficient for an initial application.

On heavy clay soils burnt lime is preferable on account of its more pronounced flocculating character, but under normal conditions the choice between burnt lime and ground limestone depends upon the relative cost in a given locality. That about twice as much ground limestone as burnt lime is necessary should always be borne in mind.

Magnesium limestone has been shown at the Pennsylvania State College Station to give the same results as pure limestone.

A considerable part of the knowledge essential to success in any pursuit is acquired by actually working at the occupation, or, as we say, by practical experience. Some features of any occupation can be obtained in no other way. A preliminary education however, may reduce the time.

Restoration of the Clovers?

For fifty to seventy-five years after the native forest had been cleared away from our farm, clovers grew luxuriantly, but about twenty-five years ago it became more difficult each year to secure a good clover stand. The plants would start off in good condition, but many would disappear before the next spring, except in spots of various areas. Several reasons were assigned for the failure of the clover crop, until we had almost given up in despair of ever growing clover successfully again. Stable manure applied as a top dressing gave a better crop, for a while, but this too failed after a few years. Along with the failure of the clover crop, timothy soon gave smaller yields while red top and poverty grass took its place. However, where potato tops or a brush pile was burned, clover grew rank. This led us to believe that the soil needed potash, but when we purchased potash in commercial fertilizers, we did not secure any better clover than where no potash was used. About this time a neighbor scattered part of a barrel of lime, which he had purchased for masonry work, and had become air-slacked, on a small plot in a field. Where this lime was spread, clover grew rank and thrifty.

From this we came to the conclusion that it was lime that our soils needed. Along with a few other neighbors, we purchased a car of ground caustic lime, which had just come on the market, and where this lime was applied clover was a success. Every year since that time we have used more or less lime, and we have not had a clover failure, but once, and this was due to exceptional "heaving and thawing" weather during March.

For applying lime, a home made spreader designed after one used at the Ohio Experiment Station has been used for several years, with very satisfactory results. With this spreader we can cover from eight to ten acres per day, at a cost of from 30 to 40 cents per acre. I prefer to apply about one-half the amount of lime a year previous to seeding, as the plowing and harrowing will mix this application thru the soil as deep as it is plowed.

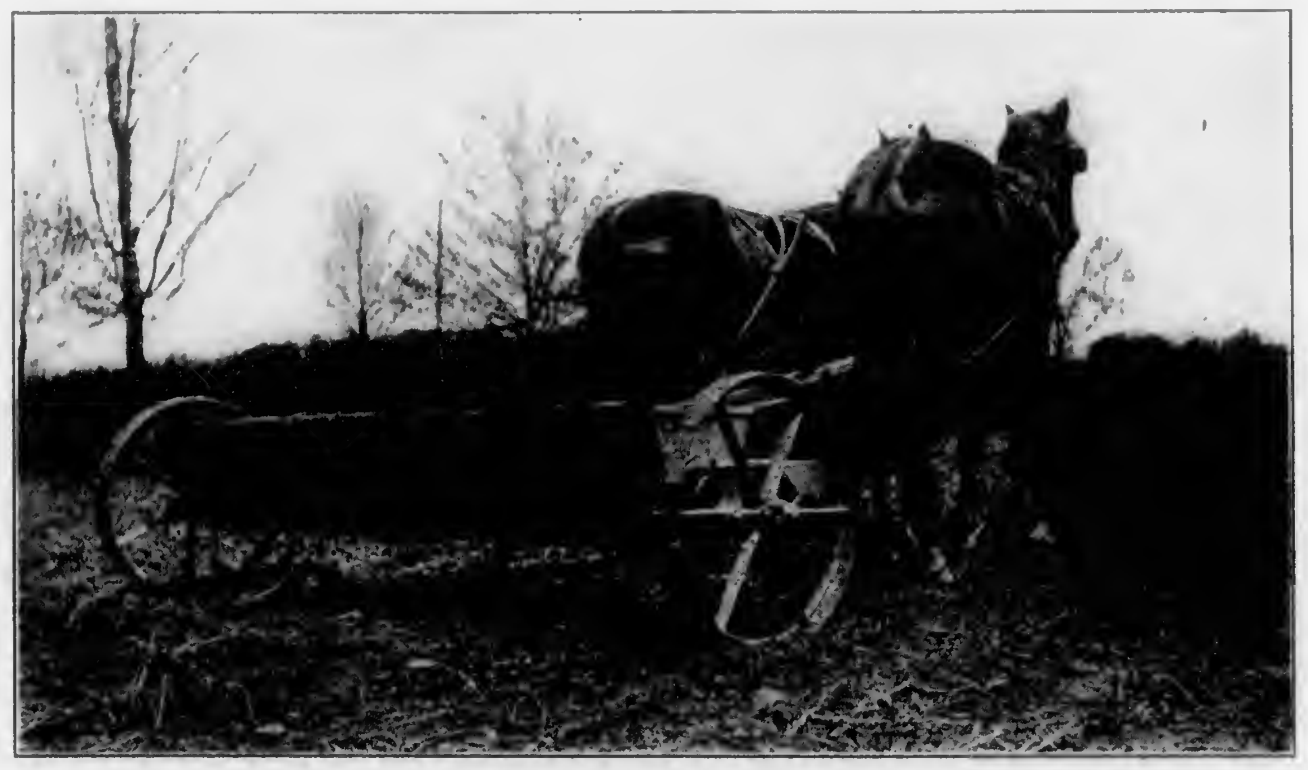
While lime has restored the clovers, where they had refused to grow, we have found, since top dressing our wheat with manure, that we have secured our largest crops of clover. Lime sweetens the soil and makes it friendly to clover, and manure used as a top dressing furnishes plenty of available fertility for nourishing the young clover plants, when they are most in need of it. Manure also shades and mulches the soil, preventing it from becoming too dry, if there should be a lack of rainfall at this time.

When seeding clover on wheat ground, we have secured much better results by delaying the seeding until after the soil has become dry and mellow, so that we can drill the seed. For this purpose, we are using an old discarded hoe grain drill, on which the grass seeder is in fair condition.

We drive the same way the wheat was drilled, allowing the hoes to dig up as much soil as they will, which covers the clover and grass seed. However, if the soil is packed too hard, a spike tooth harrow can be used, and should be driven cross ways with the drill rows. By the use of a drill and covering the seed lightly with soil, is provided a much better seed bed than can be made by seeding on frozen or honey-combed ground. Less seed is required and no danger of a late freeze, killing the young clover plants.

In traveling over the country, it is a lamentable fact that thousands of acres of our eastern land have become unfriendly for the sucessful growing of clover, thru the lack of lime. And with the failure of clover the nitrogen and humus problem is becoming more serious each year. This land is rapidly becoming helpless and is fast passing into a condition in which it cannot be profitably farmed. Much of this land needs drainage and then when the lime requirement has been met, clover and the right use of commercial fertilizer or manure will bring this soil back to its virgin fertility.

Many of us have failed to give the proper value to humus. Some believe that our soils are worn out, but the chemist still finds a large quantity of plant food. The trouble is, that this supply is locked up in an unavailable state and cannot be used by the plant roots. Humus is nature's means of unlocking this unavailable plant food. And there is no plant that will accomplish this better than clover. It has been estimated that the roots and tops contain as much fertility as ten tons of manure. Clover takes nitrogen from the air, the most expensive element, when bought in the fertilizer sack. Its deep rooting system brings phosphorus and potash from the subsoil and stores it in the crown and large surface roots to be used later by other crops; while these same large roots supply humus to the soil. With all these qualities, it is important that a special effort should be made to restore clover where soil conditions have caused its failure. This is not a costly or impossible task, but one that is necessary, before we can get the good things which are due us from our farms.—H. E. Moats, Mercer Co., Pa.



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The Farmer at His Desk?

Above all other professions stands the farmer in the number of enterprises which he must over-see. He must be thoroly familiar with animal husbandry which means the feeding, breeding and general care of all live stock kept. He needs to know the fundamental principles of the following subjects: Farm crops, soils, agricultural chemistry, horticulture, insect pests, plant diseases, rural economy, farm management, bacteriology, meteorology, and many others. The average farmer may not know them by these names, but he daily applies the principles coming under these headings.

The successful farmer is of necessity a clear thinker and a good student. His problems are not merely to produce large crops and many animal products, but it must be done economically and they must be markoted to advantage. Agricultural information is to be had so easily and cheaply that no farmer can afford to be without it.

DIGGING MARL FROM NEW JERSEY MARL BEDS.

Sources of Agricultural Information

First, I will mention farm papers. There is such a large list to select from that the wants of everyone can be satisfied. About four or five carefully chosen and faithfully read will be enough for most farmers. It will be best to have several that deal with the whole subject of farming and a few that are specialized, as dairying, poultry, etc. Get papers that give specific information and not the kind that beat around the bush with stuff that no one knows how to apply.

Second, there are Government and Experiment Station bulletins on almost any subject and these may be had for the asking. By addressing the Secretary of Agriculture, Washington, D. C., any one may secure a list of bulletins available for free distribution and he can then ask for the ones in which he is interested. By addressing the Director of one's State Experiment Station, one may secure their bulletins by the same procedure.

Third, books. The Year Book, issued by the Department of Agriculture at Washington and obtainable free of charge from your representative in Congress, is well worth having. Besides containing many valuable articles, it gives many interesting and useful statistics. A few well chosen books are better than a great number which soon become little more than ornaments. A book which I could not do without is F. W. Woll's Handbook for Farmers and Dairymen. It contains so many rules, tables and "short-cut" information upon almost any subject that I use it more than any other agricultural book. Warren's Farm Management should be in every farmer's possession for it contains the latest information on the business principles in farming. It also contains the results of many original investigations as to farm organization, besides instructions for keeping a complete set of farm accounts which is rather new but very important.

Fourth, correspondence courses. Nearly every State College has correspondence or reading courses which are free to all farmers of the state. This is a convenient, cheap and effective way of securing useful information in almost any branch of farming. The director of the Agricultural College will be glad to answer any questions concerning these courses.

Fifth, county agents and farm advisors. Some counties are fortunate enough to have county agents who will answer by letter or come personally and help you with any problem which you may have Pennsylvania also has a board of farm advisors, with head quarters at Harrisburg, Department of Agriculture, who serve the same purpose.

Sixth, farmers' organizations: As farmers' clubs, rural improvement associations granges and all other organizations which bring farmers together. These should be attended and supported for they are great means of spreading agricultural knowledge and of uplifting a community.

The Study

Every progressive farmer needs a rolling top desk—a place to keep his writing paper, letters, account books, catalogs and all small articles which he wants to keep where they can be found when wanted. He also needs a desk telephone as well as the business man for it is tiresome to stand up to the old kind with one's face to the wall. The book case should be near to the desk for the farmer has no time to waste because he usually has only a short time each evening to do his reading and writing.

In order that information may be secured when desired, it must be systematically arranged so it may easily be found. I have, therefore, filed my bulletins away in pasteboard boxes, holding about twenty each, and have them all numbered and card indexed by subjects. In this way I can readily find any one I want. There is no reason why the farmer should not be as broad and business-like as men of any other profession.—W. H. Rothenberger.

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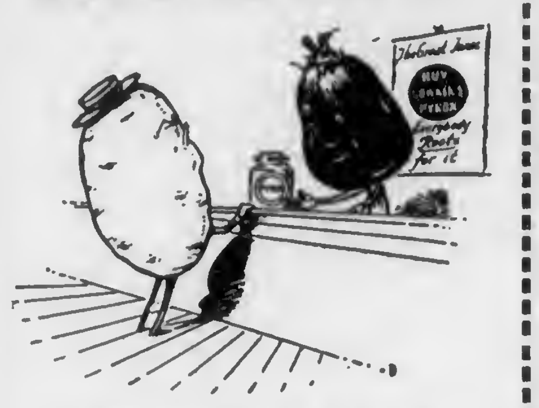

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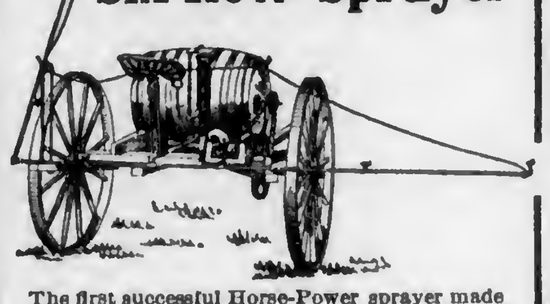
Pyrox disposes of the bug question on all kinds of vegetables and fruits. If you believe in growing good products, free from disease and insect damage, ask Bowker Insecticide Co., Boston Mass., or Baltimore, Md., for their large catalogue and name of nearest dealer, or send $1 for enough Pyrox to make 30 to 50 gallons of spray. Sold for 15 years.

Read what Colonel John T. Richards, governer Eastern Branch National Soldiers' Home, Maine, says about it: "Pyrox killed the bugs on potatoes and egg plants. The potato vines remained vigorous and green until killed by frost. The yield was a generous one, with practically no small tubers, and up to the present no rot has appeared. Pyrox was also used on squash, pumpkin, and cucumber vines for insects, and on beans for rust, with good effect."



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Sprays 30 to 40 acres per day, with one horse. Equally adapted for Tree Spraying.

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comprise nearly 2000 acres of the choicest lands in western New York and are **Headquarters for Farm Seeds** of the highest quality only.

D. B. Brand Alfalfa, Clover and **Grass Seed** 99.50 percent pure or better at wholesale direct to you.

Heavy Weight Oats weighing 46 lb. per measured bushel, the heaviest and most productive American Oat as low as 85c. per bushel.

Seed Corn "Best Seven" varieties both for crop and the silo, as low as $1.50 per bushel, average germination above 95 percent.

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12 samples Farm seeds FREE to every Farmer,
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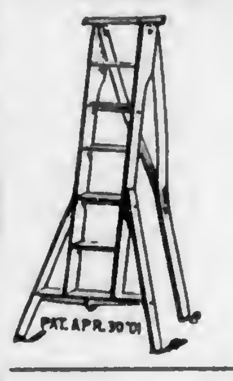

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Let me send you my catalogue—it's free to everybody—it's different. It tells you facts about my fresh dug trees and how you can save money and receive a guaranteed SQUARE DEAL. Write today and see the difference in buying direct from grower than through agents.

Apple, 4½-6 ft., $14.00 per 100. Peach, 3½-4½ ft., $9.00 per 100.

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FERTILIZATION OF ORCHARDS

(Continued from page 1.)

and phosphorus are all that is needed to supplement the present resources of the soil. The caustic action of the sodium in nitrate of soda and that of the gypsum in the acid phosphate are doubtless influential in bringing about this effect.

How Much to Apply

As to quantity of materials, an application of 25 to 30 pounds of nitrogen, at least half of which is carried in nitrate of soda, and about 50 pounds of phosphoric acid, carried perhaps preferably in acid phosphate, is usually sufficient for an acre of bearing trees. Two applications of nitrate of soda of 100 pounds each, preferably applied about a month apart, would furnish the nitrogen, or a slower acting carrier such as dried blood could be used for about half of this element and then apply it all at once. The former method is usually cheaper and also more effective, especially when used as a top dressing. The phosphorus can be carried in about 300 to 350 pounds of acid phosphate, or in equivalent amounts of ground bone, floats or basic slag. If potash is available and thought to be needed, an application of 30 to 50 lbs. of the high-grade muriate, or its equivalent, is likely to be enough.

The nitrogen may be obtained wholly or partially by the use of stable manure or leguminous plants, if they are available. In the Pennsylvania experiments, however, the artificial applications of nitrogen have usually been much more effective than those obtained by the use of leguminous cover crops. This may be accounted for by the probability that the reduction in moisture, occasioned by the growth of the cover crops, apparently neutralizes the benefits which should be secured from the additional nitrogen fixed by the cover crops. This effect, however, may not be observed in all soils, and it also is less apparent in seasons of abundant rainfall.

Stable manure at the rate of about 8 tons per acre annually is generally advisable, altho it is much slower acting than commercial nitrate applications,—often requiring a year longer for important results. A good mulch of manure, however, is one of the best treatments that can be applied to a young apple tree. It has also been most efficient in increasing the average size of the fruit in bearing trees.

None of the fertilizers has materially improved the color of the fruit, and those containing nitrogen have generally reduced it, as compared with the checks at any given date. This is simply due to delayed maturity, which is often an advantage with the varieties of more northern origin, such as Baldwin, Hubbardston, McIntosh, etc., and it is readily overcome in them by delaying the picking. With varieties requiring a longer growing season, however, such as the York Imperial, it may also be necessary to utilize other aids to color, of which the most important are open pruning and sod culture, in order to overcome the ill-effects of nitrogen on color.

Time and Method of Application

The time of application is important, especially in the case of nitrates. Present evidence indicates that these materials may often be applied too early in the season. Furthermore, there is evidence which leads to the opinion that distinct harm may result from their application at fruit-setting time, especially in the case of the peach. It seems, therefore, that for apples the nitrates should be applied not earlier than bud opening time, and probably not later than the middle of June. In general, the middle of this period should do very well, altho some of our most striking results have come from applications made as late as the 8th of July.

Manure or other organic carriers of nitrogen may be applied at any time from early spring to the middle of June without danger of material loss or ill-effect. The time of application of the other ingredients of the general fertilizer usggested, is much less important; hence they may be applied with the carrier of the nitrogen.

By postponing the application of fertilizers until after the fruit has set, an opportunity is given to vary the rate in accordance with the amount of fruit set on the trees. If the crop is light, much smaller applications are required because of the natural tendency to develop a sufficient number of fruit buds in the off year. If the crop is heavy, the applications should be rather liberal in order to avoid, if posible, the total failure of the crop the following year, and ultimately to steady the yields. This plan should save considerable outlay in a series of years, and should also enable one to secure the greatest possible return for the fertilizers applied.

The method of application followed is that of scattering the fertilizer or manure broadcast over the surface of the soil, care being taken to keep it at some distance from the tree trunk, where there are few absorbent roots, and to extend the applications well beyond the spread of the branches. The application should be heaviest under the outer two-thirds of the spread of the branches, and it may either be left on the surface to be washed in by the rains or it may be harrowed or lightly plowed into the soil. After all is done, it should be remembered, that as a rule, the fertilizer applied in any given season cannot materially affect the yield of the year in which it is applied, since the fruit buds are formed in the latter part of the preceding season. No important results, therefore, should be expected before the following season at the earliest, and if other conditions are not satisfactory, the results may not appear until considerably later.

Adjusting the Fertilizer to Local Needs

Wherever the orchard interests are large, it is advisable to accompany the use of the general fertilizer suggested with a local test in order to determine the exact needs of the particular orchard involved. Such tests will enable the grower to modify the more general formula so as to give the best possible net results.

Plan for Local Orchard-Fertilizer Test

(Pounds of Fertilizer for a Mature Tree in Bearing.)

1. Unfertilized plot.
2. Nitrate, 2 lb.; dried blood, 3 lb.; acid phosphate, 10 lb.
3. Nitrate, 2 lb.; dried blood, 3 lbs.; potash, 2 lb.
4. Acid phosphate, 10 lb.; potash, 2 lb.
5. Unfertilized plot.
6. Nitrate, 2 lb.; dried blood, 3 lb.; acid phosphate, 10 lb.; potash, 2 lb.
7. Same as No. 6, plus lime, 12 to 25 lbs.
8. Manure, 400 lb.
9. Unfertilized plot.

The plots selected for this test should be located in a typical part of the orchard, and should include at least six average trees, of the same variety and age, in each treatment. If possible the plots should be laid out in double rows of three trees each, and if two or more varieties are involved each plot should be arranged to include equal numbers of each variety. All trees should be labelled and carefully measured at a fixed point on the trunk, and definite records of their yields and growth should be kept for at least three years. Frequently, good indications of the needs of an orchard may be obtained in much less time, especially if the need is great, but this period should be allowed and a longer one should be used if necessary.

The materials for this test are indicated in the proper quantities for each bearing tree instead of in amounts per acre, as above, and in both cases proportionate reductions should be made for younger trees. In other words, if only one-third of the ground is to be covered, then only one-third of the amount of fertilizers recommended should be used, so that the rate of application may be kept within proper bounds. The careful operation of this test for the period suggested should readily determine whether fertilization really pays, and which of the principal fertilizer elements is most needed in any particular orchard.

Winter Injury to Fruit Buds

We sent out a number of letters of inquiry as to how much winter injury had been done to the fruit buds during the past season, and the following information has been received. A number have not yet responded and we hope to hear from others before our next issue. It is to be hoped that the favorable growing season of last year developed such a supply of buds that the seemingly large injury will still leave enough live buds to produce a fair crop of peaches and plums.

Pennsylvania

Adams Co., March 20.—The extent of injury to fruit buds in this locality some growers estimate at 70 percent peaches frozen, cherries perhaps 50 percent, apples not hurt at this date.—A. I. Weidner.

Beaver Co., March 18.—We find that in the northern slopes in this county they report that part of the fruit has been injured, and in the southern slopes it appears to be all right. I will try to keep you posted as the season advances.—Walter C. Dunlap.

Centre Co., March 20.—Replying to yours of the 18th, would say that the only fruit that has been seriously injured, according to our information up to the present time, is the peach and probably also some of the plums. The warm spell in January, followed by the cold weather since, is chiefly responsible for this. I would not attempt to say just what percentage of injury has been done, but in the peach especially, I would consider it serious.—J. P. Stewart.

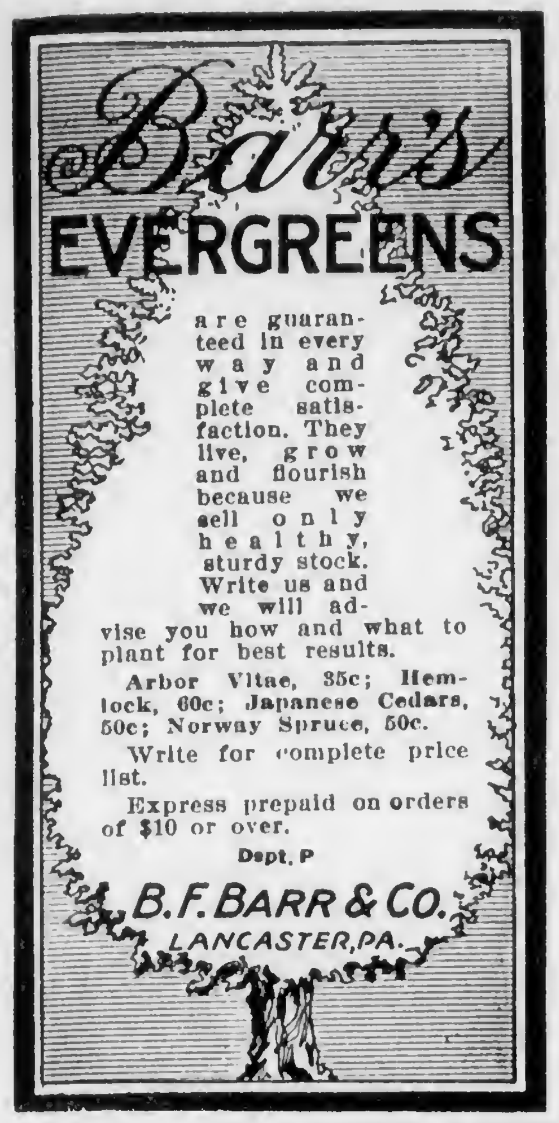
Columbia Co., March 21.—In reply to your inquiry of the 18th regarding the winter injury to fruit will say that the recent cold spell of a few days ago has certainly caused a further killing of the fruit buds. This is especially true of peaches. The greater part of them were killed before the last freeze, and from the reports it seems that it was very much colder in some sections than others, altho the distance was not great.—William T. Creasy.

Juniata Co., March 20.—Present conditions indicate a light fruit crop for 1916. Apricot and Japan Plums all frozen. Peach buds in thrifty well-cared for orchards 50 percent good. In old and neglected orchards practically all frozen.—John H. Shellenberger.

Northumberland Co., March 20.—There are so few peaches grown in my vicinity but it is reported that 75 percent is gone. Apples not so badly hurt but somewhat damaged, probably 40 percent injured. Cherry reports, 75 percent of crop good. We have six inches snow on our heavy clay lands and real January weather at this date.—I. A. Eschbach.

Wayne Co., March 21. — I think peaches are frozen 50 to 75 percent

(Continued on page 361.)



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together with a few other varieties.
If interested write for prices.
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--- MILLIONS OF THEM ---

Varieties of tomatoes: Globe, Earliana, Truckers' Favorite, Stone. 100 for 50c; 500 for $1.75 postpaid and insured. By express 500 for $1.25; 1000 for $2.00; 5000 at $1.75; 10,000 for $1.50 for 1000. Egg Plants - Varieties; High Bush and Black Beauty. Pepper Plants Varieties: Ruby King, Chinese Giant, Pimento. 100 for 75c; 500 for $2.50 postpaid and insured. By express 500 for $2.00; 1000 for $3.00. Plants ready April 1st.

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Early spring chills and colds are inevitable with old-fashioned, drafty, uneven heating methods

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Real spring rarely sets in "for good" until it is nearly summer. The cold, damp, chilly days cause a lot of sickness and discomfort in homes which are not properly heated.

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An IDEAL Heating outfit will show you its worth more forcibly during changeable, raw weather than at any other time. The IDEAL Boiler is made to give just the volume of heat to keep the house genially warmed and comfortable *all over*, without waste of fuel or everlasting tinkering with the fire. These IDEAL outfits are easily put in old or new farm houses. One charge of fuel lasts 12 hours or more during chilly spring days.

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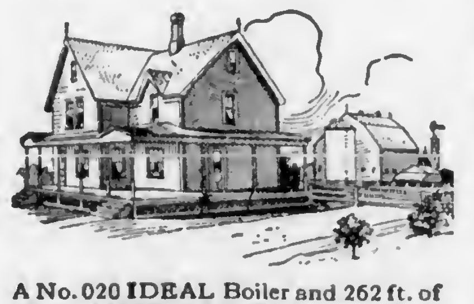
Decide now to put in IDEAL-AMERICAN heat. Don't spend another winter without it. Safeguard your family's health. Get the Ideal outfit which will just suit your needs. Running water not necessary. Burn the inexpensive fuels of your locality and make your *house* a real HOME!



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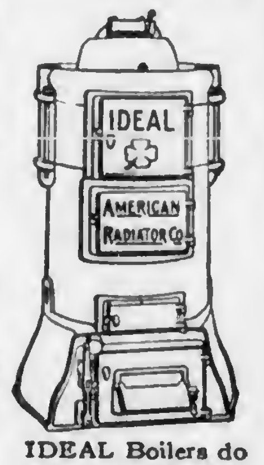

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Can be used also for whitewash, orchard spraying, brick and stone mortars. Write us for interesting pamphlet called "Farm Economies."

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Seed Corn If you want corn that will fill the crib, please the eye and win the blue ribbons, write me. Both white and yellow seed.
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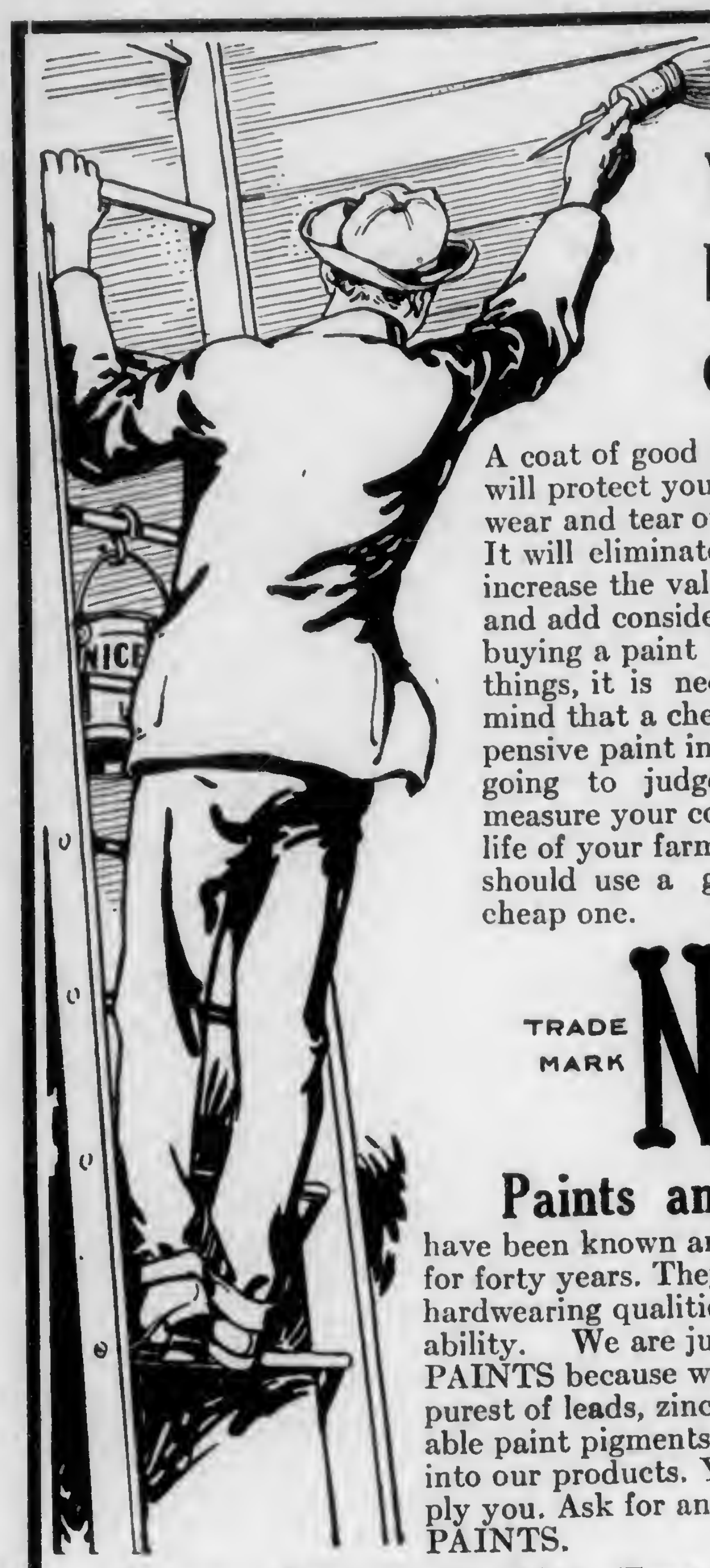

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For large or small flocks. Efficient heater with Automatic control of the drafts. Coal Burning, Self Regulating and adapted for large or small flocks of either Chicks or Ducks.
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JOHN H. JACKSON TILE CO., Inc., 110 THIRD AVENUE, ALBANY, NEW YORK.

Poultry

SHORT AND LONG SIGHTED POULTRY KEEPING

I have recently visited the farms of two comparatively near neighbors in Pennsylvania. Nothing in the construction of the soil or the distance from market gives one farm an advantage over the other and yet the owner of one is making money right along while the other is barely getting a living off the place. In each case the farm descended from father to son, but the money maker had been taught to think for himself, whereas the father of the other had been so much the "boss on his own place" that no one else there acquired the habit of thinking. Every one did as he was told. Let me give an instance.

Both the fathers were friends and compared notes at frequent intervals, and often differed in their opinions. Farmer B was partial to the Dorking fowl because of its good size, its motherliness, its docility, and other good points. Farmer A liked the White Leghorn because it is a good layer. It was too small for Farmer B. It would not make a table fowl and it laid too many eggs (!) to be used at home, and feeding chickens for eggs at less than fifteen cents a dozen, as prices in his day ran, was not good business, etc., etc.

Such arguments came up about the time that Farmer A had decided to discard the breed he had formerly kept for the Leghorn. The experiment proved worth while and Farmer A became a warmer advocate of the Leghorns than ever because he had results to show. The sons in each case followed in their father's footsteps, except that Farmer A's son went his parent one better. He made arrangements with a New York commission house to take all the eggs his hens produced, except such as he could sell for hatching. His arrangement also included a stated advance on the price quoted in the Saturday issue of a certain Philadelphia paper. Shipments were made two or three times a week or in the busy season daily and charged at the Saturday price, plus the advance. Further, the commission man agreed to pay the transportation charges not only upon the shipments but upon the return of the empty crates.

Herein is one of the secrets which explains the bank account which Farmer A's son has. When I visited the farms last I asked Farmer B's son why he still kept Dorking fowls and he said that they supply all the eggs needed by the family besides yielding enough poultry for the home table. When I called his attention to the other plan just mentioned he only shrugged his shoulders. And when I reminded him that the cracker factory to which he hauls milk seven miles daily except Sunday would also take eggs at paying prices and that Leghorn fowls would make him more cash than Dorkings he only smiled upon me indulgently. "None so blind as those who won't see."—M. G. K.

GUINEAS AND THEIR VALUE ON THE FARM

The investment that has brought the best returns, for the sum invested and the labor required, during the last two years, has been a small flock of guineas. From three hens and one rooster as a foundation, sixty young guineas were raised to maturity the first year.

The first eggs were found during late May and June, and were put under chicken hens to hatch, even tho the guinea hen had already been brooding. This method induced the guineas to go to laying again. The nests were not usually difficult to find, and were often discovered by the farm men in going about the fields and orchards. They were most easily found about eleven or twelve o'clock, when the guineas could be seen flying from their nests in the tall grass.

Great care was used in dusting the chicken hen mother thoroly with a good insect powder, several times while brooding, so that the baby guineas would have no lice. Beautiful, cunning little brown birdies these babies were, full of life, and with big appetites from the first. Unlike little chicks they should be fed a few hours after hatching, and were ready for their meals four or five times a day. The first food consisted of hard boiled egg, ground shell and all, and mixed with fine, dried bread crumbs and a little fine charcoal. This was scattered a little at a time on the flour of the coop, which had already been well covered with clean sand.

It seemed absolutely necessary to build a tiny yard, of three wide boards set on edge, in front of the coop, so that the guineas might run in and out for grass and exercise. Every tiny crack and hole under the edge of the coop and yard was closed, by throwing a shovel of sod against it on the outside, or one by one the guineas would slip out, wander away and be lost in the grass. When they were three days old the hen was allowed out of the coop in the tiny yard, that they might learn to know her voice and method of foraging. In a week the board yard was taken away near evening, being sure that the little brood returned to the coop that night. After that they needed no watching and were seldom fed except at night and morning.

Occasionally the mother hen was driven to the corn field if not inclined to forage. Cracked barley and rice or chick feed were fed after the first three days. During August the guinea hens came off with other broods, which they raised without any care, unless the weather was stormy when the brood was very young. All summer these busy creatures chased the grass hoppers in fields and meadows, and devoured thousands of insects and weed seeds, returning at evening to be fed with the chickens.

The earlier hatched guineas were worth over a dollar a pair as broilers when weighing one and a half pounds apiece. The later hatched sold in late winter at one dollar and half for roasting. They are sometimes marketed in Philadelphia without picking but do not bring so much.

All in all, guineas are among the farmers best feathered friends, as they roam the fields from sun rise until sun set; and a joy to the farmer's wife when she receives such good market returns for the few pleasant hours spent in caring for them.—M. R. Briggs, Bucks County, Pa.

BEE LORE

Apiculture is a side line in agriculture in many sections as well as a specialty in some states where conditions are most favorable. The southwestern states seem to be particularly favored—California and Texas especially, with a favorable climate and honey producing plants.

Beekeeping has become a science, being taught at experiment stations in various states. The pursuit is educational, as it leads to studying botany, entomology and in a general way natural history, of which there is none more interesting than that of bees, including those classed as Hymenoptera insects having stings and ovapositors.

Modern scientific beekeeping demands a high degree of intelligence requiring a graduate course in Botany, Chemistry, Zoology, English, German, Mathematics, History, Modern language, Physics and general apiculture.

German is included perhaps because we have the black or German bees, first introduced from Europe, so it is necessary to understand their language; altho the Italians are more extensively kept, that language is not included in the curriculum. Bacteriology is not included as it should, since Pennsylvania spends ten thousand dollars a year to eradicate bee diseases, thus giving employment to more immature scientists and bee uplifters who are imposed upon the public in the interest of private business.

From Sacred and profane history we learn that the products honey and wax were highly esteemed—the honey as a delicacy and the wax to keep the sacred lights burning in Cathedrals and as candles for domestic use besides other uses. There is an extensive bibliography on the subject showing that the product of bees was esteemed even with reverence in ancient time. Ezekiel 27; 17 mentions merchants in Israel as trading in wheat, honey, oil and balm. St. Mathew 3; 4 mentions St. John as eating locusts and wild honey. Deuteronomy, 21; 13: When God sent Moses to see the land, He made him suck honey out of the rock and oil out of the flinty rock.

Palastine was noted as the land of milk and honey. When Joseph's brothers went to Egypt to buy a little food for the suffering family they were advised to carry down a present; a little balm, and a little honey, spice, nuts and almonds. It appears that Joseph had the first corner on corn at this period. Leviticus 2; 11. It is forbidden to burn upon the Altar anything made with leaven, or any honey in any offering made by fire. Judges 14 records one of the most remarkable stories in history.

There was antagonism between the Hebrews and the Phillistines. Of the former against the will of his parents, Samson wanted Timnah, one of the Phillistine women for a wife, and when he went to visit her, on the way he was attacked by a lion.

Sampson being of great strength rent the lion as he would a kid and cast him away. After a time Samson returned to take his lady love and on the way he found the carcass of the lion in which there was a swarm of bees and honey of which he ate some and took some away. From this was formed the famous riddle Samson wagered with thirty friends thirty garments and thirty sheets that they could not solve it in seven days. To appease his wife who was angered because she was not informed of the wager and the riddle, he lost his wager; having entrusted her with the secret she very naturally gave it away.

From Rollin, we learn that the Hyblasn honey was famous among the ancients. The same author states: Sophocles, a noted author and composer of sweet verses, had the figure of a hive placed upon his tomb, to perpetuate the name of Bee, which had been given him from the sweetness of his verses, under the tradition that a swarm of bees settled upon his lips when yet in his cradle. There is yet among the uneducated some superstition about bees, the same as about other affairs where signs of the moon, witchcraft passing from generation to generation with even some of fair intelligence believing in supernatural influences.

The claim is made that bee stings cure rheumatism and drunkenness; if true, what a blessing. — W. H. Stout, Schuylkill Co., Pa.

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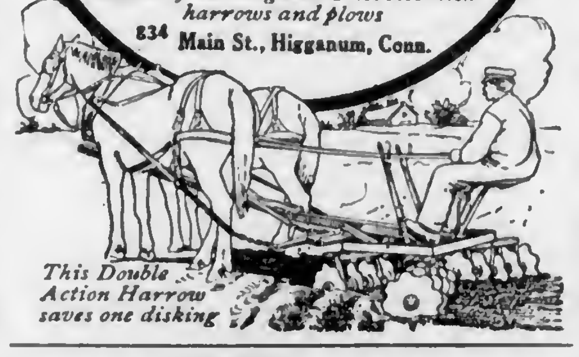

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A UNIQUE APPLE SHOW

There is in progress in this city, as we write, an exhibition of apples that has for its purpose a different object than the one usually attending such a display. No prizes, premiums, or blue ribbons are promised. The sole purpose is to increase the consumption of apples by displaying to the throngs that pass up and down Chestnut street the tempting fruit. It is a wise move and no doubt will at least partially bring the desired result, because we retain to a degree the childish impulse to want that which pleases the eye. The apple dealers conceived this idea because there is on hands an unseasonably large supply of apples, and the consumption will have to be increased if it is disposed of without great loss. Some say they paid too much for the apples last fall, necessitating a retail price which prevented ready sale. Be that as it may, instead of the show being unique, why should it not be the customary thing for growers, dealers and fruit associations to advertise in this and other ways, their products? The demand for many other things—breakfast foods, soap, automobiles, books, etc., is largely increased and some times created by judicious advertising. Advertising has made a world-wide demand for ''Sun Kist'' oranges, ''California Figs'', ''Northwestern Apples,'' and it will do the same for eastern grown products just as soon as we waken up to its necessity and possibilities.

REPAIR THE ROADS EARLY

The old adage, ''A stitch in time saves nine'' is truer in no place than in the matter of road improvement. Too often the first work is not done until the spring farm work is done and the roads are settled and hard. In the meantime the public has been bumping over rough, gullied roads. The winter water courses in the roads are made deeper by the heavy spring roads and great expenditure of time and labor is required to put them in the same condition they were a year ago. The first thing to do is to turn off the water that may be running in the road. Then, as soon as the road is partially settled and dry, put on a good drag drawn by a good team and driven by a good man to work and the road will be good all summer. It is the heighth of folly to leave all road work until late and then go on with a heavy iron road machine and pile up loose dirt in the middle. What is really wanted is to produce a smooth, hard surface on the road as soon as possible and this is best and cheapest done while the ground is moist and soft, by an implement which will press down and pack the surface, and this work a good road drag does to a nicety. This done a few times in spring produces a top that is almost waterproof, especially on clay roads. Not only will this system make better roads, but it is much cheaper than the common method of working them up once a year. Since a hard, compact surface is desired it is probably not necessary to say that all vegetable material, such as leaves from the ditch, sods, soil from nearby fields, etc., should not be placed in the road. The farmer knows that such material when mixed with the soil of his fields makes humus and loosens up the soil. It will do the same in the roads, making them easily cut up by travel and muddy when wet. We have no hesitancy in asserting that if the money and labor which is annually put on the dirt roads were spent in doing the right kind of work, and at the right time, we would not have so much complaint of poor roads and the consequent danger of burdensome debt for road improvement.

DEPARTMENT REORGANIZATION

The New York legislature is considering a bill proposing the reorganization of its Department of Agriculture. The bill, as outlined in our New York news letter on the next page, is similar to the one proposed in this state last year, from which our agricultural commission resulted. New York proposes a similar commission, to be appointed by the governor of the state. It would give its board of commissioners, or its board of agriculture, the power of appointing the Commissioner of Agriculture, who corresponds to our Secretary of Agriculture. This board would also concur in the appointment of all deputies and division assistants and fix their salaries. These provisions are identical with the original reorganization bill presented in this state last year and the primary purpose is the same—the removal of politics from the operation of the Department. In the interests of efficient Department service and thru friendly interest in our brother farmers across the state line, it is to be hoped that New York will get more out of its effort than Pennsylvania did. If so, it must see that its original measure goes thru as outlined. In this state it was amended to strip it of all power and leave its enforcement open to those who wanted to profit by it. The Agricultural Commission has been in existence in this state for a little more than one year, and it should have had opportunity to prove its value. But it was launched with extremely limited powers under the amended law and has apparently been held closely under official supervision ever since. Perhaps because it threatened to interfere with the political privileges of those higher up, the bill was amended to retain appointive power in the governor and give the commission merely the privilege of concurrence. It is understood that even this privilege has been curtailed by the governor and at least one important appointment was made contrary to the wishes of the commission. The reorganization bill as finally passed in this state left our commission as merely an advisory body, and to date it has apparently been urged to advise along only extremely safe and conservative lines, doing no injury to those who have ambitious political aspirations and yielding no tangible service to the industry which it is supposed to represent. The value of the commission was destroyed when its appointive power was taken from it. Its members are tied by lack of power to enforce their recommendations. From its record the past year it appears to be more ornamental than useful, with little hope for improvement. Its members can scarcely be criticised; they are simply helpless. New York state may well profit from this experience. We still believe the original plan, as outlined in the present New York bill, has many advantages, but emasculated as the Pennsylvania law was, it creates an inocuous body that can not even do justice to its own membership.

PENNSYLVANIA FARMS FOR SALE

This is the title of a bulletin recently issued by the State Department of Agriculture. A little over a year ago the Department published a list of ''Abandoned Farms'' for sale in the state which we took occasion to criticise rather severely, because examination showed that the average price asked for the ''abandoned'' land was about $42 per acre, ranging from $4.75 to $400. The real estate business of the Department would seem to be prospering, since the first bulletin listed 106 farms, while the present one contains over 300. The size of the farms offered ranges from a few acres to 200 or more, and in price as high as $15,000. We think the title of the present bulletin better than the former one because it is more truthful. In the preface to the list it is stated by the Secretary that ''it is our desire to have every acre of Pennsylvania farm land occupied by the best possible farmer.'' That is a worthy ambition, but we fail to see wherein there is any likelihood that a new owner—probably one already farming—would be any more likely to do better work than the one now operating the farm, because the probability is that most of these farms are now being cultivated. We believe it is within the province, if not the duty, of a state department of agriculture to advertise the possibilities of the state and seek to develop its agricultural resources, but we believe that the same amount of effort and money, if spent in other ways, could be made to better advertise the state than the method under discussion. Buyers have no trouble in finding farms for sale. It is those who wish to sell that often find it difficult. ''There's a reason.'' Let the Department use its good offices and its opportunity in making farming more attractive and profitable and these ''good farms'' of ''rich land'' and ''fine homes'', will not be found begging for a buyer—we say ''begging'' because they are being advertised by the charity of the state.

THE BEST INVESTMENT

Opinions on the best investment on the farm are likely to differ as widely as opinions on the ''greatest need'' of the farm, the best crop, the best farmer or the best anything. The class of commodities in which the best investment will be found varies with the individual. The man who farms alone for the money he can make is likely to regard the purchase of a particular farm implement, a labor-saving device, a purebred animal or additional land as his best investment. The man who regards his farm as a home as well as a business and who places the development of his family above the amount of money turned in at the close of the year may consider an automobile, a musical instrument, a set of books or even a single book as his best investment. The value of any investment depends upon the degree in which it contributes to the main purposes and aims in life. Many farmers may disagree with us but as we know our own farm life and as we have observed life in farm homes generally, those investments which contribute to the comfort and convenience and the general livability of the home itself are most apt to yield the biggest dividends in all-around satisfaction. These dividends are not only felt at time of harvest, but make work easier and life more comfortable for 365 days in the year and every year. Three items of equipment which should be considered as necessities rather than luxuries in every farm home are an efficient heating system, a convenient system of abundant water supply and an adequate lighting system. We are at the close of the winter when evenings have been long and we have had longer hours in doors. We can best measure at this season the discomforts and inconvenience to all members of the family of doing without one or all of these items of house equipment. The house is the heart of the farm enterprise. It is the center around which all plans are built and all the farm work is done. The amount of money made, the property owned and the crops produced are of small account if the home is not a real home and if it does not yield its comforts to all members of the family. Every sensible, well-planned addition to the home equipment adds to the value of the farm and the efficiency of the farm force.

CONSISTENCY?

A subscriber writes: ''Please explain why it is that our state laws require such close supervision of possible contamination of streams from the farm and so little from cities and large factories. They seek to make the farmer build a concrete wall around his hog yard and barn yard if either is less than 100 feet from a small stream of water. They prohibit the throwing of dishwater where it will drain into streams but allow all sewage from the cities to be carried directly to the rivers. How long must these things be tolerated?''

These are pertinent questions which farmers may well ask of each other, and of their representatives in law-making bodies. At present it is not so much the failure of our laws (altho they are open to criticism) as the failure to enforce the laws. It is just as illegal for large factories to permit contaminating drainage to enter near-by streams as it is for the farmer to leave an open drain from his barn yard. But there is a vast difference in the enforcement of penalty in the two cases. A large factory or a large tannery can quell local objection by threatening to move its plant and deprive the community of the opportunity of labor, etc. The farmer is a smaller unit. The principle of ''plucking the most feathers with the least squawking'' stated by Mr. Creasey in taxation systems holds in the enforcement of many laws. There are many angles in our sanitation laws that appear unjust when compared with similar laws affecting other trades or bodies of people. And yet there is little in these laws that it is not to the farmer's own interest to observe and obey. It costs a little money to prevent drainage from the barnyard into a near-by stream; yet it is an investment that will usually pay for itself in the saving of fertilizer elements now going to waste. It will probably cost your neighbor up-stream just as much to prevent similar drainage from his yards. Yet one case of hog-cholera or typhoid carried onto your farm from such contamination will more than offset that first cost. We are no doubt going to extremes in some of our sanitation regulations, but injustice lies in irregularities of enforcement rather than in the laws themselves.

HARRISBURG NOTES

State's Farm List.—The new list of farms for sale in Pennsylvania, just published by the State Department of Agriculture, contains descriptions of 308 farms. It is noticed that Lancaster offers but three farms for sale and York only two, while Chester, Bucks and Berks have more. Quite a large number are in western counties.

Damages by Deer.—Now that there is a general movement toward replenishing herds of deer in the state, attention is given to problems attending damage to farms by these protected animals. The State Game Commission has received a number of claims that crops and trees were damaged by deer last year. Thus far, the commission has investigated claims and careful inquiries have been made, the cost sometimes being rather steep for what is found out. The result of inquiries is compiled and a bill may be presented to the next legislature to provide for payment of such claims.

Not in Politics.—No statement emanating from Capitol Hill this month attracted more attention and led to more pleasant anticipations than that made by Highway Commissioner Cunningham to his road engineers and superintendents that they were to repair roads and keep them repaired and not play politics. Mr. Cunningham is understood to have told his men that their first duty was to their job and that their jobs depended upon the way they did the work and that politics should have no part, no matter whether state or county bosses endeavored to butt in.

Hog Cholera Appears.—The first outbreak of hog cholera to be reported for some time came from an eastern county, two distinct quarantines being required. State officials have issued warnings against danger of spread of the disease thru sales and efforts to hold down the disease by vaccination and restrictions will be made.

The Egg Decision.—The state has won the decision in the cold storage egg test case in the Blair county courts and it is believed it will clarify the matter considerably. This means that eggs once in storage can not be put back.

Cattle Bought Up.—State officials are of the belief that the shortage of cattle being fattened for market indicated by recent report of Department of Agriculture is due to heavy purchases for export. The Pennsylvania cattle and horses are going abroad with those from other states. — Hamilton, Harrisburg, March 27.

NEW YORK LETTER

Holstein-Friesian Matters. — An important meeting of the executive board of the Holstein-Friesian Association of America was held in Syracuse last week. It was voted to accept a proposition of a gentleman of Brattleboro, Vt., to erect a fire proof building there for the office of the secretary of the association at a cost not exceeding $55,000 and the association agrees to rent the building at 10 percent of the cost. The president of the association, D. D. Aiken, of Flint, Mich., and secretary Houghton were elected to represent the organization as members of the Society of Record association with headquarters in Chicago. Appropriations were voted for booths at the National Dairy Show to be held in Springfield, Mass., next fall and also for the Iowa Dairy Congress at Waterloo, Iowa. There was an election of life members at this meeting when 963 names were added to the membership list, making the total membership about 8,400 at the present time.

A Large Industry.—There are about 3,000 apple evaporating plants in this state that turn out about $1,000,000 worth of apples annually. The state Evaporator Mens' Association met last week in Rochester to discuss plans for opening up the South American markets to their products, inasmuch as the German market, the most important one, has been closed by the war. A central exchange was organized to find other markets and increase home demand by an advertising campaign.

Breeders and Dairymen.—It was decided at a meeting of the officers of the state Breeders' Association at Syracuse to discontinue the plan of holding a joint meeting with the state Dairymen's Association. Selection of place of next meeting was left to executive committee. Syracuse and Utica both want the convention.

Board of Agriculture Wanted.—A bill has been introduced in the legislature for establishment of a board of agriculture in which shall be vested the power of administration of the Department of Agriculture. This board is to consist of one member from each judicial district in the state, to be appointed by the governor by and with the consent of the senate. The term of office shall be nine years. Members of the board are not to receive pay except necessary expenses. It will be the duty of the board to appoint a commissioner of agriculture who shall serve during good behavior and shall receive a salary of not more than $8,000 a year and his necessary expenses. He will be subject to removal for incompetency or malefeasance in office. The commissioner will have power to appoint deputies and assistants with approval of the board of agriculture. The board fixes their compensation. All powers and duties of commissioner of agriculture remain as now determined by law. This measure undertakes to remove the office and the operation of its activities from politics, if that be possible, and for that very reason we anticipate that it will have hard wheeling on its way thru the legislature.—D.

NEW JERSEY FARM NOTES

Potato Embargo Serious.—It is the hope of the New Jersey farmers that the embargo on potatoes from Maine which is now effective, will be modified to permit shipment of good seed. The New York State seed supply is short and source of good seed is giving trouble.

Close Convict Camps.—Owing to failure of the Legislature to allow adequate appropriations for the use of convict labor on work on the highways, State Road Commissioner Stevens is preparing to close three road camps. This will throw about 150 convicts back into prison and will cause complications there because their maintenance in the institution was not calculated upon for the balance of the fiscal year. The Road Department complains that the Legislature never appropriated enough money for this work to give the state the best of service.

Amend Road Bill.—The much mooted Egan $7,000,000 road bill has been signed by the Governor. That part of the bill which was objected to was the route planned to go thru Warren county to the Delaware Water Gap. It was pointed out that the road should not have such an obvious aim in primarily pleasing eastern tourists. It was the opinion that the costly road should be made to serve more business traffic. The bill was so amended as to give Warren county a better chance to profit from the great highway. The road will now have the following route: Elizabeth to Phillipsburg, by way of Westfield Plainfield, Boun Brook, Somerville and Washington.—L.

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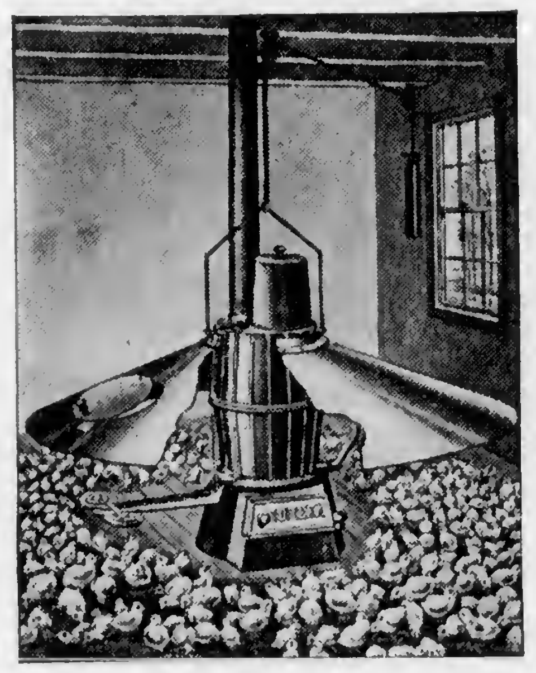

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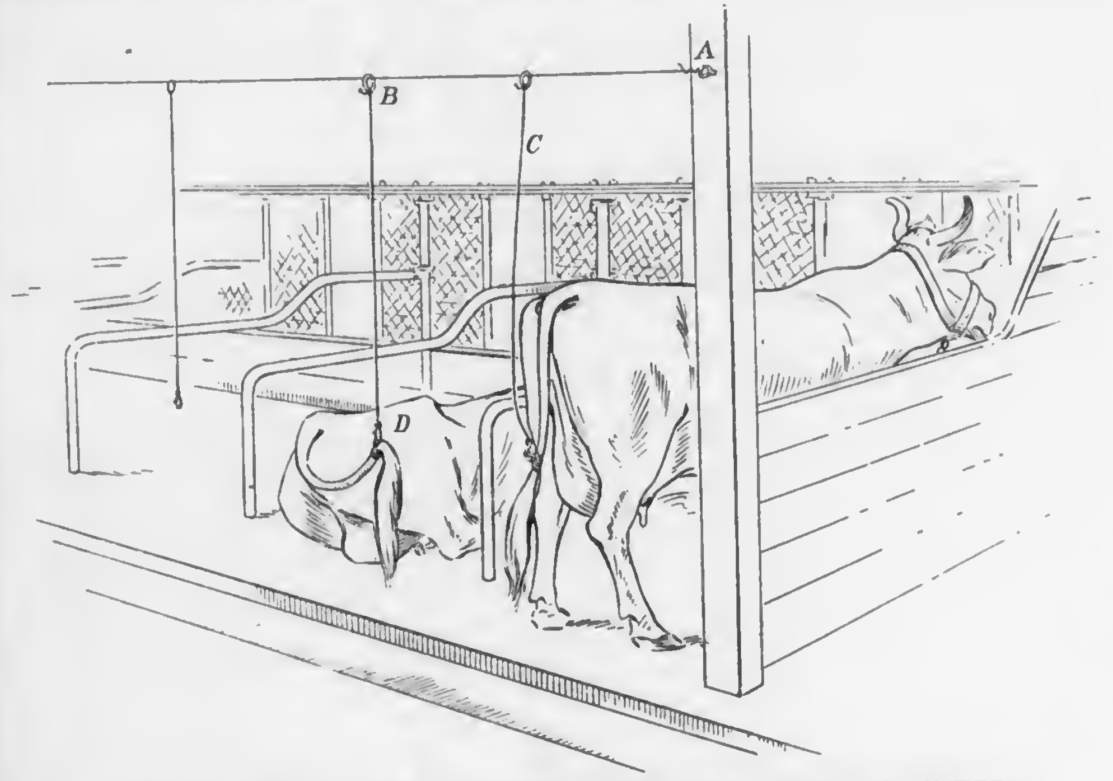
The Dairy

KEEPING COWS' TAILS CLEAN

I recently visited a farm in New York where a novel device is utilized to keep the cows' tails clean. It consists of a wire (about number 9) fastened by stout and long shanked screw eyes to beams at either end of the stable and stretched taut high enough above the floor to escape the cows' heads and also the hats of attendants at all times. Upon this wire are placed rings, one for each cow. From each ring hangs a stout cord which reaches to the lower third or quarter of the cow's tail. Each cord ends in a harness snap. Around each cow's tail is placed a cloth band just about the point where the long hair begins, and in this band is a small metal ring for the harness snap to connect with.



SIMPLE DEVICE FOR KEEPING COW'S TAILS OUT OF LITTER.

In operation the attachment or separation of ring and snap is quickly made. The cows are permitted freedom of movement of their tails while standing so that they may brush off any real or imaginary flies. But when they lie down the shortness of the cord prevents the tail from becoming soiled by lying on the stable floor. Thus a degree of cleanliness and comfort is secured without serious trouble or inconvenience.—Moss.

COW-TESTING AND BULL ASSOCIATIONS

You have doubtless known men whose chief occupation in life apparently was to sit on a cracker barrel or soap box at the corner grocery store and tell how the government ought to be run. In the animal world there are many cows that, figuratively speaking, belong to the bovine "cracker barrel and soap box club." They loaf in their owner's stables, eat good hay and grain, but make no adequate returns for the care and feed bestowed upon them. In fact, it has been found that approximately one-third of the cows in the country do not produce enough milk and butterfat to pay for the feed they eat, to say nothing of the cost of the labor, interest on investment, depreciation, taxes, insurance, perishable supplies, etc. Another third of the cows in the country are just about breaking even with their owners, while only the remaining third are profit makers.

It is difficult to detect these unprofitable cows by external appearances. In one herd there were two cows, Grace and Mary, by name. Grace was a handsome animal; straight back, large barrel and shapely udder, but her average annual yield of butterfat for eight years was only 180 pounds. Mary, on the other hand, was an ungainly creature; off type, beefy, lacking in capacity with ill-shaped udder, but her average annual yield of butterfat for four years was 272 pounds. Mary's record was nothing wonderful but it was sufficient to yield a fair profit after the feed bills were paid. Grace, while a good cow so far as appearances went, did not yield enough fat to pay for her feed.

The realization of this difference in cows and of the difficulty in detecting it from external appearances has brought about the organization of Cow-Testing Associations. These are simply organizations for the determination of how economically each cow in the herd is producing milk and butterfat. Twenty-six farmers living in one community, and owning from 425 to 600 cows, organize themselves into an association and hire a man to test their cows. This tester visits each farm one day per month, weighs the feed given each cow, computes its value at market prices, weighs and tests the milk, computes its value and then determines the profit or loss on each cow. This is repeated for twelve months. At the end of the year each farmer has a complete record for each cow in his herd. He is then in position to weed out the unprofitable animals and increase his net profits by keeping only those cows that show good returns for the feed and care given them. The cost to the members is from $1 to $1.50 per cow per year; a very slight cost when compared with the benefits.

There are a multitude of examples that might be given to illustrate the value of the Association. Often it will be found that the dairyman can dispose of from one-third to one-half of his cows and still make more money from the remainder. The heifers may be raised from the best cows and the herd graded up in production and profits. The tester can also assist in computing rations and can often enable the members to feed their herds more economically.

Better cows are at the basis of more profitable dairying, and better breeding is one of the fundamentals in securing better cows. A purebred sire of high producing ancestry must be at the head of the herd if it is to show improvement from year to year. The Pennsylvania State College increased the average yield of its herd nearly 50 pounds of butterfat per cow in 20 years, solely by the use of purebred sires. All heifers, good, bad and indifferent, were kept in the herd so that it could be determined what influence the purebred sire would have. Had the herd been culled, the improvement would have been much greater. In Illinois it was found that those farmers who were grading up their herds with purebred sires received an average of over $20 more returns per cow than did those who did not use purebred sires.

The first cost of a purebred sire of high producing ancestry is more than most farmers feel that they can afford. This is where the community breeding association finds its value. A number of farmers can club together and purchase an excellent sire at no greater cost per man than as tho each were to purchase a scrub sire independently. The better returns from the better sire make the proposition a valuable one for any community. Where there are enough men in the breeding association so that sires may be changed between different sections of the community there is only one initial outlay for a period of four to six years.

Better cows make more profitable dairying and the Cow Testing and Bull Associations are two important agencies in securing better cows.—A. A. Borland, in address before Pennsylvania State College Farmers' Week.

A HOME-MADE CONCRETE BLOCK SILO

Down in the lower part of Delaware is the village of Lewes, noted for the fact that it is the place where in-coming ships to the city of Philadelphia take on pilots to guide them up the Delaware Bay. Some day in the future Lewes may also be noted as a dairy section, for only recently there has been a co-operative creamery started which furnishes a good market for the butterfat produced on the farms.

One of the patrons of this creamery, Thomas C. Wilson, a young farmer with a growing herd of grade Jerseys, got the idea that he wanted a silo. After looking thru various catalogues and getting the prices on different makes of silos he found his finances were too low to justify him in buying one, for the time being at least, unless he could make one. Anyhow, on account of this being new dairy country, Mr. Wilson thought silos were too new a thing to justify him in going to so much expense for the size of herd he then had.

Following the carpenter trade more or less on the side with his farming, Mr. Wilson decided to build a home-made silo of some type. Wanting something durable and not too expensive, he thought of a concrete block type. Looking thru various advertisements he found he could buy a machine for about $14 with which he could make the blocks for silo building. With an unlimited supply of sand and gravel on the beach at Lewes, which was only three miles away and could be had for the cost of hauling, Mr. Wilson decided to buy the block making machine to make this type of silo.

FILLING HOME-MADE CONCRETE SILO. THOS. A. WILSON FARM, SUSSEX COUNTY, DEL.

At spare time thru the summer and fall the necessary 22 loads of sand and gravel were hauled. These ingredients were already mixed in about proper proportions when hauled from the beach so it was only necessary to mix in the cement to make a proper mixture of concrete for the blocks. Mr. Wilson and his 14-year-old son in their spare time during the fall and winter made all 900 blocks necessary for the construction of the silo. For his mixture he used 1 part of cement to 3 parts of the mixture of sand and gravel just as it came from the beach. This made a rich mixture. Mr. Wilson said if he were building again he would use a little less cement. These blocks were so strong that during the construction of the silo one fell from a height of about 25 feet and, striking another block on the ground, broke neither one. With the machine and working steadily they could make 60 a day. These were kept wet for four days in order that they would harden properly.

The size of the blocks is 8x10x16 inches. The center of each block was hollowed, making a partly dead air space. The ends of them were made dove-tailed and when building the silo, these ends were filled with cement in order to hold them together and to strengthen the silo. To still further reinforce the silo a small groove was made running lengthwise thru the center of the top

BORDEN SUMMER CONTRACT PRICES—1916

Following are the new contract prices for short haul. Long haul contract price is 10 cents per 100 lbs. less.

Test	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
April	1.40	1.43	1.46	1.49	1.52	1.55	1.58	1.61	1.64	1.67	1.70	1.73	1.76	1.79	1.82	1.85	1.88	1.91
May	1.15	1.18	1.21	1.24	1.27	1.30	1.33	1.36	1.39	1.42	1.45	1.48	1.51	1.54	1.57	1.60	1.63	1.66
June	1.09	1.12	1.15	1.18	1.21	1.24	1.27	1.30	1.33	1.36	1.39	1.42	1.45	1.48	1.51	1.54	1.57	1.60
July	1.35	1.38	1.41	1.44	1.47	1.50	1.53	1.56	1.59	1.62	1.65	1.68	1.71	1.74	1.77	1.80	1.83	1.86
August	1.51	1.54	1.57	1.60	1.63	1.66	1.69	1.72	1.75	1.78	1.81	1.84	1.87	1.90	1.93	1.96	1.99	2.02
September ..	1.60	1.63	1.66	1.69	1.72	1.75	1.78	1.81	1.84	1.87	1.90	1.93	1.96	1.99	2.02	2.05	2.08	2.11

The above prices will be paid to Dairymen where they maintain, during this contract, conditions scoring not less than 25 percen on equipment and 43 percent on methods, according to the New York Department of Health Score Card, as scored by the Company's representatives. Dairymen scoring less than 25 percent on equipment and 43 percent on methods, will receive Ten Cents per 100 pounds less than the above schedule.

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Spanish Metal Tile

Impossible To Rust Edges and Nail Holes;

Every sheet of Edwards' Galvanized Steel Shingles, Roofing, Siding, Ceiling or finish is extra heavy galvanized, piece at a time, by our exclusive TIGHTCOTE patented process after sheet has been stamped and resquared. Side and edges are as heavily galvanized as body of sheet. Means no weak spots to rust or corrode. By means of Edwards' Patent Interlocking Device (see illustration) all nails are driven through underlayer of metal only—no exposure—no leaks.

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Garage $69.50 Up

Wide variety, many styles, all sizes of Portable, Fireproof Metal Garages, $69.50 and up. Lowest prices ever made. Postal brings FREE 64-page Garage Catalog.

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Edwards' Reo Steel Cluster Shingles, V-Crimped, Corrugated, Standing Seam, Painted or Galvanized Roofing direct to you at "rock bottom" factory prices. Write today for FREIGHT PREPAID OFFER on the lowest prices ever made for World's Best Roofing. Free Samples and Roofing Book No. 4391

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4341-4391 Pike St.,
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Note construction of Patent Interlocking Device, protecting nail heads from weather—making roof absolutely water tight.

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A SOLID PROPOSITION to send new, well made, easy running, perfect skimming separator for $15.95 Skims warm or cold milk making heavy or light cream. Bowl is a sanitary marvel, easily cleaned.

ABSOLUTELY ON APPROVAL

Gears thoroughly protected. Different from this picture, which illustrates our large capacity machines. Western orders filled from western points. Whether dairy is large or small write for handsome free catalog. Address;

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Buy your Silo Direct from Factory

Save Agents Profits

DIRIGO and STANDARD Silos have always been famous for their uniform high quality and exclusive features. The strongest and tightest construction. Safe steel ladder. Sure anchorage. Money back guarantee. Send for free catalog, prices and the most liberal offer we ever made for early orders.

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ANTI-ABORTION FOOD FOR COWS

Aids digestion, enriches the blood, strengthens the nerves and supplies the system with the needed material to maintain foetal life. If our food is fed as directed, you will have less abortion, less scours in calves, avoid retention of the birth, and enable your cows to give richer, purer, and more milk.

We earnestly request you to give this food a trial, after which it will be its own recommendation.

Prices sent to all farmers and dairymen who will ask for them.

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WRITE FOR BROWN FENCE BARGAIN BOOK AND SAMPLE

Over 25,000,000 rods Brown Fence already sold to 400,000 farmers. Factory Prices, Freight Prepaid 150 styles, 13c per rod up. Gates and Steel Posts, too! Write postal.

THE BROWN FENCE & WIRE CO.
Dept. 121 Cleveland, Ohio

Good-by, Guess Work

THE New Sharples "Suction-Feed" is the only cream separator which eliminates guess work from cream production. All other separators have to be turned at exactly the speed indicated on the crank or they will lose from 7 to 13 pounds of butterfat per cow per year. The Purdue Experiment Station and other scientific investigators have proven these figures (see Bulletin No. 116, Vol. 13.)

This "guess" speed is used by 19 operators out of 20, because it is impossible to turn the crank at exactly the right speed.—It is much easier to turn it slower—and, whenever you do, you lose cream. Even a speed indicator will help but very little, as you won't and can't watch it every minute.

So we say to you dairymen: Quit guessing about your separator speed and your separator profits. Use

THE NEW SHARPLES SUCTION-FEED

Separator and know that you get *all the cream all the time.*

Whether you turn faster or slower, the bowl of the Suction-Feed *drinks in just the right quantity of milk.* The feature is entirely automatic; if you are tired, you turn slower (which is easier) and, if in a hurry, you turn faster and finish so much sooner. No matter how you turn, the New Sharples always skims clean.

The Sharples cream is always of *even thickness,* whether you turn fast or slow. The Supply can is but knee high so you can fill it without any back breaking effort. The three-piece Sharples bowl is lighter and simpler than any other—*no discs to wash.*

All these money-saving and trouble-preventing features are described in a handsome catalogue; *"Velvet" for Dairymen.* Send for a copy, now, while you think of it. Address Dept. 20.

The Sharples Separator Co.
Also Sharples Milkers and Gasoline Engines
West Chester - - - Pennsylvania
Chicago San Francisco Toronto Portland
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TRIPLE CRAINE WALL SILO FROST-PROOF

Three walls, instead of the usual one, mak this silo air tight, frost and water proof; preserves silage perfectly. Requires no hoops. Costs no more than single wall silos. Most durable. Guaranteed. Many satisfied users. Send postal for catalog. Active agents wanted.

W. L. SCOTT LUMBER CO.,
Box 148 Norwich, N. Y.

BEFORE YOU BUY WRITE FOR NEW CATALOG DESCRIBING THE GUARANTEED MONEY-SAVING

INTERNATIONAL SILOS

strongest built, simplest to put up and easiest operated on the market. Adjustable automatic take-up hoop—continuous open-door front—air-tight door and permanent ladder are some of the unusual features. The International Silo Co., 118 Main St., Linesville, Pa.

EASIER THAN EVER TO OWN A GALLOWAY!

STOP! Don't buy a separator until you first get my new, special proposition on 10,000 new 1916 Galloway Sanitary Cream Separators—also my new 250-page book of separator facts. One Galloway separator sold in a neighborhood sells from one to 25 more, and I am making this unusual proposition in addition to the new low prices, in order to open as much territory as possible for summer and fall business.

PRICES LOWER ORDER TODAY

SAVE FROM $25 TO $50 NOW

The separator I make I claim is equal to, if not better than, separators that sell for from $75 to $95. My customers say it is positively way ahead! They make statements so strong and POSITIVE which if I would make, you would think were exaggerations! All I want you to do before you buy a cream separator of any make, kind or price, is to FIRST get my CATALOG, read over the separator department in it, then TRY ONE FOR 90 DAYS, which is 180 TIMES, before you DECIDE to keep it. Shipped from Chicago, Council Bluffs, Waterloo, St. Paul, Kansas City.

LOOK! These low prices made possible by increased output.

$34.50 Skims 375 lbs. per hr.
$39.50 Skims 500 lbs. per hr.
$44.50 Skims 750 lbs. per hr.
$49.50 Skims 950 lbs. per hr.

R-29

Look! This 250-page book tells how and why we make a better separator for less money and sell it direct from factory to farm.

90 DAY TRIAL--5 NEW SELLING PLANS

I sell my separators on your choice of five fair and square plans and GUARANTEE them for TEN YEARS against defective workmanship and material and BACK UP every sale with a $25,000 BANK BOND. You have everything to gain and nothing to lose. It's only FAIR TO YOURSELF to investigate the NEW GALLOWAY SANITARY BATH-IN-OIL SEPARATOR before you buy ANY OTHER. It's up to you to judge. Get the catalog, read the plans, select the one you want, and then TRY THIS SEPARATOR.

This separator is the result of brains against brains and ripened experience! Tens of thousands in use.

GALLOWAY SANITARY CREAM SEPARATORS

Heavy, high carbon steel gear shafts and bowl spindle; extra long bearings; strong, sanitary bowl, discs not fastened together; oil bath lubrication; big, roomy, seamless, pressed steel supply tank; both gear shafts and both spindle bearings supported by one solid casting; the base, a strong, substantial pedestal, no spindly, wobbly legs; only enough of base touches floor to give machine a good, firm footing. Feet just far enough apart to brace and support machine perfectly from every direction. Helical drive gear offsets side thrust of worm wheel, takes friction off worm wheel shaft bearings. Heavy sanitary tinware, low bowl speed reduces wear on bearings and gears. No raw, sharp edges to cut up globules of butter fat.

WM. GALLOWAY, Pres., WM. GALLOWAY CO.
Cream Separator Manufacturing Specialists
193 Galloway Station Waterloo, Iowa

Write Today For My Big FREE Book

Heavy Producing Holsteins

Have four pure blood bull calves for sale from persistent Dams whose records are;

	Milk 1 yr.	7 day A. R. O. Butter Record	Price.
1.	10,413 lbs.	20.59 lbs.	$75.
2.	10,580 "	22.05 "	$85.
3.	12,700 "	23.26 "	$95.
4.	17,030 "	25.16 "	$200.

Delivered any R. R. Station in Penna. Sires two nearest Dams average 30.22. No Tuberculosis. No Abortion.

BENNETT & LATZER, Wellsboro, Pa.

FIRST CHECK $70.00 TAKES HIM

Holstein-Friesian Bull Born Nov. 5, 1914. Sired by a grandson of King Segis, while his sire's dam is a good daughter of King of the Pontiacs. Dam is by King Segis Pontiac Zella whose dam is a good producing daughter of King of the Pontiacs. A fine breeding "nick".

STEVENS BROTHERS CO., Liverpool, N. Y

Maple Lawn Holsteins.

⅞ grade Holstein heifer calves 10 days old, $10 to $15. Express paid in lots of 5 to your station. Buy them shipped in warm light crates without danger of exposure. Now is the time to buy and start them on low priced milk and watch them grow into money. Just as nice individuals as registered ones. Remarkable bargains in grade and registered bull calves. MAPLE LAWN FARM,
C. W. ELLIS, Cortland, N. Y.

Registered Jerseys

We have a number of beautiful heifers of the choicest breeding, young bulls, bull calves and a few mature cows. This stock is of the finest breeding to be had and we will quote a low price on the same.
H. C. Williams, Mgr., Folly Farm, Abbington, Pa.

Start a Holstein Dairy Herd.

Registered bulls 1 and 2 mos. old, $30 and up. Grade heifer and bull calves from 2 weeks to 1 month old, $10 to $15.
J. A. LEACH, - - Cortland, N. Y.

10th Syracuse Sale

April 17th & 18th

Syracuse Sale Pavilion
Syracuse, N. Y.

This will be the kind of a sale you like to attend.
If you will address a postcard to us we will see that you surely get a copy of our house organ *"The Breeders' Horn"* which will contain a complete summary of the sale. Sent free on request.

When asked *"are you going"* be sure to answer *"SURE"*.

Liverpool
Sale & Pedigree Co., Inc.
Liverpool, N. Y.

MERIDALE A.J.C.C. JERSEYS

Meridale Jerseys

We have selected five bulls from the Meridale Herd to recommend as particularly promising herd-headers. They are of Imported, Owl-Interest, and Sayda blood. Each of them possesses individually the qualifications which spell superiority in a herd bull. All are out of Register of Merit cows. All are ready for service this spring.

Twenty-eight years of breeding experience stands back of our recommendation of these bulls.

For booklet and pedigrees address
AYER & McKINNEY
300 Chestnut St., Philadelphia, Pa

Only $2 DOWN and One Year To Pay

For any Size—Direct from Factory

You can now get one of these splendid money-making, labor-saving machines on a plan whereby it will earn its own cost and more before you pay. You won't feel the cost at all.

$24 BUYS THE NEW BUTTERFLY

No. 2 Junior—a light running, easy cleaning, close skimming, durable, lifetime guaranteed separator. Skims 95 quarts per hour. We also make four other sizes up to our big 600 lb. capacity machine shown here—all sold at similar low prices and on our liberal terms of only $2 down and a year to pay.

Patented One-Piece Aluminum Skimming Device, Rust Proof and Easily Cleaned — Low Down Tank — Oil Bathed Ball Bearings — Easy Turning — Sanitary Frame — Open Milk and Cream Spouts.

30 DAYS' FREE TRIAL GUARANTEED A LIFETIME

You can have 30 days FREE trial and see for yourself how easily one of these splendid machines will earn its own cost and more before you pay. Try it alongside of any separator you wish. Keep it if pleased. If not you can return it at our expense and we will refund your $2 deposit and pay the freight charges both ways. You won't be out one penny. You take no risk. Postal brings Free Catalog Folder and direct from factory offer. Buy from the manufacturers and save money. Write TODAY.

No. 5½ Over 78,000 now in use

Albaugh-Dover Co., 2167 Marshall Blvd., Chicago, Ill. 20

of each block. A double row of number nine wire was imbedded in this groove around each layer of blocks.

The silo when completed had an inside diameter of 10 feet 4 inches, and a height including 18 inches in the foundation of 28 feet 6 inches. Door frames the height of three blocks and one and one-half blocks in width were held in place by the reinforcement wires imbedded in the blocks. The following items show most of the costs except minor ones, and shows what may be done by any farmer who has the raw materials, the time and the inclination: Cement required in making and laying of blocks, $60; labor of building, (hired), $36; Mr. Wilson's own labor, $12; roof, $25; reinforcing wires, $2.50; doors and door frames, $9.50. Total $145.—Hugh Fergus.

Note.—Reinforcement is the most important feature in this type of silo. An ounce of precaution is worth many pounds of cure, and a builder will do well to make sure that his reinforcing is heavy enough.—The Editors.

INTERESTING BEEF AND MILK RECORDS

At the world's three leading beef cattle shows held in 1915, where all breeds, grades and cross-breds competed, viz., Smithfield, London, Palermo, Buenes Ayres and Portland, Oregon, the grand championships were won by Shorthorn steers. At the Western Live Stock Show held at Denver, Colorado, in 1916, the grand champion carload of fat steers were two-year-old Shorthorns.

A most interesting fact in connection with the above record of beef winnings is the Shorthorn dairy record as revealed by the British Dairy Shorthorn Society which placed 28 Shorthorn cows on the honor roll as a result of the 1915 tests. The yields ranging from 10,006 lbs. of milk produced in 256 days to 13,000 lbs. produced in 365 days.

RESULT OF SELECTIVE BREEDING

A remarkable demonstration of the results to be obtained from selective breeding up of dairy cattle, even from poor foundation stock, is found in the herd of Cornell University. Prof. H. H. Wing, who has charge of the work, tells what has been done.

"When I took charge of the University Herd in 1889, there was but one purebred Holstein in the lot. She was a rather inferior animal and never proved a good producer. The only feasible way to secure a good herd of purebreds at that time seemed to be to improve the offspring of this animal and we started out with that idea in prospect.

"From time to time, as was necessary, we secured as good bulls as our rather meagre funds would allow, never paying an exceptionally high price. Progress was necessarily slow at first and there were many disappointments in the way of superabundance of bull calves and the like. Almost from the start, however, we secured improvement. The daughters of the original cow, with one exception, were better than their dam and the grand-daughters were all animals of more than ordinary merit. Since that time the improvement has been sure and steady, altho naturally we produced quite a number of animals that had to be discarded for one reason or another.

"We have, at the present time, about 25 females in milk, all descended from this cow. Six of these have produced more than 24 pounds of butterfat in a week and four or five of them have produced more than 500 pounds of fat in a year. It has taken, of course, a matter of considerable time, but the results have fully justified for the time, trouble and expense."

LEDDY
Dispersion Sale
Breeder's Herd
58 Head 58
Pure-Bred
Holsteins

APRIL 25th, 1916

A fine lot of animals, all registered and all over 6 months of age tuberculin tested.

Sale will be held at farm of W. J. Leddy, the owner, Fairmount, N. Y., on Genessee turnpike, 5 miles west of Syracuse.

Sale under management of

Liverpool
Sale & Pedigree Co., Inc.
Liverpool, N. Y.

who will, on request, send you a copy of *"The Breeders' Horn"* which will contain a complete summary of the sale.

Boston Garter
Velvet Grip

THE "Boston" gives the greatest service because of its superior materials and careful making. It does not crumple or collapse after long wear.

LISLE 25 Cents
SILK 50 Cents
SOLD EVERYWHERE
GEORGE FROST CO. MAKERS, BOSTON

SPOT FARM

Spot Farm Holsteins $15 00
⅞ Holsteins heifer calves $15 each express paid in, lots of 5. 10 reg. heifers $1000. 8 reg. 2 yr. olds, due in Sep. $175 each; bred to 31 lb. bull. Reg. bulls $25 to $60. 2 carloads of high grade 1 and 2 yr. old heifers $30 to $40 ea. Reg. and high grade cows. 10 reg. Berkshire Sows bred.
J. C. REAGAN,
Tully, N. Y.

Registered A. R. O. Holstein Bull

CALF, born January 30, 1916, more white than black. Average A. R. O. record of dam, sire's dam and sire's granddam, 7 days, 537.3 lb. milk, 26.28 lb. butter; 30 days, 2,354.3 lb. milk, 105.9 lb. butter; semi-official, 1 year, 19,991.9 lb. milk, 953.52 lb. butter; average fat per cent for the year, 3.8 percent. First check for $125 takes him. Catalogue for stamp.
Geo. E. Stevenson & Sons, Clarks Summit, Pa.

GUERNSEY MALES AND FEMALES

May Rose and Governor of the Chene Breeding from Imported and Domestic Females with Record Backing Males from $50 & Females from $150 up.
WADDINGTON FARM, Wheeling, W. Va.

Holstein Herd of 20 head of the highest grade Holsteins. Each cow has a complete cow testing association record. Registered Pure Bred Bull calves for sale at all times. PLUMLYN FARM, Fairview Village, Pa. near Norristown.

Bull Calves for sale. Four pure bred, two Holsteins and two Jerseys. Age from two to six months, prices reasonable. For information apply to Dairy Department, NEW JERSEY EXPERIMENT STATION, New Brunswick, N. J.

$65 - FINE REGISTERED GUERNSEY BULL - $65
4 months old, Sire carries 50 percent of Toma of Hillstead Blood, record 715 lb. butter.
LOCUST LAWN FARM, Bird-in-Hand, Pa.

257 Acre Stock Farm on main road, all improvements. $30 per acre. 100 others. Send for list. NEVILLE FARM AGENCY, Phelps Building, -:- Binghamton, New York.

Guernsey Bulls Calves and yearlings prices to please.
FRED. W. CARD, Sylvania, Pa.

Registered Holstein and Guernsey bulls from calves to serviceable age. 250 animals in the herd.
BONNYMEADS FARMS, R. D. 1, Harrisburg, Pa

Tuberculin Tested Guernseys
Edwin B. Maule, Coatesville, Pa.

Jersey Calves both sexes. Fine stock, of the most noted pedigrees in the world.
FRED G. W. RUNK Allentown, Pa.

Grade Holstein Heifers and calves, prices reasonable
P. S. GRAYBILL, Bird-in-Hand Lancaster Co., Pa

Ayrshires Herd established 32 years. A. R. stock for sale. Inspection invited.
R. TEMPLETON & SONS, Ulster, Pa

Aberdeen-Angus Cattle Choice registered young bulls for sale.
A. W. ROOT, R. D. 1, Manheim, Pa.

Southern Farms: Mississippi, Arkansas, Tennessee. Send for booklet.
MARTIN & COLE, Memphis, Tenn.

WINTER IN JURY TO FRUIT BUDS

(Continued from page 353.)

injured. Apples, pears and cherries are apparently in good condition.—W. E. Perham.

Wyoming Co., March 20.—Estimated damage to peach buds: Elberta, 50@75 percent; King Leady, 60@90 percent; Carman, 40@60 percent; Champion, 30@50 percent; Salaway, 75@90 percent; other varieties averaging about 75 percent. Plums: Japan varieties, 75 percent; American 25@30 percent. Too early to estimate on other tree fruits; as a rule, frost damage is over-estimated. Hope this will prove true this year.—F. H. Fassett.

Perry Co., March 20.—Winter injury in this locality—none.—Sharon Fruit Farm.

Indiana Co., March 22.—It is feared that the buds on fruit trees and vines are largely killed; from 75 to 90 percent. We have had two rains from the east, freezing on the trees and remaining for several days.—S. C. George.

Adams Co., March 22.—Replying to yours of March 18 would say that from 50 to 75 percent of peach buds in this locality are killed, variation of percentage due to variety and elevation; apple buds seem to be in good condition; cherry buds probably 25 percent killed; other fruits are in good condition as far as I have observed.—C. Arthur Griest.

Union Co., March 22.—In reply to yours of the 18th will say peaches may be hurt 25 percent; plums and cherries, 5 percent; apples about 5 percent; grapes 20 percent and berries not more than 6 percent so far as I can see.—J. Newton Glover.

Cumberland Co., March 20. — The peach, plum and cherry buds all are yet good in my orchards, not ten percent of the most delicate varieties injured. Present prospects are good for the largest crops I have ever produced. Apples, pears and grapes are of course uninjured. A season that will not kill peach bunds will not injure these. I have found most peaches at the upper end of this county, and in many other places in this state, all killed. Pear crop may be short on account of blight so very bad last year. Apple prospects fine so far.—H. A. Surface.

Schuylkill Co., March 22.—In reply to your letter in regard to fruit buds, I examined them yesterday: Japan plums, about 80 percent frozen; peaches about 80 percent; American plums, about 30 percent; cherries, 30 percent: apples and pears seem to be all right. —Jonas Kunkel.

Berks Co., March 22.—Reports as to injury of the fruit buds of peach trees in this county by freezing indicate an average loss of 50 percent. Some varieties, like Elberta, have been injured to the extent of 70 to 80 percent. No damage to apples or pears as far as ascertained.—Cyrus T. Fox.

Lackawanna Co., March 20.—Peach buds are damaged to the extent of 50 to 90 percent, as to variety.—Horace Seamans.

Berks Co., March 20. — From the trees which I have examined, I would estimate the following percentage of buds to be frozen: Peach, 50 percent; plum, 75 percent; apricot, 95 percent; a few pear and cherry buds are killed but they are not worth mentioning.—Sheldon W. Funk.

Franklin Co., March 22.—Replying to your inquiry of the 18th. The peach buds in this section of the peach belt are badly frozen, possibly 50 to 75 percent of the crop. Cherries are also badly frozen, tho prospects for an apple crop look good.—D. M. Wertz.

Lawrence Co., March 23.—Replying to your inquiry, the peaches and Japan plums in this neighborhood are practically all killed. Everything else all right.—S. R. Huey.

Monroe Co., March 22.—Relative to your inquiry as to damage done to fruit by winter conditions, would say: I can find no fruit buds other than peaches that are injured. Of peaches, perhaps 35 percent of the buds are destroyed.—F. S. Brong.

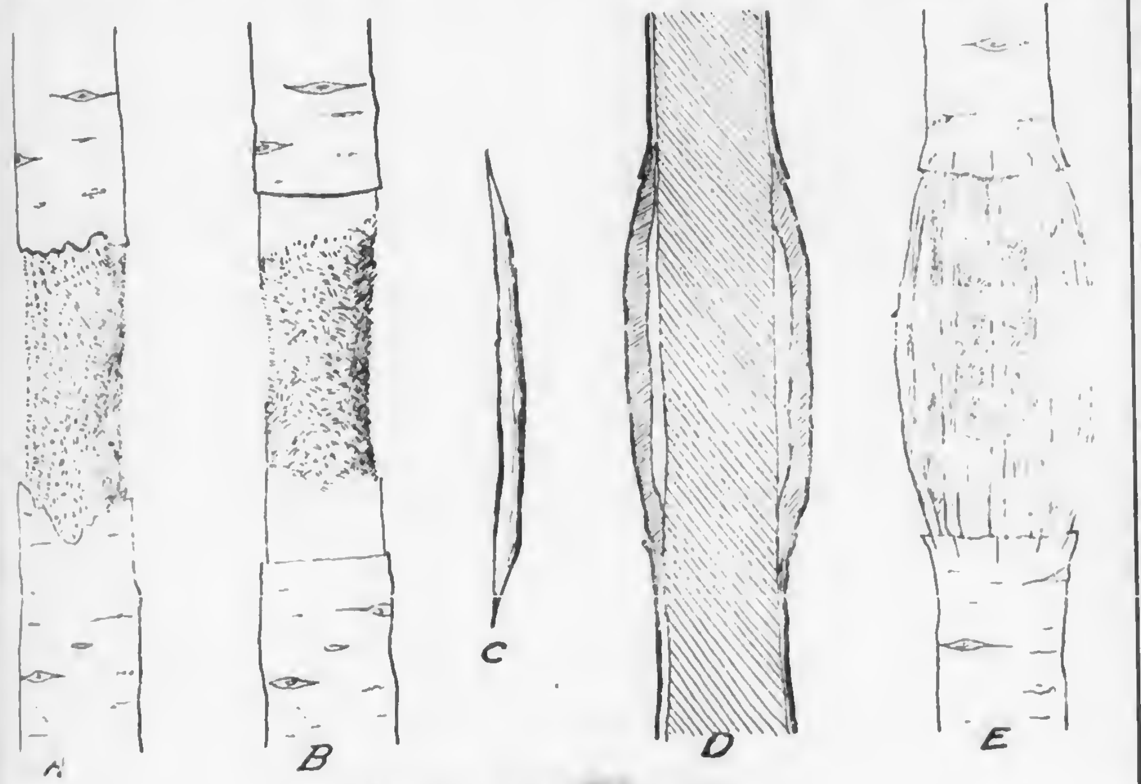
Lancaster Co., March 22. — Peach trees having produced freely in previous years are showing the usual signs of winter kill — exhaustion — warm January and low temperature since January will end the usefulness of many trees. Some young peach orchards have suffered but slightly. Injury in all orchards remaining from almost nothing to 80, 90 or 100 percent; the first named conditions being the exception. Apple injury up to date not important.—Dr. I. H. Mayer.

York Co., March 22.—The estimate of damage to peach and plum buds in this locality is placed at about 30 percent. Other fruit not damaged.—D. B. Goodling.

Bucks Co., March 24.—I find one-half of my peach buds are killed; other fruit buds I don't know about.—Fred Satterthwaite.

Cumberland Co., N. J., March 24. — Replying to yours of the 18th would say the only injury is on the peaches, varying from 15 to 60 percent according to the variety.—Minch Brothers.

(Concluded next week.)



STEPS IN BRIDGE GRAFTING.
A. Girdled Tree. *B.* Trimmed for Grafts. *C.* Scion Made Ready. *D.* Longitudinal Section. *E.* Ready for Waxing.

BRIDGE GRAFTING

Wounds which girdle or nearly girdle the trunk require prompt measures if the tree is to be saved. In such cases bridge grafting is the method of treatment commonly employed; in fact, it is about the only remedy that can be recommended. A bridge graft is made using scions or small limbs to connect the two portions of the bark of a stock which have been separated by an injury; in other words, the injured area is "bridged" by a scion or scions, the ends of which unite with the uninjured parts above and below the wound in such a manner that a connection between the tissues is established.

The important steps in bridge grafting are shown in the accompanying cut. In preparing the wound to receive the grafts the injured parts should be thoroly cleansed, all dead tissue cut away, and, if possible, the cleansed surface should be sterilized by washing it with a solution of bichloride of mercury, copper sulphate, or some other antiseptic. The irregular edges of the bark "A" at the upper and lower margins of the wound should be cut back evenly, as shown in "B".

The scions which form the bridge should be selected from wood of the previous season's growth. Either branches which grew the preceding season or water sprouts that are only a year old may be used.

It is important that the scions should be a little longer than the space that is to be bridged. This is in order that the middle portion of the scions when put in position shall arch slightly over the central part of the wound. This is illustrated in "D", where a longitudinal section of a bridge graft is shown.

Before being placed in position the scions are beveled at each end, both beveled surfaces being on the same side of the scion, as shown in "C". This beveling should be done with a long, sloping cut, so that the wedge-shaped ends thus formed will be relatively thin, to permit their being thrust well under the bark without danger of separating it unduly from the cambium at the points of insertion. Reference to "D" illustrates this feature. The placing of the scions in position is facilitated if the bark at the margins of the wound is slit for a short distance at the points where the ends are to be inserted, as in "E".

The number of scions required for a bridge will depend largely upon the size of the trunk. No fixed rule can be given. The larger the number, the more nearly complete will be the restoration of the connection between the parts above and below the wound; but if placed too close together, the bark at the margins of the wound between the scions will be raised. The starting of the bark except at the immediate points of insertion of the scions must be avoided.

In placing the scions it is of the greatest importance that the cambium of the scions which is exposed in the sloping cuts at the ends be brought into intimate contact with the cambium that lies under the bark at the margins of the wounded area. The union of scion and tree can occur only where the cambium layers of the two come together. The scions may be secured in their proper positions, if need be, by driving a small nail thru each end into the trunk. This will aid in drawing the cambium of scion and trunk closely together.

The operation is completed by thoroly covering the area occupied by the ends of the scions and the margins of the wound with grafting wax, strips of waxed cloth, or by some other means that will adequately prevent these parts from drying out.—Adapted from Farmers' Bulletin No. 710.

GLOBE TRADE MARK BRAND

Old Buildings Made Like NEW

Just because a building is dilapidated and badly in need of repairs is no reason why it should be destroyed.
Neither should it be allowed to stand in that condition.
Every building on your farm should be in perfect condition so you can get the most use out of it and so it will add to the appearance and *value of your property.*
You can do all this easily and cheaply—make every old building just as good as new—and so it will last for years to come, by using:

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METAL PRODUCTS
Roofings, Sidings, Cluster Shingles, Silos, Garages, Culverts, Rat-Proof Corn Cribs and other interior and exterior uses.

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can be produced by feeding them a carefully sterilized, specially prepared tankage. It puts vitality into your stock and insures quick growth. Be sure though to use a good tankage.

Martin's Tankage

is made from the best meat scraps, carefully sterilized and prepared to make big frames for carrying added flesh. Buy it direct from manufacturers and save money. Hog feeding directions and prices on request.

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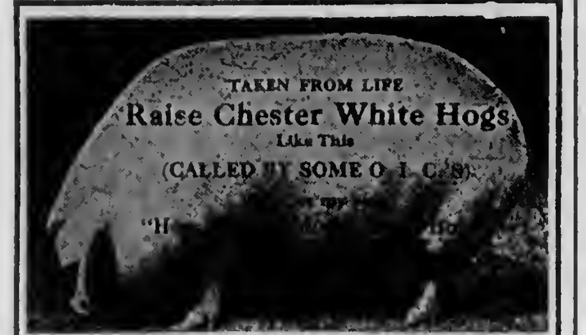

I have started thousands of breeders on the road to success. I have a very large and fine herd. Every one an early developer, ready for market at six months old. I want to place one hog in each community to advertise my herd.
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TANKAGE for HOGS

Every experiment station test shows *Tankage* the cheapest and best feed for hogs and growing pigs. Build big frames to carry fattening. Use Roberts *Tankage* and *buy direct* from manufacturer. Write for prices.
Ellwood Roberts Co., 675 Drexel Bldg., Phila.

Jacks and Mules
Raise mules and get rich. 200 head fine, large jacks, jennys, and mules, 14 to 17 hands high. Large registered jacks and draft stallions cheap now. Will trade for sheep, cattle or horses. Write for prices today. Stock guaranteed.
Address
Krekler's Jack Farm, West Elkton, Ohio

Percheron Stallion for sale. An imported registered Percheron Stallion of the low down typical draft type, with lots of style and action. Weight 1600, color brown, age 11 years, and a good colt getter. He is a money maker and should pay for himself the first season. Send for photo and description or better still, come and see him and his colts; they are fine. Do it **NOW**, don't wait till May.
BENJ. G. FRENCH, Tioga, Pa.

Ellenhurst Berkshires are Prolific.

Name	No. Litters	Total No. Pigs	Raised
Isles Baby 6th	3	32	30

Year-old-Boar $30.00 Boar Pigs $15.00
L. C. TOMKINS, Ellenton, Pa.

Kentucky Jacks and Saddlers.
75 Big Bone Kentucky Mammoth Jacks. Some splendid Saddle Stallions and mares. Write us fully describing your wants. 300 Bu. home cured Blue Grass seed at 90c per Bu.
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Reg. P. China, Berk. and C. White sows bred for 1st and 2d litters. March, April and May farrow. Large strains at cut prices. P. F. Hamilton, Cochranville, Pa

Shropshire Sheep Rams and ewes from noted English and American flocks. Quality high. Prices reasonable.
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Chester Whites & O. I. C's. Either sex, any age. Reg. free. Satisfaction and safe delivery guaranteed. **Enterprise Dairy Farm,** John L. Van Horn, Prop. Troy, Pa.

Berkshires 4 litters (51 pigs) for April delivery Priced to sell. Guaranteed to please. Sussex bred. Ship C. O. D. if desired.
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MULEFOOT HOGS
Oldest breeder in the state. Pedigreed stock for sale.
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Bellevue Farm Durocs Best blood lines of the breed, all ages. Can furnish pigs not akin of Jan.-Feb. farrow.
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Penns Valley Berkshires Select boars and gilts 6 months old, sired by Champion Longfellow and Baron Duke's Value; also one herd boar **W. F. Rishel R. D. 2, Centre Hall, Pa**

Budd's Jersey Reds, best pigs bred, thrive anywhere, develop quickly. **Budd's pigs make big dollars.** write your wants. C. BUDD, R. D. 3, Medford, N. J.

Large Berkshire Swine Registered High Grade. Prices reasonable; write
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POLAND CHINAS pure bred sows and boars for sale. Inquire of
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Hillcrest O. I. C. Fall Pigs, Service Boars, Bred Sows, Reg. free. Prices low.
F. S. MURDOCK, Hartstown, Pa.

Durocs. Choice bred gilts for March and April farrow. Service boars and fall pigs, mated not akin. IRA D. JACKSON, R 10, VAN WERT, O.

O. I. C's. Special offer for April Large type pigs ready to ship. Farmers prices.
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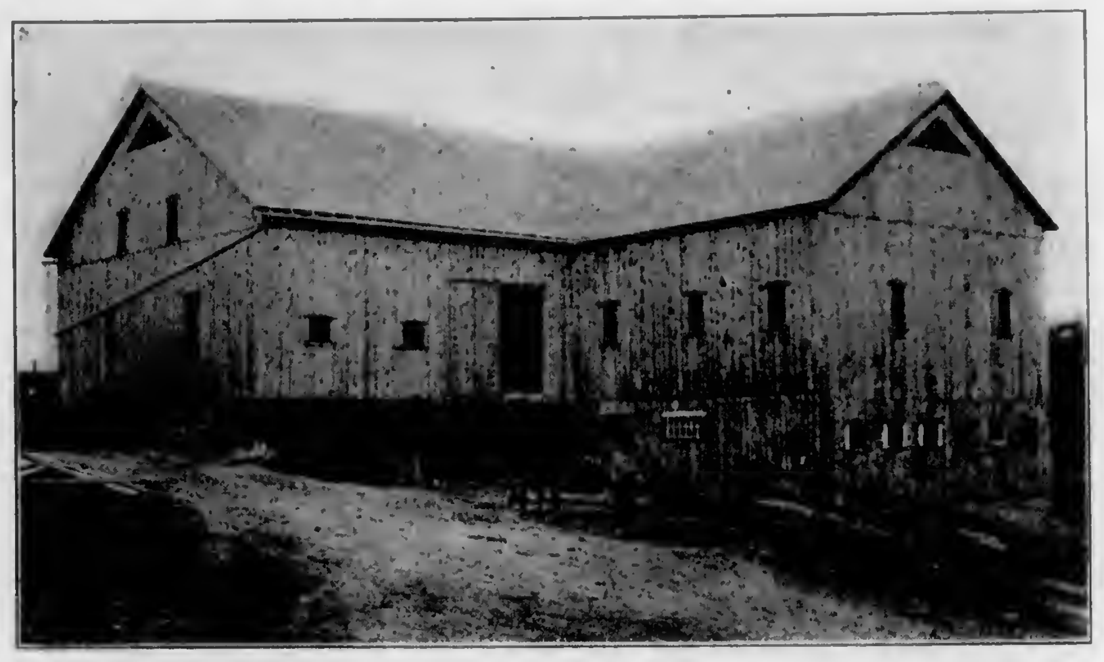
LARGE BERKSHIRES at Highwood. Special prices on bred sows and young boars.
H. C. & H. B. Harpending, Box 45, Dundee, N. Y

Live Stock

A PROGRESSIVE BEDFORD COUNTY HOME

The accompanying illustrations show the farm buildings on the W. F. Biddle farm, Bedford Co., Pa. The farm contains 72 acres of tillable land and about 30 acres of timber. When Mr. and Mrs. Biddle purchased the farm the buildings were old and dilapidated and the first move was to replace them with new and modern-type buildings. The house shown in the illustration is a brick structure, 28 by 32 feet. It has four light, comfortable rooms on the first floor, and four rooms and a bath on the second floor. The interior was designed by Mrs. Biddle and is arranged for convenience and comfort.

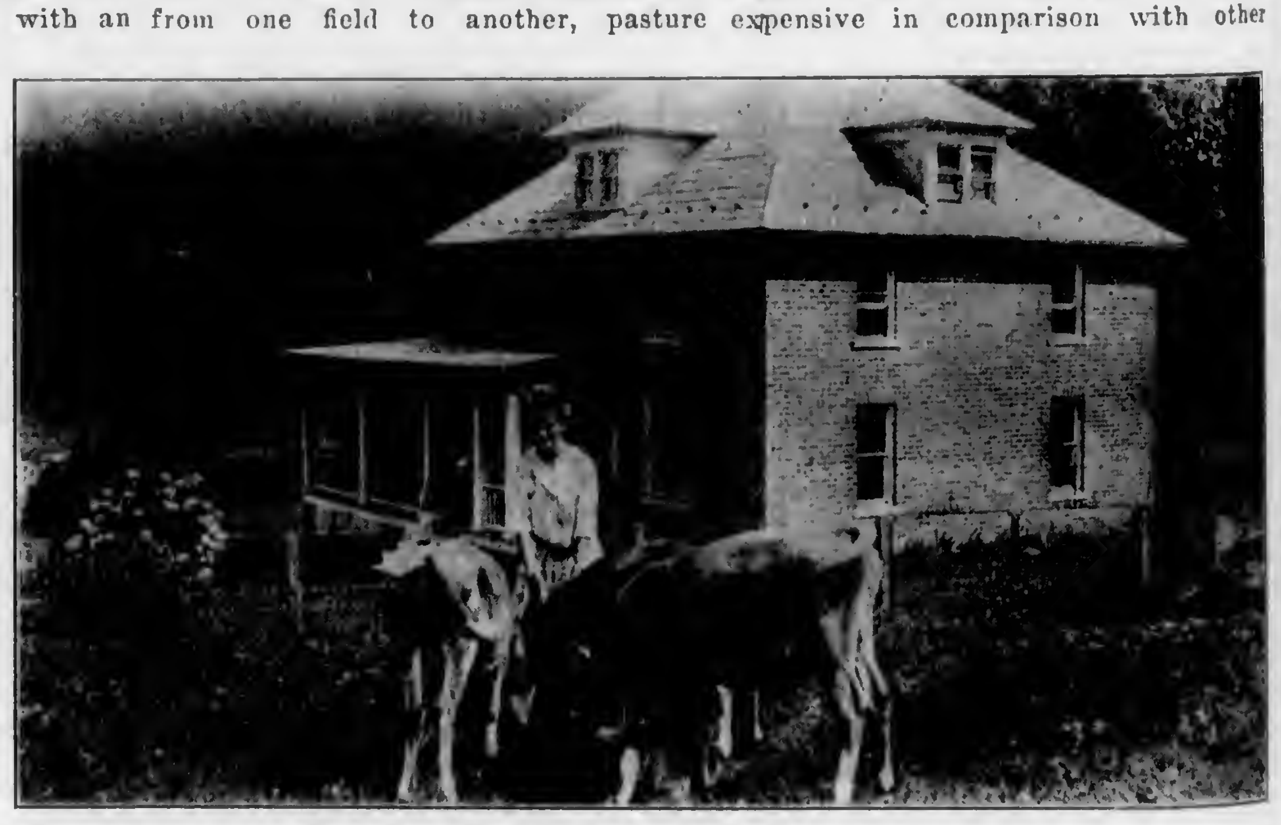


THE BIDDLE BARN, CATTLE AND HOGS HOUSED IN THE BASEMENT.

Water is pumped to the kitchen from a spring located about 18 feet below the level of the house. A store room built on the side of the kitchen is used to store vegetables, groceries and equipment for immediate use. The cellar has three apartments; one for fruit, one for vegetables and one for the hot water furnace which heats the building.

Mr. Biddle is doing general farming, with special attention to purebred stock—cattle, hogs, sheep and poultry. The barn is an important item in equipment. The barn shown was built in 1914. The main barn is 40 by 66 feet, with an addition 30 by 32 feet. This is not the common type of barn building in that section, but Mr. Biddle claims that it gives him best light in stables and greater convenience in storing hay and grain and at threshing time. The cattle are all fed from the barn floor. They are stabled only while being milked, at which time they are also fed their grain. At other times they run loose in the barnyard where they have a feeding floor space 37 by 32 feet.

Mr. Biddle is a member of State Board of Agriculture, secretary of his local telephone company and general agent of the local fire insurance company. He is a progressive farmer of the type that helps build up the community. He confesses that his highest ambition is to instill in the lives of some eighteen young men and women in his Sunday School class, a desire and ambition for better Christian manhood and womanhood.—A.



HOME OF W. F. BIDDLE, BEDFORD COUNTY, PA.

KEEP NURSING EWES THRIFTY

With the heavy draft from nursing their lambs and the gradual decline in growth of pasture there is every danger that the ewes will become reduced in flesh and thrift. No time of the year is more vexing to both sheep and flock owner than the summer season when drouth and excessive hot weather retards pasture growth. Meadow lands particularly are very apt to evidence the effect of hot dry weather and especially if having been well pastured during the early part of the season. It is unsafe to rely altogether during the summer months on meadow pasture as very few farmers seed their land to grasses that have the ability to supply a constant growth of forage.

Strong milking ewes must have an adequate supply of nutritious and palatable feed in order to maintain good physical condition and also produce a uniform flow of nourishment for their rapidly growing lambs. When pasture becomes short and sun-parched and the area upon which the ewes are confined is limited, a decrease in milk flow soon becomes apparent while later the ewes themselves fall off in flesh. It is a serious matter and not easy to remedy. It takes time and feed to recruit ewes that become low in flesh while nursing their lambs. It has been the general experience of most flock owners that it is much better to safeguard against the development of such conditions than to endeavor to correct them after they are here.

Where a flock owner has a large area of pasture land properly fenced so that the flock can be frequently alternated from one field to another, pasture growth can be greatly stimulated. On the average farm, however, where sheep are kept in conjunction with other live stock, the supply of pasture is invariably limited and other sources of supply must be relied upon. As soon as the grain producing crops are harvested the stubble can be very profitably turned over to the flock and will supply a large amount of excellent pasture. I always like to turn my sheep into stubble fields as soon as possible after the crops are removed, as the sheep immediately destroy millions of weeds that otherwise would go to seed.

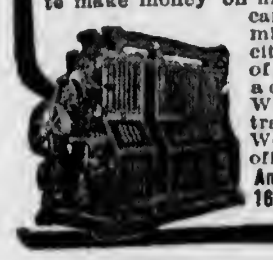
To allow the ewes to become unthrifty while nursing their lambs invites disease and impairs their future breeding usefulness. A large number of good ewes are ruined every season because of improper care during the nursing period. Disease always finds fertile soil to thrive in when the system is low in vitality and unable to ward off attacks. There are numerous parasitic diseases that are readily transmitted to the lambs from the ewes and unless every care is exercised to keep the ewes strong and healthy, the nursing lambs are very likely to become infested.

To keep the ewes thrifty and in good flesh condition is largely a matter of affording plenty of nutritious pasture along with a light ration of grain. The amount of grain advisable to feed largely depends upon the kind of pasture the flock is grazing upon. When pasture is abundant it is not as necessary to feed grain. The grain ration can be materially reduced by giving attention to the growing of supplemental forage crops that can either be fed by soiling or pastured. It is by all means more satisfactory and economical to pasture forage crops, but the soiling method affords a larger quantity from a smaller area.—A. E., Washington Co., Pa.

STEER FEEDING RATIONS FOR PENNSYLVANIA

In discussing steer feeding before a Farmers' Week audience, Paul Gerlaugh, of the State College, said: The steer feeding business is at a lower ebb just now than at any recent time. This is due to several reasons. The most important is the narrow margin between the cost price and the selling price of feeders and finished steers. Feeds have also been very high in price, which encourages many to sell their grains rather than to feed it to live stock. Cheap pork during the present year has had a big bearing on keeping the cattle market low; so long as pork is cheap, beef can not be high.

In this state bran is used as one of the most important concentrates. Bran is a good feed and has many advantages, but at the present price it is too expensive in comparison with other feeds to make it profitable. One of the most economical rations used at the Pennsylvania State College has been a ration of corn silage and cottonseed meal alone for the first 56 days. Cottonseed meal has been fed at the rate of 2½ pounds per 1,000 pounds live weight. With this ration we have been able to break even while the common Pennsylvania ration composed of corn and cob meal, bran, corn stover and mixed hay, showed a net loss per steer of about $8.



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There's big money milling flour in small towns and rural communities. Wallace & Wynns, Sturgis, Ky., say they cleared $4,628 in seven months. Mr. C. E. Brackbill, R. F. D. No. 1, Gap, Pa., makes over $300 a month. Woolcott Milling Co., Mt. Clemens, Mich., cleared $3,600 in twelve months, and the Burr Oak (Kan.) Mill & Elevator Co., $2,500 in eight months with this truly marvelous money-making

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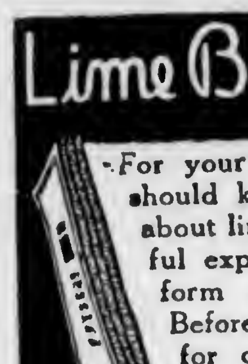
Places good, steady paying business within grasp of every ambitious red-blooded man who wants to make money on his investment. Anybody can run it without previous milling experience. Capacities 12 1-2, 25 and 50 bbls. of as fine roller patent flour a day as any mill can make. Write now for our free illustrated book, "The Story of a Wonderful Flour Mill," trial offer, prices, terms, plans, etc.
Anglo-American Mill Co., Inc., 1624 Fourth St., Owensboro, Ky.



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For your crops' sake, you should know the TRUTH about limes. The successful experiences of others form your best guide. Before you buy lime, ask for our free book of LIME FACTS.
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Let us tell you the truth about the use of lime and how you can save money by using the right goods.

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Lime Manufacturers
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Is Not Caustic — Cannot Burn
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The best and most economical form of Lime to use.
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WE PAY THE HIGHEST PRICES
OLD RUBBER, METALS, RAGS
auto tires, old boots, scrap copper, brass, lead, zinc, old rope, rags, burlap, old bags, furs, hides.
WE PAY THE FREIGHT
Ship at once-any quantity-send for prices.
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Help Wanted White American married man for general farm work, also single men for dairy barn. None but competent temperate men need apply. Give reference in first letter.
WHITE HORSE FARMS. Paoli, Pa.

Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the cause in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Synovitis.—I have a horse that is now 20 years old. Nearly 10 years ago he suffered from hock lameness, but recovered. Lately he is showing some lameness in hock, but only for a few steps, and the inside hock joint is slightly swollen and inflamed. A. B. B., Nainesburg, N. J.—Give your horse rest and apply equal parts tincture iodine and camphorated oil, twice a day.

Pin Worms—Cough—Heaves.—I have a horse, 12 years old, that is troubled with pin worms. He also has a dry hacking caugh; also, a touch of heaves or indigestion. He is thin and his coat has a dead appearance. N. G. E., Marlton, N. J.—Feed no clover or dusty, musty, badly-cured fodder of any kind; also, feed some roots. Mix together 1 part ground nux vomica, 2 parts bicarbonate soda, 2 parts ginger and 5 parts ground gentian. Give him a tablespoonful at a dose in feed, 3 times a day. Wash out rectum three times a week with 1 part coal-tar disinfectant and 99 parts tepid water, using not less than one gallon each time.

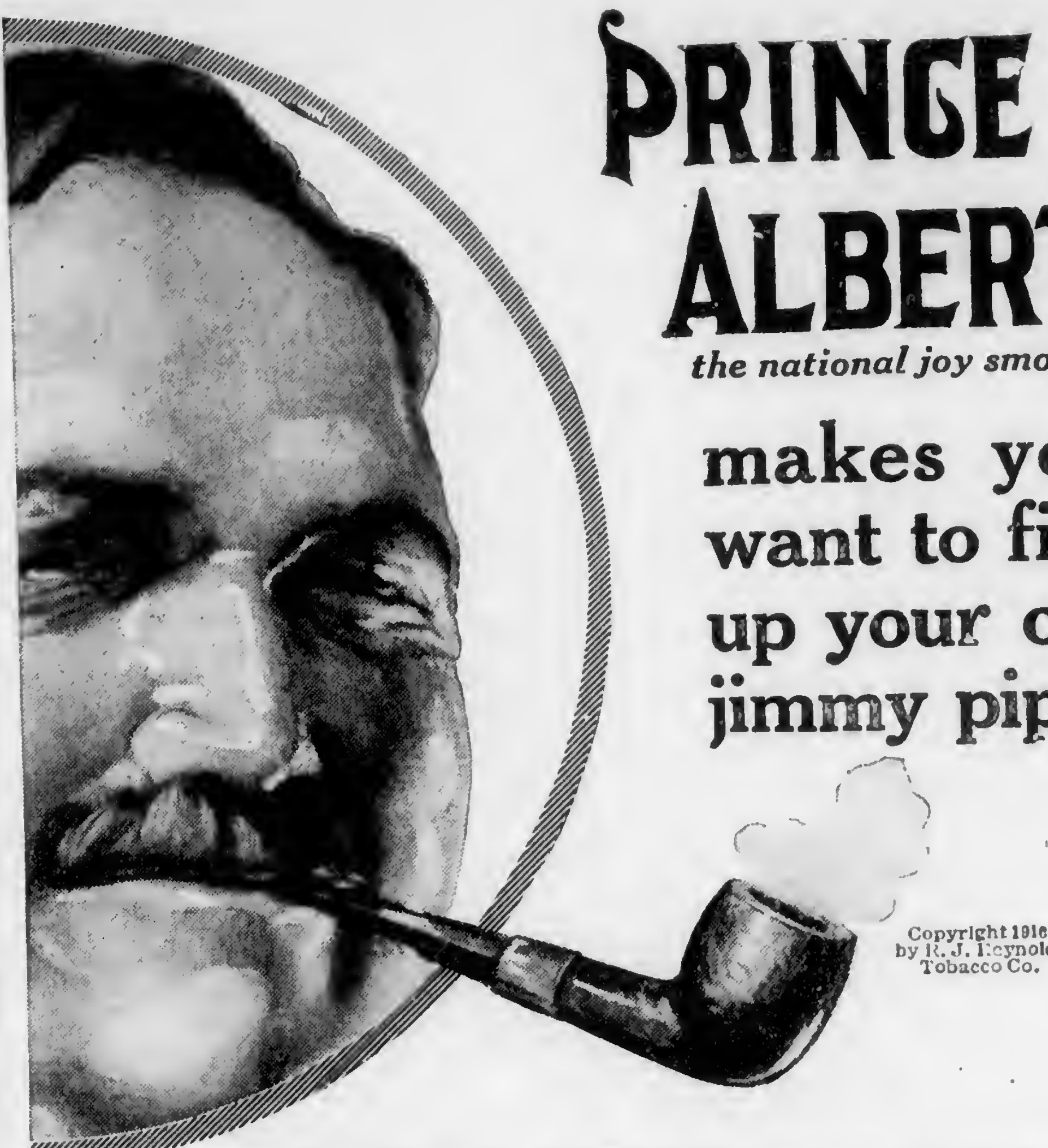
Mammitis.—I have a heifer that had her first calf two weeks ago. Since then she has had trouble in one quarter of udder. R. S., Hanover, Pa.—Apply 1 part fluid extract phytolacca, 1 part fluid extract belladonna and 10 parts lanolin to caked quarter, twice a day. Give her a dessert spoonful of fluid extract phytolacca at a dose, 3 times a day.

Worms.—I have a large mare that is subject to worms. I have tried different powders with little results. H. S. M., Lane, Pa.—Give her 2 drams santonine and 1 ounce ground gentian at a dose, twice a week. I might say that the best results will be obtained from this medicine if the mare is not too full of food when it is given.

Diseased Udder.—I have a cow that we have been milking for the past six months. From the right fore teat we occasionally milk out clots of blood. She seems to be getting worse. I would like to know just what to do for her. I might add that this is her first calf. J. H. C., Uniontown, Pa.—Are you sure that your cow does not bruise her udder? Dissolve 1 ounce sugar of lead in a quart of water and apply to diseased quarter, 2 or 3 times a day. She should be well bedded, not allowed to lie down on frozen ground or stand in a cold wind. Give her a teaspoonful of powdered saltpeter at a dose in feed, once a day.

Over-feeding.—Last October I had two hens who stole their nest and hatched out 19 chicks ont in our corn field. The hens raised 17, which I put in a large stable, well lighted on southeast and west sides. In this same barn we have eighteen cows. The fowls were fed during the winter on wheat and whole corn, and allowed to scratch in alfalfa hay. One month ago six of them lost the use of their legs entirely and lately five or six more are crippled. They weigh 2½ to 3 pounds each. I do not care so much for the chickens as to know the cause of their ailment. O. W. T., Embreeville, Pa.—I am inclined to believe that they were over-fed on grain. Had they been supplied with some green food to balance their ration they might have been all right. Furthermore, the stable may perhaps be damp, or the fowls had perhaps too little outdoor air and exercise. If their joints are swollen, paint them with tincture iodine twice a week and change their food supply, feeding them some meat scraps and green feed. I know of no reason why these birds would be unwholesome for food.

Medicating Hogs.—I would like to know if it is safe to give pigs equal parts of coal dust and sulphur and occasionally give them some salt. J. R. H., Union, N. J.—It is not a bad plan to give growing hogs some of it with their feed once or twice a day; however, I like the effect of equal parts of cooking soda, ground ginger and ground gentian, giving each 100-lb. hog a teaspoonful at a dose, twice a day.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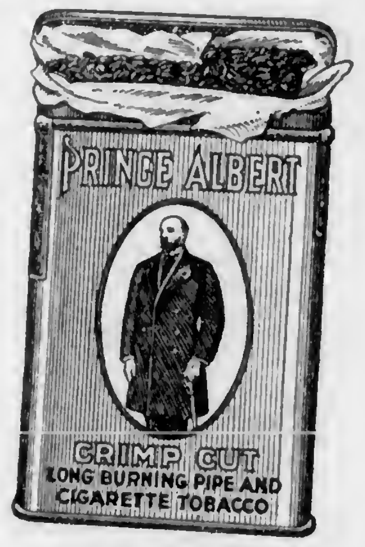
PRINCE ALBERT
the national joy smoke
makes you want to fire up your old jimmy pipe!

PRINCE ALBERT tobacco throws open the gates to *every* man fond of a pipe —*it's so friendly!* Just makes smoke joy possible for all degrees of tender tongues and tastes! The patented process cuts out bite and parch! And you can't get better proof than the fact that Prince Albert is today smoked not only throughout the United States, *but all over the world!*

First thing you do next, locate that old jimmy pipe; invest 5c or 10c for a supply of P. A. And fall to like you are on the right track. For Prince Albert is better than the kindest word we ever have said about it. And you'll find that's right!

You can buy Prince Albert everywhere in the toppy red bag, 5c; or the tidy red tin, 10c; in pound or half-pound tin humidors or in the handsome crystal-glass pound humidor with sponge-moistener top that keeps P. A. fit-as-a-thoroughbred!

R. J. REYNOLDS TOBACCO CO., Winston-Salem, N. C.



On the reverse side of this tidy red tin you will read: "Process Patented July 30th, 1907," which has made *three* men smoke pipes where one smoked before!

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GOMBAULT'S CAUSTIC BALSAM
The Great French Veterinary Remedy.
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Prepared exclusively by J. E. Gombault, ex-Veterinary Surgeon to the French Government Stud.

SUPERSEDES ALL CAUTERY OR FIRING.

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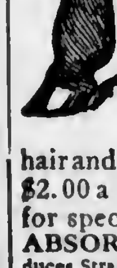
Every bottle of **Caustic Balsam** sold is Warranted to give satisfaction. Price **$1.50** per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

THE LAWRENCE-WILLIAMS COMPANY, Cleveland, Ohio.



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ANTISEPTIC AND GERMICIDE
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ABSORBINE, JR., antiseptic liniment for mankind reduces Strains, Painful, Knotted, Swollen Veins, Milk Leg, Gout. Concentrated—only a few drops required at an application. Price $1 per bottle at dealers or delivered.
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Size of this house 28 x 22 x 13. Figure *your* saving on *your* house or barn at these prices:—Evercote Ready-to-Use House Paint $1.02 a gal., Evercote Barn Paint 63c a gal.
Write for Book of Bargain Prices and 156 Color Cards FREE
Freight prepaid on seven gal. or more. Every gal. guaranteed to cover 250 to 300 sq. ft. two coats. *Our prices not increased* in spite of big advances in raw materials.
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TIRES, lamps, wheels, parts and supplies at *half usual prices.* A few good second hand bicycles taken in trade $3 to $8 to clear.
Do not buy a bicycle, tires or sundries until you write and learn our *wonderful new offers,* low prices and liberal terms. A postal brings everything. *Write now.*
MEAD CYCLE CO. DEPT. S-78 CHICAGO

This Waist $1.00

Women's White Voile Waist in the distinctive and fashionable style illustrated. Sizes 34 to 46 inches bust measure. Order this Waist with the understanding that if not satisfactory in every way it can be returned at once and your money will be refunded. Price $1.00, postpaid.

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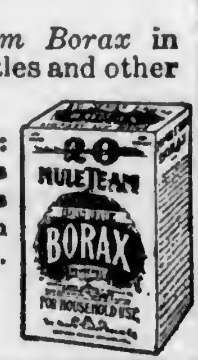

Baby's Bath

"Add a pinch of *20 Mule Team Borax* to the water for the morning bath. Use *20 Mule Team Borax* instead of soap for the evening sponge bath."

"*20 Mule Team Borax* solution heals scratches and insect bites."

"Use *20 Mule Team Borax* to wash baby's clothing, so that it will be antiseptically clean and non-irritating."

"Use *20 Mule Team Borax* in washing feeding bottles and other nursery utensils."

These are not guesses: they are the directions of well-known doctors and nurses as found in their published works.

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Made of Rust-resisting Armco Ingot Iron. Better than cast iron, as it cannot crack. Electric welded joints. No rivets. Absolutely airtight, insures perfect baking and fuel economy. Sanitary Nickel Finish—easy to keep clean. Colonial Foot Style—high enough to sweep under with broom.

Ohio's are fully guaranteed. Also full line of Combination Ranges

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Lightning Rods 6 3-4c a ft. Best quality. Copper cable. Buy direct. Fr't prepaid. Satisfaction guar. Complete installing directions. Valuable catalog and sample free. Robinson & Seidel, Box 54, Washingtonville, Pa.

Cooking Qualities of Apple Varieties

Apples vary in texture according to variety and season, and to prepare all kinds for the table in a manner appealing to the eyes and also taste requires care, experience and some knowledge of varieties.

To the cook there are two general classes: Summer and winter apples. The former include all the early varieties, also "Smokehouse", "Grimes", "Gravenstein", etc. They seem to contain a great amount of moisture, consequently they require very little water in cooking and they soften easily and quickly.

Perfect apple sauce making is a fine art, and these early apples make very delicious sauce. Peel, quarter and mash the apples, and place in a roomy kettle, for they are frothy and boil over easily. The water required depends on the variety; Smokehouse needs the least of all—use just enough to keep from scorching, about 2 inches deep if the kettle is full. Cover closely and cook evenly so that all parts will be done at the same time. Do not disturb until all the pieces are soft and mushy when tested with a spoon. Then stir quickly to a smooth sauce, sweeten to taste and cook a few minutes. The color should be a greenish white and the sauce should be stiff enough to pile slightly. Long cooking, or if the pared apples are exposed to the open air, will cause a noticeable discoloration.

The first early specimens are the most treasured, for no other fruit, however rare, takes the place of apples. Without paring, cut off slices of all the good parts from around the core. Wash well, place in a stewing kettle with a little water, cover, and cook quickly until all the pieces are soft. Then mash thru a colander, being careful not to go too close to the skin as that leaves a bitter taste. Return to the fire, add sugar to taste, a little cinnamon if desired, and cook about 5 minutes.

The real winter varieties, "Rome Beauty", "Fallawater", "Baldwin", "Ben Davis", etc., are of a drier texture, especially this late in the year, and require plenty of moisture and time to cook. The pieces of apple remain firm and keep their shape, and it is best to serve them as stewed fruit as they will not make a true sauce unless mashed thru a colander. Use enough water to almost cover, and add the sugar to sweeten. Cook without stirring until the pieces are soft, shaking and turning the kettle occasionally to prevent sticking. It is important that apples should not be generally mixed for any cooking purpose, as many different varieties do not cook or look alike, and the result is never pleasing.

For stewed apples of the finest quality use York Imperial. The pieces will be solid, of clear yellow color and excellent flavor. Cook like peaches in a syrup of sugar and water, without stirring. Chill thoroly, then lift carefully into a pretty glass dish, and serve as a dessert with cream.

In making pies the same care should be used in selecting varieties. The summer kinds are all satisfactory when sliced directly into the crust and baked. A different flavor is procured by filling the pies with prepared apple sauce and sprinkling with cinnamon.

Apple Pie with No Under Crust.—For another style of pie fill a deep earthen plate or dish with sliced apples. Cover with an upper crust, and bake until the apples are soft. Then turn the crust carefully upside down onto a plate, mash the apples fine, and sweeten to taste; stir in ½ cup good sweet cream, sprinkle with nutmeg, and serve either hot or cold.

Apple Cake.—A combination called apple cake is very much liked by our family, and does not seem known generally among our acquaintances outside of our family. Spread a pie plate with pastry. Have ready some quartered apples and lay them on carefully in neat circles as closely as possible. Sprinkle thickly with sugar, a little cinnamon, and add water about one-fourth inch deep. Bake till the pieces of apple are soft. This is very good served cold with cream..

Many winter apples are difficult to cook properly in a pie. In these cases it is best to fill the crusts with sweetened stewed apples, for thus the result will be far more juicy and "tasty".

Boiled or Steamed Dumplings.—Here is a recipe that is recommended as good and wholesome: Two cups mashed potatoes, ¼ cup lard, 2 cups flour, 2 teaspoons baking powder, ¼ teaspoon salt. Moisten with milk or water, roll out, cover with slices of apple, roll up, tie in a cloth and drop into boiling water, and boil 20 minutes or half an hour, according to quality of apples.

Remember next fall that apples and quince juice make a delicious combination, far better than stewed quinces alone. The texture of quinces is coarse and fibrous, while the flavor is so strong that dilution with a milder fruit is an actual improvement. Select apples that remain firm, such as "York Imperial", have ready a syrup of quince juice and sugar, and cook the apples in it, without stirring, until soft. Pears may be used the same way. If the quinces are desired for other purposes, save the parings and cores. Cover them with water and boil till tender, then strain thru cheese cloth, and the juice resulting can be used for flavoring.

Baked Apples.—Here again a difference will be noted in the cooking quality of varieties. The winter kinds need more moisture, so cover the dish until the apples are steamed soft, then remove the cover and brown quickly. Some people object to the skin of baked apples. It can be removed entirely if desired. A satisfactory method is to leave an inch band of skin around the center, as it seems to hold the apple together. However, the skin affords some of the necessary bulk required in our food. Either brown or white sugar may be used for sweetening.

Pearl and granulated tapioca can be combined with apples in varying proportions, and will make simple and inexpensive desserts. If pearl tapioca is used, it must be soaked over night and cooked thoroly before adding it to the apples.

Apple Sauce Cake.—(Ingredients required: One cup unsweetened apple sauce, ½ cup butter or lard, 1¼ cups brown sugar, 1 cup seeded raisins, ¼ teaspoon salt, ½ teaspoon baking soda, 2 cups flour, 1 teaspoon cinnamon, ½ teaspoon ginger, 2 teaspoons baking powder.)

First mix soda with the apple sauce. Rub the butter and sugar together, add spices, apple sauce, and flour with the baking powder. Mix the raisins with a little flour to prevent them from settling, and add to the batter. Bake in a moderate oven. Cover with a white icing.

Hasty Fruit Pudding.—(Ingredients: One pint apples, 2 tablespoons sugar, water to cover, 1 cup flour, ¼ teaspoon salt, 1 teaspoon baking powder.)

Cut the apples into small pieces, cover well with water, sweeten to taste, and cook until tender. Mix into the flour, the salt, baking powder, and sugar; then stir in enough water to make a stiff batter. Beat well and drop by spoonfuls into the boiling apples. Cover and cook the dumpling for ten minutes. Serve at once, with cream.

Apple Charlotte.—(Ingredients: Six large apples, ½ box gelatine, 1 pint heavy cream, sugar to taste.)

Cook the apples in a little water, press thru a colander to remove all lumps, and add the sugar. Cover the gelatine with cold water and soak half an hour, then add it to the hot apples and stir until dissolved. Set the dish of apples in cold water and let stand until the mixture begins to thicken, then add quickly the whipped cream. Turn into a fancy mold, and set in a cold place to harden. This will serve 8 persons.

Baked Apple Pudding.—(Ingredients: One-half cup sugar, 1 tablespoon butter, 1 egg, ½ cup milk, 1 large teaspoon baking powder, flour to thicken, 1 teaspoon vanilla.)

Mix into a batter, flavoring with the vanilla. Have ready a buttered dish half full of sliced apples, and pour the batter over them, baking in a moderate oven 45 minutes. This will serve 6 people. Serve hot with cream and sugar.

Brown Betty.—Butter a baking dish, cover the bottom with a layer of thinly sliced apples, sprinkle with sugar and cinnamon. Add a layer of stale bread cut into dice and sprinkled with sugar and cinnamon. Continue the layers until the dish is full, with sugar and cinnamon and bread crumbs on top. Pour over all ½ cup cold water, and bake in a hot oven 45 minutes. If the apples are winter varieties, double the amount of water. Cover the dish until the apples have steamed soft, then remove the lid and brown quickly.

A plain wholesome dessert can be prepared thus for children at a minute's notice: Lay a slice of bread in a deep saucer and sprinkle with sugar. Spread thinly with apple sauce, and pour cream over all. Grown-ups, too, are very fond of this at our table.—Elinor S. Brinton, Chester Co., Pa.

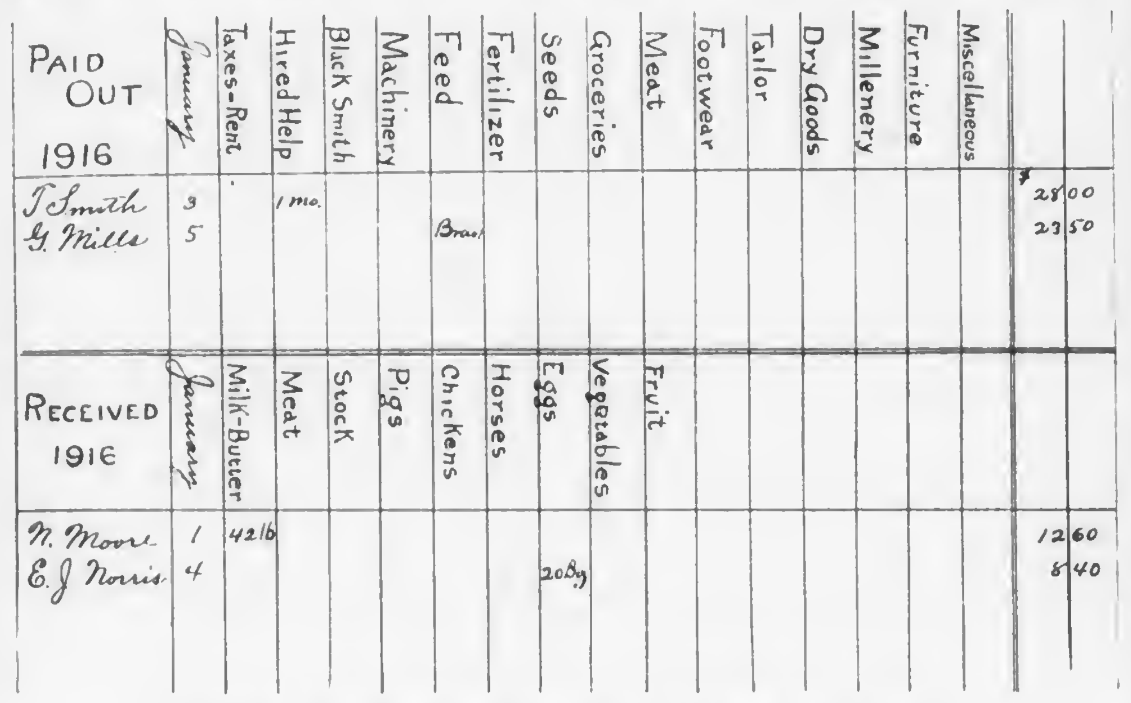
KEEPING FARM AND HOUSEHOLD ACCOUNTS

Do we as farmers' wives do all we can to encourage our farmer husbands to keep accurate accounts of their monetary affairs? I believe there are very few business men in cities who do not keep accounts of their transactions. They certainly would not be business men very long if they did not. And why isn't it just as necessary for the farmer and his family to do this? The fact that they make a living and do not go behind or even save a little, in the course of a year, is no proof that they are making the success of the business that might be possible. I know there are some farmers who have adopted certain methods of accounting and are very thoro in this matter, but I fear that the majority still think it is a matter of minor importance. Getting the work done is the problem, and truly it is a problem. But if every loophole were watched carefully, might it not be possible to make just as much or more money with less work?

It may seem to many that the man is the one to attend to this, but we must remember that the busy man in the city has one or more bookkeepers and when the farmer is expending his time and energy out of doors I am sure he would appreciate it if the women would act as bookkeepers. Of course we are busy, too, but our work is a little different. We often find time to pick up a book or newspaper. And even if we have to simplify some of our own work to do this, I am sure we will agree at the end of the year that the time was very profitably spent.

When we began farming my husband paid $3.50 for an account book in which to keep his accounts. We tried for two years to meet the requirements of that book, but I am sorry to confess our failure. There are some things in it that are fine; for instance, the pages that are arranged for the inventory. Every farmer should take an inventory of his stock, crops, machinery, etc., at a certain time every year. Then he will know whether he is losing or going ahead. The live stock balance sheets and the general crop reports were excellent and are a great incentive to better work. All these, together with the general financial statement, can be kept in an extra hour or two on rainy days, providing you have kept a daily account.

In this book the section devoted to daily accounts was very impracticable. In order to set down a few sales or expenditures it was often necessary to go thru the book hunting for various pages, and when found they were not well arranged. So I bought a well-bound blank-book, spaced it off as indicated herewith, attached an indelible pencil to it and put it in one corner of the magazine rack. When the "good man" saw it he was delighted, and we have found it very convenient and practical. It may not fit every one's need, but it can easily be changed to suit the individual case. If the wife wishes to keep a more minute account of household affairs, she can arrange separate sheets, or the growing children can be given books and taught to keep their private accounts, thus teaching them lessons which they will find very useful in later years. The diagram shows the way we arranged our book, keeping one page for "Income" and the opposite page for "Expenditures."—Barbara Hill, Erie Co., Pa.



PAID OUT 1916	January	Taxes-Rent	Hired Help	Black Smith	Machinery	Feed	Fertilizer	Seeds	Groceries	Meat	Footwear	Tailor	Dry Goods	Millenery	Furniture	Miscellaneous		
T. Smith	3		1 mo.														$ 28	00
G. Mills	5					Bran											23	50

RECEIVED 1916	January	Milk-Butter	Meat	Stock	Pigs	Chickens	Horses	Eggs	Vegetables	Fruit								
N. Moore	1	42 lb															12	60
E. J. Norris	4							20 dz									8	40

SIMPLE SYSTEM OF FARM AND HOME ACCOUNTING.

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According to Miss M. Jane Newcomb, extension assistant in home economics at the Pennsylvania State College, poor quality of linen fiber and poor weaving in linen are often concealed by an excess of starch. The starch is used to cover up the loose or twisted ends of the fiber and also to fill in spaces left vacant in weaving. When such material is rubbed the rough ends of fiber at once appear and the starch is forced from the filled spaces, leaving them more or less open.

The common weaves are the satin or damask, "huck" and plain. The satin or damask weave is best for table linen because it is firm and smooth and will resist soil. This weave is undesirable for towels, as it does not absorb moisture readily. The best weave for towels is the "huck", an uneven weave, which is especially good for absorbing. Its slight roughness also causes friction and stimulates the skin. The plain weaves in crash are also good for towels.

Dolies, tray cloths, lunch cloths and similar pieces should be made of the finer weaves of linen. These weaves give a cloth which is of lighter weight, presents a more desirable surface for decoration and is easily cleansed.

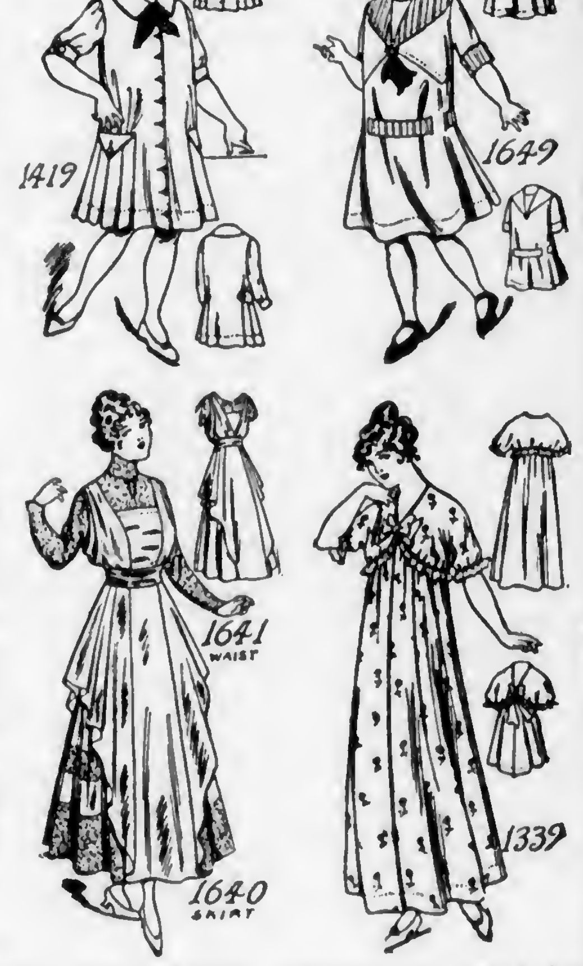
PENNSYLVANIA FARMER PATTERNS

Be sure to give the figures and letters of each pattern exactly as printed at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-263 So. Third Street, Philadelphia, Pa.

1419.—Girls' Dress.—Cut in 4 sizes: 6, 8, 10 and 12 years. Size 8 requires 3 yards of 44-inch material. Price of pattern, 10 cents.

1649.—Girl's One Piece Dress with or without Added Pointed Sections, with Shield.—Cut in 4 sizes: 4, 6, 8 and 10 years. Size 4 years requires 2½ yards of 44-inch material for dress without yoke sections, and 3⅛ yards with yoke sections. Price, 10 cents.

1641-1640.—Ladies' Costume.—Waist 1641 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. Skirt, 1640, cut in 6 sizes: 22, 24, 26, 28, 30 and 32 inches, waist measure. It would require 9⅜ yards of 44-inch material to make the entire dress for a 36-inch size. The skirt measures about 3¼ yards at the lower edge. This calls for two separate patterns, 10 cents for each pattern.



1339.—Ladies' Kimono.—Cut in 3 sizes: Small, medium and large. It requires 4½ yards of 44-inch material for the full length style, and 2⅜ yards for sack length, for a medium size. Price, 10 cents.

Dad says— "Preparedness, like charity, should begin at home." Protect everything about the house against the attacking elements—sun, rain, snow, etc., by using

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FARM PAPERS AND "UPLIFT"

One of the encouraging signs of the times is the fact that public sentiment, and I might say in a lesser degree the public press, is reaching sane conclusions, and, as our good Quaker friends say, "speaking out in meeting." I read with great pleasure in a late issue of the Pennsylvania Farmer what the Editors had to say on the Rural Uplift movement, commenting on the meeting held in Philadelphia some time ago. Allow me to say right here that I enjoy and seldom take exception to the matter on the editorial page of the Pennsylvania Farmer. I believe that the agricultural paper of the future will be of the type that has convictions, honest and candid, along all lines affecting the moral, social and financial interests of the farmer, and little space for freaks in farming, the promoter, or the man, young or old, who is seeking a fat job at the farmers' expense. I do not hesitate to say that I do not subscribe for, neither would I advise others to do so, for that class of so-called agricultural papers. They boast, as a rule, of a large circulation, without a practical farmer, or one conversant at all with the farmers' life, and needs, connected in any way with the management, or subject matter, as far as we can detect from the contents.

To follow the lead of such periodicals whose papers are filled almost entirely with the experiences of those who are specialists and who can fill but a limited sphere, supplemented by those who are exceptionally well located and whose experience cannot to any considerable extent be duplicated, is misleading to say the least, and does immense harm to the unsuspecting and inexperienced who attempt to follow the suggestions. Then again, such papers are head and front in promoting every movement toward legislation urging appropriations and expenditures to establish some scheme, or some department, ostensibly to assist the poor tiller of the soil. I predict such papers cannot survive. As the farmer becomes better informed he will have less use for them. This is no new position or new line of action.

We subscribe for religious papers that contain a line of religious thought in which we believe, and, as advocates of that phase of religious life, are anxious to see disseminated. We have political convictions; believe in certain political principles and we subscribe for and read and encourage the distribution of those periodicals which will as we believe promote those principles.

How inconsistent then for us to follow any other line of action in working out the great problems which confront the agricultural class, the ultimate solution of which must be reached by the reasoning faculties of the farmer himself, reinforced it may be by the experience of the honest and sincere in other walks in life who recognize in agriculture the foundation of national greatness and are influenced, not by sordid, but by lofty motives.

To approach the subject of Rural Uplift along any line savoring of stern necessity, as if it had reached a par with city slum work, gives the whole case away on the part of the promoters and agitators. That this has been and is the case today is well attested. Men and women who ought to know better have publicly placed themselves on record and invited criticism stinging and severe. Between these persons and the writer there is no contention, as individuals, but the principle I would condemn and will quote from what I have read and heard to substantiate my position. In the earlier stages of this movement I heard a prominent educator of this state in a public address in Harrisburg express himself most pointedly as to the deplorable conditions of certain places he had visited in rural districts in the state. Many in the audience were astonished for some of those present had thru a period of years met thousands of these people, visited three-fourths of the counties not once only but many times, entertained in scores of homes and found nothing to compare to such conditions. It was left, however, to a Past Master of Pennsylvania State Grange to reply and in a short speech, the most scathing I ever heard him make, absolutely silenced the professor.

On another occasion, in my own county of Lancaster, I attended a meeting called in a Presbyterian Church to hear an address by a well known minister, sent forth on the Uplift Mission. His address proved a fluency of speech, as well as an ability, that had it been devoted to the winning of souls, as pastor of some of the vacant and comparatively poor fields, which work he claimed as a minister of the Gospel to be especially called to, might have been used for good, but when he ventured on unknown ground, attempted to discuss and advise wherein he was ignorant he gave himself away so completely there was nothing for him to do but to retreat as gracefully as possible. One lesson of the kind we would suppose would have been enough, but you know it is said "a little learning is a dangerous thing". This same gentleman attended a religious meeting a short time after in same county, spoke on another phase of same subject, and made statements in regard to certain conditions in the homes of a prominent class of farmers in said county that were to say the least misrepresentation. He has never been invited into the county to the writer's knowledge since.

Just another instance, I have read an address, circulated far and wide, delivered in New England by one of the women identified in this work, which I would like to hear her give in many grange communities in our state. I promise her a revelation and experience which she would remember thru life. These are but a few of the many experiences which might be given of this peculiar work, which work is one of two things; either very hard to understand, or the motive is so clear and transparent that none have any difficulty in understanding. To say that it should be rebuked as an element of harm is putting it mildly. The whole scheme is wrong because it is not supported by facts.

Gratuitious advice is but rarely well received. Proffered aid meets with same response, as a rule, and when accompanied by patronizing is regarded as insulting. If the sponsors and promoters of the whole movement are to be commended for worthy motives and efforts it is up to them to give tangible evidence of unselfish, disinterested motive. Our cities must learn to sweep before their own doors before they dare go out on mission work; must learn that "Charity begins at home."

Note these comparisons: 38 percent of the homes in cities owned by occupants, 62 percent living in rented homes. In country 63 percent occupied by owners, and 37 percent by tenants.

In this day of elevated railroads what alarming spectacles are presented to the passerby in any city of any proportion. Filth, poverty, and generally unhealthy conditions are seen that must necessarily contaminate the atmosphere and invite disease to an extent that cannot find a parallel in any country district. If such conditions are exposed to public gaze what revelations are in store if the searchlight should penetrate deeper?

Public Schools? Read the city papers and note the actual lack of facilities to accommodate the children. Not so in country. Moving Pictures, Theatres? Well, the Pennsylvania Farmer in the editorial reffered to meets that point so well in its beautiful picture of the country home scene in contrast that any word from my pen would not improve it. Would only add that after opportunity of seeing the two home scenes, country and city, put to the test, the one protected by the natural influence that prevade and surround the home where love presides, without in nearly as great a degree the temptations that allure and too often mislead, while the other where we would not for a moment discount the natural loving influence, but on every hand the mad craze of street tramping to all kinds of amusements, very many questionable, and all tending to lessen the paternal influence and control. As to which of the two homes, scenes and surroundings has in the past given us the dwarfed, undeveloped life on the one hand, and on the other, the matured manhood and womanhood capable of leadership, let the statistics disclosing the life throbs in business and professional life tell the story.—James G. McSparran.

Among the Granges

Elk County, Pa.—Elk County Pomona met March 7th with Kersey Grange, No. 628, at Kersey, and, despite the very inclement weather, a good attendance was recorded. The morning session, which began at 10.30 o'clock, was given over to the business matters of the Grange and Insurance Company, which is affiliated with the grange. At 12.30 a sumptuous dinner was served by the sisters of Kersey Grange and all present did ample justice to it. The afternoon session began at 2 P. M. and was given over to a literary program prepared by the lecturer. As the afternoon sessions of this grange are generally conducted in open session, there is always a good attendance, many of those not belonging to the grange being glad to avail themselves of such a splendid opportunity for hearing the questions of the farm and of the day discussed by their neighbors.

. . . . .

The necessity of soil inoculation is beginning to be understood by the more advanced farmers of this section and the coming spring will no doubt see a wide activity in this line of soil improvement. Clover, the foremost of the legumes, is already a good crop to raise in Elk County but very few farmers here raise alfalfa; they say it can't be done, while it is generally understood that alfalfa will grow anywhere under proper conditions. With proper inoculation alfalfa will grow here as well as anywhere and it is up to the few to prove to the many that it can be done. Less than twenty years ago it was the same with cabbage; now we raise a surplus. Let's try it on alfalfa!

. . . . .

No doubt the farms of this vicinity will be greatly benefitted this season by the heavy applications of lime which have been made possible by the low price of a by-product of one of the local factories in the form of carbonate of lime. To those who live within hauling distance of the factory the price was only fifty cents per load, regardless of weight, while loaded on the car it cost seventy-five cents per ton. The carbonate of lime is in a form that will work well in drill or spreader and thousands of tons have been hauled to the farms of Elk County. The origin of this by-product is a high grade of caustic lime, which is used as an agent in the manufacture of acetate of lime in the wood-chemical factories abounding in this part of the state. As acetate of lime it is, in our case, taken to the acetone factory from where, as a result of its dual calcination, it issues in the form of carbonate of lime, well adapted to agricultural needs. However, like many good things, this good fortune has passed by; altho a thousand tons are produced monthly at the plant, it is no longer available to our farmers, as the entire output has been contracted for by a foreign concern. As the soil hereabout is a heavy clay and sours easily, it will readily be seen what cheap lime means to our farmers, all of whom are deploring the passing of this cheap source of acid neutralizer.—A. G. B.

Crawford County, Pa. — Pomona Grange No. 26 met with Center Road Grange, March 1 and 2. The meeting was largely attended and an excellent program rendered with very few failures by the subordinate granges that had been assigned numbers on the program. The meeting was called to order at 11 A. M. Wednesday, and the grange opened in regular form by our Worthy Master, J. S. Mosier, after which the address of welcome was delivered by Bro. Greenfield, Master of the Center Road Grange, and was most ably responded to by Bro. C. A. Miller, of Linesville Grange.

The question: "What can we do to make Pomona Grange more beneficial to the membership during our term of office," was discussed at length by all the Pomona officers. One of the features of the afternoon session was an excellent talk on the Evils of Intemperance, by Sister C. D. Miller, of Dicksonburg Grange.

The evening session was opened in the Fifth Degree and a class of eighteen initiated and a number reinstated, after which there was rendered an excellent literary program consisting of volunteer selections.

Grange was called to order Thursday morning at 9.30 o'clock with a large attendance and the regular program for the forenoon carried out, after which an excellent dinner was served by the sisters of Center Road Grange. At the afternoon session the complete Code of the unwritten work was read by Bro. H. J. Griggs, of Randolph Grange. Among the committees to report was one consisting of Brothers W. L. Metzenbacher, Fred E. Flaugh and D. E. Hotchkiss who were appointed at the December meeting of Pomona to confer with the County Commissioners relative to the establishment of a Farm Bureau for Crawford County. They reported that the County Commissioners had agreed to make an appropriation which would be sufficiently large to meet the local expense of a county agriculturist for this year and that an organization would be effective at once.

Another committee to report was one appointed at a previous meeting, which reported that they had purchased wreaths, also caps and robes for the Court officers and the Lady Assistant Steward. These were beautiful and added very much to the attractiveness of the Grange work.

The question, "Does it not take more executive ability to successfully manage the household affairs than it does to run the farm," was responded to with an essay written and read by Sister L. L. Brown of West Shenango Grange, which was listened to with great interest. Besides music and recitations the following questions were discussed:

"What can we do to make Pomona Grange more beneficial to the Membership during our term of office?"

"Effect of the European War on the Farm Labor of this country."

"The Place of the Farmer in the Affairs of the Country."

"How Make a Day Spent at Grange Worth More than a Day Spent at Home."

"What is the Greatest Present Need of American Agriculture?"

"How Can We Start the Boys and Girls in Something for Themselves?"

"Best Method of Making and Caring for Dirt Roads."

"Enemies of the Corn Crop and How to Overcome Them."

"When is the Best Time to Apply Lime? What Purposes Does It Serve?"

"Have the Kitchen and the Dining Room as Much to Gain from Science as the Dairy and the Orchard?"

"Is Preparedness for the National Defense of our Country at the Present Time for the Best Interests of the People?"

"Should the Dairy Farmer Keep Accurate Records of his Cows and How?"

"Does It Not Take More Executive Ability to Successfully Manage the Household Affairs Than It Does to Run the Farm?"

—Mrs. W. L. M.

Centre County, Pa.—A highly interesting special session of the Centre County Pomona Grange was held in the agricultural building, State College, Thursday afternoon and evening. The session was called with the purpose in view of giving the large number of students in the Agricultural Department at Penn State an opportunity to become affiliated with the order, and those who were already members an opportunity to attend a session without the loss of time from their school work. At the afternoon session a number of students and Prof. L. D. Whiting were given the Fifth Degree.

The evening session was held jointly with the agricultural society, and was presided over by E. J. Perry, a Senior class man. The first speaker in the evening was Thomas Piolet, of Wysox, Bradford county, Lecturer of the Pennsylvania State Grange.

At seventy-seven years young, Hon. Leonard Rhone spoke on the necessity of coupling business capacity with scientific farming; the necessity of organization and its fruits; the formulating of business enterprises by the Grange and their success; a rural credit system that will be of first advantage to the young men struggling to obtain a rural home. Mr. Rhone spoke with great freedom, and was warmly greeted by the students at the close of the session.

Resolutions were adopted encouraging the adoption of laws to protect a large number of bug-eating birds.

The principal speaker of the evening was Prof. C. R. Neff, Master of Center County Pomona Grange, who spoke on the purposes of a Rural Credit system, showing the cardinal features such a system must have to be beneficial to the agriculturist, and pointed out that many of the present day movements for an enlarged agriculture were not being promoted for the sole benefit of the farmer but for all classes.—S. W. Smith.

Montgomery County, Pa. — Pomona Grange No. 8 held its regular quarterly meeting Thursday, March 2, 1916, in the Keystone Grange Hall, at Trappe, Pa. The reports of the subordinate granges were very encouraging.

Captain H. H. Fetterolf, chairman of the Legislative Committee, gave an excellent address and reminded the patrons that legislators would be elected in the fall and to be sure to select the right man.

At the afternoon session the officers to serve for the next two years were installed. It was interesting to note that among those installed was Bro. John Wanner, the oldest granger in Montgomery County, who has faithfully filled the office of treasurer for many years.

The literary program was very interesting and well rendered, consisting of music, readings and questions. The question: "Did the Farmers' Institute benefit you any?" caused lots of comment and interesting discussions.

The visiting patrons did justice to the two meals prepared by the members of the Keystone Grange No. 2. The Patrons returned to their homes stating that they had spent a very enjoyable and instructive day.

The next Pomona meeting will be held June 1st, with Perkiomen Grange No. 1378 at East Greenville.—I. G. C.

Tioga County, Pa.—Pomona Grange No. 30 met in their hall at Wellsboro, March 9-10, with Worthy Master E. D. Snover and Overseer John K. Campbell in charge. When the meeting was called to order there were 82 members present. Delegates from 29 granges reported. Several excellent papers were read, especially the one on "Children's Rights" by I. M. Comstock of Nauvoo Grange.

At the Fifth Degree session a class of ten brothers and sisters took the Degree of Pomona. The drama "Brother Josiah" was given by the members of Center Grange during the evening after the degree.

The Friday morning session was well attended and the reports of the various lecturers on their work in the home grange was very instructive and interesting.

A. B. Ashley, by request, gave the selection from pen of the Poet Scout Captain Crawford, entitled "The Bicycle and the Broncho."

A large number of progressive dairymen were present in the afternoon when the milk situation was to be discussed. Altho there has been a large increase in the cost of the material necessary for the production of milk and the price of milk cows has steadily increased, the milk buyers have made a cut in the price of milk during the past year in spite of the fact that there has been a large advance in the selling price of the product.

The following resolution was adopted:

Resolved that we will not vote for any candidate for the office of Senator or Representative in this state who will not pledge himself to support by voice and vote all legislation for state and county prohibition.

The Banner Grange in the county is Mitchells Mills with 417 members. Pomona's meeting in June will be held with the Middle Ridge Grange at Balsam. The meeting closed with the Patrons Chain.—J. K. C.

PARCEL POST MARKETING

The Office of Markets and Rural Organization of the United States Department of Agriculture has stationed a special agent at Pittsburgh to develop a greater use of the parcel post and express service in the marketing of farm products. Most of this trade will be conducted within the second postal zone from Pittsburgh, a distance of about 200 miles, where the postage may be found by adding 4 to the weight in pounds. Only farmers able to pack an attractive, high-quality article and assume some of the responsibilities of the retailer can succeed in direct marketing. But there are many farmers who have used direct marketing with success and many more could profit by it if it were taken up.

Mr. John W. Law, the government agent, is ready to help any who want to investigate the advantages of the system in the Pittsburgh market. He is now preparing a list of farmers with the products they have for sale to be distributed among the Pittsburgh consumers. All farmers interested should send in their names, addresses and list of products that can be provided regularly. Address John W. Law, Assistant in Marketing, Box 1623, Pittsburgh, Pa.

See These 1916 International Harvester Hay Tools

New and Better Side Delivery Rakes

BY all means see the 1916 International, Osborne and Keystone side delivery rakes and hay loaders before your haying season starts.

All Left-Hand Side Delivery Rakes

These new side delivery rakes are all left-hand rakes. Taking the stems as the mower drops them, they pick them up broadside on and slide the hay into light, airy windrows without threshing off leaves and blossoms. They form the windrow on the raked stubble, where the hay lies untouched until the loader comes along to pick it up.

All Steel

International Harvester side delivery rakes are all steel, strong and durable.

Adjustments at Both Ends

The cylinder can be raised or lowered at both ends, giving perfect adjustment under all conditions.

Made in two widths—7 foot 3 inches and 8 foot (bean special). Sold by I H C local dealers.

International, Osborne, and Keystone Hay Loaders

The Windrow Loaders

If you use a side delivery rake to throw the hay up into windrows, you will need an **International, Osborne, or Keystone windrow loader.** These good loaders are 6 feet wide and elevate the hay to a height of 10 feet 3 inches. They gather the hay with a gentle hand-pitching movement that does not thresh or break leaves, so are especially good for loading alfalfa and clover. These loaders are easily hitched to the hay rack and are unhitched by the man on the load, who simply pulls a rope and drives off. A forecarriage (regular equipment) holds the loaders upright when unhitched, ready to be hitched at once behind another rack. Two horses can pull them easily.

The Rake Loader

If you ted your hay after mowing and do not throw it up in windrows, use a rake loader which takes in 8 feet of swath, elevates the hay to a height of 9 feet, and is handled by one man on the load. It gets in close to the fences; it handles the hay as gently as any good farmer could wish, and it rakes clean.

International, Osborne, and Keystone side delivery rakes, tedders, rake loaders, windrow loaders, sweep rakes and stackers, are sold by I H C dealers wherever farmers use these machines. If you want to get your hay in with the least trouble and expense, in the least time, and in the best condition, buy International Harvester hay tools. Write us for catalogues.

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(Incorporated)
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BACKS THIS SAW. IT IS THE BEST AND CHEAPEST SAW MADE.
As low as $7.90
HERTZLER & ZOOK
Portable Wood SAW
is easy to operate. Only $10 saw made to which ripping table can be added. Guaranteed 1 year. Money refunded if not satisfactory. Send for catalog.
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TOWER'S FISH BRAND
REFLEX SLICKER $3
Keeps you dry and keeps you well.
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Boston.
TOWER'S FISH BRAND

Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., March 27, 1916.

Under an active demand for potatoes in the past week and with supplies very moderate, the market has advanced to a new high-mark of the season. Country sections report smaller holding than at this time last year and indications are fair for continued high prices. Western stock is arriving more heavily and comprises the bulk of shipments being received on this market. Michigan stock is selling from $1.15 to $1.20 per bushel; York states, $1.15 to $1.18; Maryland and Delaware, $1 to $1.15. The light receipts of Pennsylvania stock sold at $1.30 to $1.50 per bushel. Red skin white potatoes are found on the market in larger volume than ever before and when well sorted sell at $1.20 to $1.30 per bushel. Jersey stock in baskets is selling at 65 to 75 cents for first grades and 40 to 50 cents for second grades.

Sweet potatoes have been in ample supply for the seeming decrease in demand. Jersey baskets sold at 45 to 55 cents and the principal sales of hamper stock was at 80 to 90 cents. Second grades sold at 40 to 50 cents per hamper.

Vegetables

Onions of poor to fair quality are in heavy receipts and selling principally at $1.25 to $1.75 per 100-lb. bag. A few exceptional lots of New York State and Ohio stock sold as high as $2 to $2.10 per bag. An occasional car of fancy Colarado and Connecticut Valley onions sell at $3 per bag. Shipments of Texas onions arriving here have sold at $4 for the white stock and $3 per crate for reds.

With the approach of milder weather it is believed the demand for cabbage will fall off to a marked degree. York State stock has been in quite liberal supply, averaging from 25 to 30 cars on the track daily. The market stands about $15 per ton for the choicest stock, with average sales around $12 per ton. South Carolina cabbage appeared on the market last week and sold at $1.50 per crate. Shipments from that state will be very light for another two weeks.

Root crops are finding ready sale at high figures during the close of their season. Carrots are selling from $3 to $3.25 per barrel; beets $2 to $2.50; parsnips, 85c to $1; white turnips, $1.50 to $1.75; rutabagas, $2.50 to $3. During the next ten days there is anticipated an increased demand for beets when the Jewish trade buy large quantities for making a wine used during their holidays in the third week of April.

Southern Vegetables

Receipts of practically all varieties of southern vegetables have met with an active market and good prices have been sustained. With the exception of tomatoes practically all vegetables have arrived in good order. Florida potatoes have made their first appearance but promise to continue only in light supply for at least two weeks. With eggplant from Cuba, spinach from Texas, asparagus from California, tomatoes, beans, peas, peppers, etc., from Florida, the markets are taking on the real aspect of Spring. Variety in vegetables is becoming about as common in the winter months as in mid-summer. The quotations follow: Florida lettuce, $2.50 to $3 per basket; beans, $2.50 to 3.50; peas, $4 to $6; peppers, $2 to $3 per carrier; lima beans, $4 to $5 per basket; squash, $1 to $2; tomatoes, $1.25 to $1.75 per crate for fancy stock. Florida potatoes sold at $6 to $8 per barrel. Eggplants sold at $2 to $2.50 per crate. Florida cabbage is in good demand at $1 to $1.25 per basket. Texas spinach moves freely at $1.75 to $2 per bushel basket; Norfolk spinach at $1.75 to $2.50 per barrel. Kale is selling at $1 to $1.25 per barrel.

Fruits

Receipts of apples in the past week have been light but sufficient to meet all demands. The quality is running generally good with the exception of some Greenings and Yorks which show considerable scald. Baldwins met with greater favor and sold for an extra 25 cents per barrel over the prices of one week previous. Quotations are as follows: Kings, $2.75 to 3.25; Greenings, $2.25 to $3; Baldwins, $2.75 to $3.50; Spys, $2.50 to $3.25; Russets, $2.25 to $2.75; Ben Davis, $2 to $2.50; Winesap, $3.25 to $3.75; York Imperials, $2.25 to $3; Ganos, $2.25 to $2.75. Second grade stock sold from $1.50 to $2 per barrel. Boxed apples in large quantities originally packed for the export trade will be thrown on the eastern markets in the next two weeks, which fact has dulled the interest in boxed apples.

Poultry

Desirable live stock is kept cleaned up by a demand which is fully equal to the limited offerings. Quotations are: Fowls, 18 to 19c; roosters, 12 to 13c; spring chickens, 19 to 20c; ducks, 18 to 20c; geese, 17 to 19c.

Dressed fowl are meeting with a fair demand and quotations stand about as furnished last week. Fowl are in light supply and extra heavy stock is selling at 19 to 21c; smaller sizes, 17 to 18c. Old roosters, dry picked, sold at 15 cents. Fancy, soft-meated Jersey broilers are selling at 24 to 26c; other near-by fancy broilers, 22 to 24c. Near-by fancy turkeys, young hens and toms hold to the record price of 31c per pound; fair to choice stock, 25 to 30c; old toms, 25c. Spring ducks are selling at 18 to 20c; geese at 15 to 20c.

Eggs

The egg market has been marked in the past week by a fair demand which has maintained a firm market on strictly fresh stock. All desirable offerings were well absorbed, due in part to the light receipts. Near-by extras in free cases sold at 26 cents; near-by firsts, 21½ cents; nearby current receipts, 21 cents. Western extra firsts, 21½ cents; firsts, 21 cents; seconds, 20 cents. Fancy selected candled fresh eggs are jobbing at 27 to 29 cents per dozen.

—Selmarad.

NEW YORK PRODUCE

New York City, March 27, 1916.

The price of butter here declined more than in other cities last week but is now on the upward climb. Tone of cheese market is steady. The egg market opens quite firm. Buyers show a little more interest in both live and dressed poultry than last week. Advices show 110 car loads to arrive this week. Fresh killed turkeys very scarce. Apples in liberal supply and meeting a very fair demand, best grades a shade higher. Much of the offerings of poor quality. Offerings of potatoes moderate with strong advances.

Butter. — Creamery extra, (92 score) per pound, 36@36½c; higher score, 37@37½c; thirds to firsts, 31@36c; state dairy, 34@36c; packing stock, 22@25c.

Cheese. — Whole milk specials, 18¼@18½c; daisies, 18@18½c; skims, 13½@16¼c.

Eggs. — Fresh gathered, extra, 22½@23c; dirties, 19c; near-by whites, fine to fancy, 23½@24c dozen; ordinary to good, 22@23c; browns, 23c.

Dressed Poultry.—Philadelphia and Long Island, fancy, 3 to 4 pounds to pair, 45@50c; Philadelphia fancy roasters, 25@28c. Fowls, 16@19c; old roosters, 14½c; squabs, $2.50@5.50 dozen. Spring ducks, per pound 20@21c. Turkeys, dry picked, 26@30c.

Apples.—These prices show the range from "B" to "A". Jonathan, bbl., $2@5; York Imperial, barrel, $2.25@3.50; Winesap, barrel, $2.25@4.50; Greening, barrel, $2@3.25; King, bbl., $2@3.25; Northern Spy, $2@4; Baldwin, bbl., $2@3.25; Hubbarston, bbl., $2@2.50; Ben Davis and Gano, bbl., $1.50@3.

Vegetables. — Beets, per bbl., $1@1.25. Carrots, bbl., $2.50@3. Cabbage, Danish, ton $10@18. Turnips, bbl., $1@1.25. Onions, yellow, $2@2.75 bag. Squash, Hubbard and Marrow, $1.75@2 bbl. Potatoes, Pennsylvania, $3.50@3.75. Long Island, $4.25@4.50 bag. Sweets, 60c@$1 per basket.

Country Dressed Veals.—

Choice	13½@14
Prime	12½@13
Fair to good	11½@12
Coarse, heavy	12½@13
Common	@11
Buttermilks	10 @11
Grassers	9 @10

YORK PRODUCE MARKETS

York, Pa., March 27, 1916.

Despite the fact that we have possibly the worst roads experienced in York County for 10 years, the four city markets were crowded with farmers from all sections of the county. Eager buyers were hunting up potatoes and apples, also cabbage. Eggs lowered 2 cents. Other prices about the same.

Eggs.—19@22c per dozen.

Butter.—Country, 30@32c lb; separator, 32@35c lb. Milk, 6c quart.

Poultry.—Hens, 15@17c lb; dressed, 50c @$1.25 each.

Vegetables.—Potatoes, 10@18c ½-pk.; $1@1.20 per bu. Cabbage, 5@10c a head. Lettuce, 5@10c a head. Beets, 4@5c bunch. Radishes, 5@6c bunch. Onions, 3@5 bunch; 10@12c ½-pk. Lima beans, 16@18c quart. Soup beans, 12@18c quart. Lard, 12@15c lb. Turnips, 8@10 ½-pk. Sauer kraut, 6@8c quart. Spinach, 15@18c ½-pk.

Fruit.—Apples, 12@30c ½-pk.; 75c@$2 per bu. Pears, 12@15c ½-pk. Strawberries, 25@35c box.

Retail Grain Market.—Wheat, $1.16; corn, 82c; oats, 60c; rye, 90c; bran, $1.40 cwt. middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.06; corn, 73c; oats, 50c; rye, 80c; bran, $27 per ton; middlings, $31 to $32 per ton.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., March 27, 1916.

Receipts for the week ending Saturday evening, March 18:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,023	6,507	6,122
Previous week	3,048	7,922	6,567

Calves. — Total receipts of calves for this week were 1,410 against 1,498 last week.

Beef Cattle.—There was a firm feeling manifested on the better grades of cattle in touch with the strong and advancing conditions at the primary points. Pennsylvania and Western stock in moderate but ample numbers were on sale. Inquiry was seasonable. Bulls and cows that were choice commanded full rates, while calves closed fairly steady, but not so active.

Best steers	$9.25@9.50
Choice	9.00@9.25
Good	8.75@9.00
Medium	8.50@8.75
Common	8.00@8.25
Bulls	6.00@7.50
Fat cows	5.00@7.00
Thin cows	3.00@4.25

Veal Calves.—

Exceptional lots	$11.50@12.00
Good to choice	11.00@11.25
Medium	9.00@10.00
Common	7.00@ 8.00
Southern and barnyards	4.00@ 6.00

Sheep and Lambs.—The market was in lighter supply and showed no material change either in prices or demand.

Wethers, Extra	$ 9.00@ 9.25
Choice	8.50@ 8.75
Good	7.75@ 8.00
Medium	7.00@ 7.25
Common	5.00@ 6.00
Ewes, heavy, fat	7.00@ 8.00
Lambs, extras	11.75@12.00
Good to choice	11.25@11.50
Medium	10.00@10.25
Common	8.00@ 9.00

Hogs.—Values closed steady, with offerings under good control. Westerns, $11 gross weight; $13.75 net weight.

City Dressed Stock.—Meats of every description that were choice and prime were held at firm prices. Inquiry was normal.

Steers	10@14
Heifers	9@13
Cows	8@11
Veal calves	14@16
Extra calves	17@
Southerns and barnyards	10@13
Country dressed	12@14
Extras	16@
Sheep	14@15
Extra wethers	16@
Lambs	17@18
Extra lambs	19@
Hogs	14@

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., March 27, 1916.

Cattle.—The supply on sale Monday was 70 loads compared with 50 loads last week. The market ruled active with prices higher on the choice heavy cattle, while the light and medium grades ruled steady; quite a number of light weight cattle here. Cows sold strong on all grades from bolognas to choice. Bulls higher on all grades. Not many choice heifers here and they were stronger. Best fresh cows steady; other grades and springers slow. Today's supply was 73 loads. The market ruled steady to strong on all fat, handy steers.

Good to choice	$9.25@9.65
Good, 1300 to 1400 lb.	8.85@9.15
Medium to good, 1200 to 1300 lb.	8.10@8.40
Tidy, 1050 to 1150 lb.	8.15@8.40
Fair to medium, 1000 to 1100 lb.	7.50@8.00
Fair, 900 to 1000 lb.	6.75@7.50
Common, 700 to 900 lb.	5.50@6.25
Rough, half-fat, 1000 to 1300 lb.	6.25@7.25
Common to good fat oxen	4.00@6.75
Common to good fat bulls	4.25@7.75
Common to good fat cows	4.25@7.00
Heifers, 700 to 1100 lb.	4.75@8.00
Bologna cows	3.75@4.25
Fresh cows and springers	$25@85

Calves.—Supply of veals liberal all week and market ruled a little slow with prices 50c lower than Monday's market. Today's receipts were 1,000 head, which sold lower than last week.

Veal calves	$7.50@10.50
Heavy and thin calves	5.00@ 8.00

..Hogs. — The supply of hogs during the week has been light and with a little better demand the market ruled stronger, the close for the week being 20c per cwt., higher on good weight grades and 35c higher for pigs and lights. Today's supply was 45 double-deck loads, which sold generally 45 cents lower than Saturday's close.

Prime heavy	$10.20@
Heavy mixed	10.15@
Prime medium weights	10.10@
Best heavy Yorkers	10.10@
Light Yorkers	9.50@
Good pigs	8.75@8.90
Common to good roughs	8.50@9.10
Stags	7.00@7.50

Sheep and Lambs.—The supply of sheep and lambs has been light, and with a good demand the market ruled active and strong on all fat grades. Today's supply was only 8 loads, about half of which were clipped. The market ruled fairly active at steady prices on all grades of sheep and lambs, both wooled and clipped.

Prime wethers (wooled)	9.10@ 9.25
Good mixed	8.50@ 9.00
Fair mixed ewes and wethers	7.00@ 8.00
Clipped sheep	4.00@ 7.50
Culls and common	4.00@ 5.50
Spring lambs	7.50@11.75
Clipped lambs	6.00@ 9.75
Heavy lambs	7.50@11.75
Culls to choice yearlings	6.00@ 9.50

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., March 27, 1916.

Hay and Straw.—Hay of good quality is kept well cleaned up at steady figures. The demand is fair and receipts of good grades are only moderate. Lower grades are steady but not active. Straw is quiet and unchanged.

Grains.—Wheat shows slight fluctuations with about a 2-cent advance during the week. Offerings are only moderate and values are well sustained under fairly active demand. Corn is down about 2 cents. Offerings are moderate and there is a fair demand. Oats are generally steady with a fair demand for desirable stock.

Hay.—No. 1 timothy, medium bales, $21.50@22; No. 2 do., $19.50@20; no grade, $10@14. Light mixed clover, $19@19.50; No. 1 do., $18.50@19; No. 2 do., $15.50@16.50.

Straw.—No. 1 straight rye, $13@13.50; No. 2 do., $12@12.50; No. 1 tangled rye, $11.50@12; do., No. 2 $10.50@11. No. 1 wheat straw, $10@10.50; No. 2 do., $9@9.50. No. 1 oat straw, $10@10.50; No. 2 do., $8.50@9.

Wheat.—No. 2 red, $1.12@1.15; No. 3 red, $1.12@1.15; rejected A, $1.09½@1.12½; rejected B, $1.08@1.11.

Corn.—No. 2 yellow western, 79@79½c; steamer yellow, 77@78c; western, No. 3 74@75c; No. 4 yellow, 72@73c; ear corn, 77@78c per 70 pounds.

Oats.—No. 2 white, 50½@51c; No. 3 do., 47½@48½c; No. 4 do., 45½@46½c; standard white, 48½@49½c; sample oats, 42½@43½c.

Feed.—Winter bran, 100-lb. sacks, $24.50@25; spring bran, do., $22.50@23.

Flour.—Car lots, winter clear, $5@5.25; straight, $5.25@5.50; patent, $5.60@5.85. City mills, choice to fancy patent, $6.15@6.65; do., regular grades, $5@5.25. Rye flour, $5@5.50 per bbl.

NEW YORK HAY AND GRAIN

New York City, March 27, 1916.

Hay and Straw.—All grades of timothy hay are firm to higher. Supplies are gradually being reduced and unless embargoes are raised there is danger of actual scarcity of hay to meet the demand. Straw holds firm.

Grains.—Activity in wheat has fallen off and there is less interest manifested both by general public and professional operators. The foreign demand has slackened and there is little to sustain the market. There is enough wheat to supply every need and European purchases are determined largely by transportation factors. Our wheat is not being taken at present. Corn is showing a weakening tendency. Arrivals to market are twice as heavy as a year ago. Oats are quiet.

Hay.—Large bales—No. 1 timothy, $26@27; No. 2, $25@26; No. 3 $21@23; fancy clover, light mixed, $24@26; No. 1, $20@23; No. 1 clover, clear, $18@20.

Straw.—Per ton, No. 1 rye, $14.50@15; do., No. 2, $13@14; oats straw, $10.

Wheat.—No. 1 Northern, $1.36¾; No. 2 $1.34¾; No. 2 hard winter, $1.22½.

Corn.—No. 2 yellow, 81@81½c; No. 3 yellow, 80@80½c.

Oats.—No. 3 white, 48½@49c; No. 4, 47½@48½c. Ordinary to fancy, 48½@49c.

Rye.—$1.02 bu.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $22.50. Standard middlings, $24.50; flour, do., $28.50 to arrive. Red dog, to arrive, 140-pound sacks $32@33. Oil meal, $35.50@36. City feed, bulk bran, $23. Heavy feed in bulk, $24. Red dog, $33. Flour middlings, $32.50.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., March 27, 1916.

Butter holds steady at last week's quotations. Receipts of solid packed creamery continue light and the market is firm with a fair demand. Offerings of the cheaper grades are not equal to trade wants. Ladles are in small supply and firm with a fair inquiry. Receipts of prints are kept well cleaned up at firm prices. Offerings of cheese are light and the market rules firm under fair demand.

Butter.—Solid packed creamery, fancy specials, 40c; extras, 38c; extra firsts, 37c; firsts, 35@36c; seconds, 34@35c; ladle packed, 24@26c; nearby prints, fancy, 41c; average extra, 39@40c; do. firsts, 36@37c; do., seconds, 34@35c; special fancy brands of prints, 44@47c.

Cheese.—New York, full-cream fancy, 18 @19c; fair to good, held, 18@18½c; d part skims, 11@16c.

NEW YORK MILK MARKET

New York City, March 27, 1916.

The market is dull for the season of th year. The consequent surplus is in evidenc The opinion is that the proposed increase i pay included in the contract of the Borde Company for July, August and September, justified by present market conditions. sudden cessation of war would affect the mar ket, however. The market value is approx mately 3⅞ cents a quart for Grade B in th 26-cent zone.

The receipts of milk and cream in 4 quart cans for the week ending Marc 25 were as follows:

Railroad	Milk	Crea
Erie	44,622	2,2
Susquehanna	8,140	15
West Shore	18,225	1,0
Lackawanna	60,175	1,6
N. Y. Central (long haul)	91,151	1,8
N. Y. Central (short haul)	22,650	6
Ontario	41,266	3,17
Lehigh Valley	39,710	1,05
Homer Ramsdell Line	3,710	3
New Haven	6,569	4
Pennsylvania	8,150	21
Other sources	1,230	2
Totals	342,598	11,50
Same week last year	335,085	10,40

ELGIN BUTTER MARKET

Elgin, Ill., March 25, 1916.

Butter sales today were made at 36 cent per pound. Sales of 62 tubs were made 36 cents.

CHICAGO HORSE MARKET

Chicago, Ill., March, 27, 1916.

Horses were marketed freely last wee and sold very well on the whole, the princ pal feature being the large demand for arm horses. Prices were mostly unchanged, wit sales of little southern horses at $50@7 farm horses at $70@120, drivers at $100@200 and commercial chunks at $165@23 Larger horses of good to prime qualit brought $240@300, few selling as high a $250.

TOBACCO MARKET

Late estimates show that the 1915 crop o cigar leaf tobacco grown in six leadin states was not more than 60 percent of no mal and it is also shown that upon th whole the quality was far below the averag and that the only reason so much of th crop has found a market is the evident short age in stocks of old tobacco. This scarcit is already being shown in the unusual i quiry and liberal sales by packers at man if not all market points. There is a genera impression that ere six months the situatio will be such that almost any tobacco fit fo cigars will be sought at whatsoever point i may be found.

With the above situation it is not surpris ing that growers are expressing a somewha increased interest in the crop of the pre ent year and despite some contrary repor it is highly probable that there will b some increase in the acreage as compare with last year. With the encouraging ou look farmers are taking unusual interest i proper preparation, including seed, fertilize etc. In all such matters and especially th former, great aid is being furnished by stat and Federal authorities thru the severa experiment stations in tobacco sections. Fo instance, the Pennsylvania station is recom mending and disseminating the Slaughte strain of broadleaf, having sent out enough recleaned seed to plant some 2,500 acres. At tention is called to the fact that better seed and attention often amounts to a better yield and that good yields and good quality usually go hand in hand.—H. E. Tweed March 27, 1916.

Siberian Seed Oats
best yielders for ten years Ohio Experiment Station. 80c sacks included.
The E. W. Armstrong Co.,
Monroeville, - - Ohio.

OTHER BUSINESS—Must sell 310 acres; 200 ca be plowed with tractor, 20 cows, 3 barns, main one basement, 30 patent stanchions, concrete floor. One mile to church, school and creamery. Milk taken by Bordens at door. 12-room, 2-story, good house; R. D. and phone. If can sell at once will take $7,000. $2,500 cash, long time on balance at 5 percent interest.
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The Fur Bringers

By Hulbert Footner

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SYNOPSIS OF OPENING CHAPTERS

Peter Minot and Ambrose Doane are partners in the fur business, with their trading camp located at Lake Miwasa. They are known as "free traders" in the country controlled by The Company. Offering better prices, they enjoy the friendship of the Indians and the white trappers, but are opposed by the Company officials. Ambrose has just heard of Colina Gaviller, the daughter of the Company boss, at Fort Enterprise. She is the only white girl in the entire country and Ambrose sets out for Fort Enterprise to make her acquaintance. Colina is an unusual girl, as shown in her conversation with her father. She refuses to be conventional in an unconventional country, and her father threatens to send her back to the States.

CHAPTER III (Concluded.)

Mr. Gaviller was emphatic in his declaration that Colina must yield more to his wishes or be sent back to her aunt.

Colina laughed out of sheer vexation. "The silly ideas fathers have!" she cried. "Nobody can look after me, not you, not my aunt, nobody but myself! Why won't you understand that! I don't know exactly what dangers you fancy are threatening me. If it is from men, be at ease! I can put the fear of God into them! It is the sweet and gentle girl you would like to have that is in danger there!"

"I'm afraid you'll have to go back," said Gaviller.

Colina drew her beautiful straight brows together. "You make me think you simply want to get me off your hands," she said sullenly.

Gaviller shook his head. "You know I love to have you with me," he said simply.

"Then consider me a fixture!" said Colina serenely. "This is my country!" she went on enthusiastically. "It suits me. I like its ugliness and its hardships, too! I hated it in the city. Do you know what they called me?—the wild Highlander!

"Up here everybody understands my wildness, and thinks none the worse of me. It was different in the city—you've always lived in the north, you old innocent—you don't know! Men, for instance, in society they have a curious logic. They seem to think if a girl is natural she must be bad! Sometimes they acted on that assumption—"

"What did I tell you!" cried her father. "Men are the same everywhere!"

"Well," said Colina, smiling to herself, "they didn't get very far. And no man ever tried it twice. Up here—how different. I don't have to think of such things."

"I have to think of settling you in life," said Gaviller gloomily. "There is no one for you up here."

"I'm not bothering my head about that," said Colina. She went on with a kind of splendid insolence: "Every man wants me. I'll choose one when I'm ready. I can't see anything in men except as comrades. The decent ones are timid with women, and the bold ones are—well—rather beastly. I'm looking for a man who's brave and decent, too. If there's no such thing—"

She rose from the table. Colina's was a body designed to fill a riding-habit, and she wore one from morning till night. She was as tall as a man of middle height, and her tawny hair piled on top of her head made her seem taller.

"Well?" said Gaviller.

"Oh, I'll choose the handsomest beast I can find," she said, laughing over her shoulder and escaping from the room before he could answer.

John Gaviller finished his egg with a frown. Colina had this trick of breaking things off in the middle, and it irritated him. He had an orderly mind.

CHAPTER IV

The Meeting

Colina groomed her own horse, whistling like a boy. Saddling him, she rode east along the trail by the river, with the fenced grain fields on her right hand.

Beyond the fields she could gallop at will over the rolling, grassy bottoms, among the patches of scrub and willow.

It was not an impressively beautiful scene—the river was half a mile wide, broken by flat wooded islands overflowed at high water; the banks were low, and at this season muddy. But the sky was as blue as Colina's eyes, and the prairie, quilted with wild flowers, basked in the delicate radiance that only the northern sun can bestow.

On a horse Colina could not be actively unhappy, nevertheless she was conscious of a certain dissatisfaction with life. Not as a result of the discussion with her father—she felt she had come off rather well from that.

But it was warm, and she felt a touch of languor. Fort Enterprise was a little dull in early summer. The fur season was over, and the flour mill was closed; the Indians had gone to their summer camps; and the steamboat had lately departed on her first trip up river, taking most of the company employees in her crew.

There was nothing afoot just now but farming, and Colina was not much interested in that. In short, she was lonesome. She rode idly with long detours inland in search of nothing at all.

Loping over the grass and threading her way among the poplar saplings. Colina proceeded farther than she had ever been in this direction since summer set in.

She saw the painter's brush for the first time—that exquisite rose of the prairies—and instantly dismounted to gather a bunch to thrust in her belt. The delicate, ashy pink of the flower matched the color in her cheeks.

On her rides Colina was accustomed to dismount when she chose, and Ginger, her sorrel gelding, would crop the grass contentedly until she was ready to mount again. To-day the spring must have been in his blood, too.

When Colina went to him he tossed his head coquettishly, and trotting away a few steps, turned and looked at her with a droll air. Colina called him in dulcet tones, and held out an inviting hand.

Ginger waywardly wagged his head and danced with his forefeet.

This was repeated several times—Colina's voice ever growing more honeyed as the rose in her cheeks deepened. The inevitable happened — she lost her temper and stamped her foot; whereupon Ginger, with lifted tail, ran around her like a circus horse.

Colina, alternately cajoling and commanding, pursued him bootlessly. Fond as she was of exercise, she preferred having the horse use his legs. She sat down in the grass and cried a little out of sheer impotence.

Ginger resumed his interrupted meal on the grass with insulting unconcern. Colina was twelve miles from home—and hungry.

Desperately casting her eyes around the horizon to discover some way out of her dilemma, Colina perceived a thin spiral of smoke rising above the edge of the river bank about a quarter of a mile away.

She had no idea who could be camping on the river at this place, but she instantly set off with her own confident assurance of finding aid. Ginger displayed no inclination to leave the particular patch of prairie grass he had chosen for his luncheon.

As Colina approached the edge of the bank she heard a voice. She herself made no sound in the grass.

Looking over the edge she saw a man and a dog on the stony beach below, both with their backs to her and oblivious of her approach. Of the man, she had a glimpse only of a broad blue flannel back and a mop of black hair.

She heard him say to the dog: "Our last meal alone, old fel'! Tonight, if we're lucky, we'll dine with her!"

This conveyed nothing to Colina—she remembered it later.

In speaking he turned his profile and she received an agreeable shock; he was young; he was not common; he had a fair, pink skin that contrasted oddly with his swarthy locks; his bold profile accorded with her fancy.

What caught her off her guard was his affectionate, quizzical glance at the dog.

It was a seductive glimpse of a stern face softened.

The dog scented her and barked; the man turning sprang to his feet. Colina experienced a sudden and extraordinary confusion of her faculties.

He was taller than she expected—that was not it; in the glance of his eager dark eyes there was a quality that took her completely by surprise—that took her breath away. This in one of the sex she condescended to!

The young man was completely dumfounded by the sight of her. He hung in suspended motion; his wide eyes leaped to hers—and clung there. They silently gazed at each other—each with much the same pained and breathless look.

Colina struggled hard against the spell. She was badly flustered. "Please catch my horse for me," she said with, under the circumstances, intolerable hauteur.

He did not move. She saw a dull, red tide creep up from his neck, over his face and into his hair. She had never seen such a painful blush. He kept his head up, and tho his eyes became agonized with embarrassment, they clung doggedly to hers.

She knew intuitively that he blushed because he fancied that she, from his rough clothes, had judged him to be a common tramp.

She was glad of it—his blush gave her a little security.

But she could not support his glance. She all but stamped her foot as she said: "Didn't you hear me?"

With a visible effort the young man collected his wits, and with unsmiling face started to climb toward Colina. The dog, making to follow him, he spoke a word of command and it returned to the boat. Face to face with him Colina felt as if his glowing dark eyes were burning holes in her.

"Where is he?" he asked soberly.

Colina merely pointed across the bottoms where Ginger could be seen still busy with the grass.

"I'll bring him to you," he said coolly, and started off.

His assurance exasperated Colina. "It isn't as easy as you think," she said haughtily, "or I shouldn't have asked for help!"

He turned his head, his face suddenly breaking into a beaming smile. "I know horses," he said.

Colina was furious. He made her feel like a little girl. She bit her lips to keep in the undignified answer that sprang to them. Inside her she said it; "Smarty! I shall laugh when he leads you a chase!" She sat down in the grass under a poplar-tree prepared to enjoy the circus from afar.

There was none. Ginger having tired of his waywardness, perhaps, or having eaten his fill, quietly allowed himself to be taken. The young man came riding back on him. Colina could almost have wept with mortification.

He slipped out of the saddle beside her and stood waiting for her to mount. There was no consciousness of triumph in his manner.

His eyes flew back to hers with the same extraordinarily naive glance. When Colina frowned under it he literally dragged them away, but in spite of him they soon returned.

Many a man's eyes had been offered to Colina, but never a pair that glowed with a fire like this. They were at the same time bold and humble. They contained an imploring appeal without any sacrifice of self-respect. They disturbed Colina to such a degree she scarcely knew what she was doing.

He offered her a hand to mount, and she drew back with an offended air. He instantly yielded, and she mounted unaided—mounted awkwardly, and bit her lip again.

He did not immediately loose her rein. Out of the corner of her eye Colina saw that he was breathing fast.

"It will be late before you get home," he said. His voice was very low—she could feel the effort he was making not to let it shake. "Will you—will you eat with me?"

The modest tendering of this bold invitation disarmed Colina. She hesitated. He went on with a touch of boyish eagerness: "There's only a traveler's grub, of course. I got a fish on a night-line this morning. Also there's a prairie chicken roasted yesterday."

A self-deceiving argument ran thru Colina's brain like quick-silver: "If I go, I shall be tormented by the feeling that he got the best of me; if I stay a while I can put him in his place!"

She dismounted. The young man turned abruptly to tie Ginger to the poplar-tree, but even in the boundary of his cheek Colina read his beaming happiness.

With scarcely another glance at her he plunged down the bank and set to work over his fire. Colina sedately followed and seated herself on a boulder to wait until she should be served.

Now that he no longer looked at her, Colina could not help watching him. A dangerous softness began to work in her breast; he was so boyish, so clumsy, so anxious to entertain her fittingly—his unconsciousness of her nearness was such a transparent assumption.

Colina was alarmed by her own weakness. She looked resolutely at the dog.

He was a mongrel black and tan, bigger than a terrier, and he had a ridiculous curly tail. He had received her with an insulting air of indifference.

"What an ugly dog!" Colina said coolly.

The young man swung around and affectionately rubbed the dog's ear.

"The best sporting dog in Athabasca," he said promptly, but without any resentment.

Colina bit her lip again. It seemed as if everything she did was mean. "Of course his looks haven't anything to do with his good qualities," she said. Here she was apologizing.

"He's almost human," said the young man. "I talk to him like a person."

"Come here, dog," said Colina.

The animal was suddenly stricken with deafness.

''What's his name?'' she asked.

''Job.''

''Come here, Job!'' said Colina coaxingly.

Job looked out across the river.

''Job!'' said his master sternly.

The dog sprang to him as if they had been parted for years, and frantically licked his hand. This display of boundless affection was suspiciously self-conscious.

The young man led him to Colina's feet. ''Mind your manners!'' he commanded.

Job in utter abasement offered her a limp paw. She touched it, and he scampered back to his former place with an air of relief, and turning his back to her lay down again. It cannot be said that his enforced obedience made her feel any better.

CHAPTER V

An Invitation to Dine

Lunch was not long in preparing, for the rice had been on the fire when Colina first appeared. The young man set forth the meal as temptingly as he could on a flat rock, and at the risk of breaking his sinews carried another rock for Colina to sit upon. His apologies for the discrepancies in the service disarmed Colina again.

''I am no fine lady,'' she said. ''I know what it is to live out.''

Colina was hungry and the food was good. A good understanding rapidly established itself between them. But the young man made no move to serve himself. Indeed he sat at the other side of the rock-table and produced his pipe.

''Why don't you eat?'' demanded Colina.

''There is plenty of time,'' he said, blushing.

''But why wait?''

''Well—there's only one knife and fork.''

''Is that all?'' said Colina coolly. ''We can pass them back and forth—can't we?''

Starting up and dropping the pipe in his pocket he flashed a look of extraordinary rapture on her that brought Colina's eyelids fluttering down like winged birds. He was a disconcerting young man. Resentment moved her, but she couldn't think of anything to say.

They ate amicably, passing the utensils back and forth.

After a while Colina asked: ''Do you know who I am?''

''Of course,'' he said. ''Miss Colina Gaviller.''

''I don't know you,'' she said.

''I am **Ambrose Doane, of Moultrie**.'

''Where is Moultrie?''

''On Lake Miwasa—three hundred miles down the river.''

''Three hundred miles!'' exclaimed Colina. ''Have you come so far alone?''

''I have Job,'' Ambrose said with a smile.

''How much farther are you going?'' she asked.

''Only to Fort Enterprise.''

''Oh!'' she said. The question in the air was: ''What did you come for?'' Both felt it.

''Do you know my father?'' Colina asked.

''No,'' said Ambrose.

''I suppose you have business with him?''

''No,'' he said again.

Colina glanced at him with a shade of annoyance. ''We don't have many visitors in the summer,'' she said carelessly.

''I suppose not,'' said Ambrose simply.

Colina was a woman—and an impulsive one; it was bound to come sooner or later: ''What did you come for?''

His eyes pounced on hers with the same look of mixed boldness and apprehension that she had marked before; she saw that he caught his breath before answering.

''To see you!'' he said.

Colina saw it coming, and would have given worlds to have recalled the question. She blushed all over—a horrible, unequivocal, burning blush. She hated herself for blushing—and hated him for making her.

''Upon my word!'' she stammered. It was all she could get out.

He did not triumph over her discomfiture; his eyes were cast down, and his hand trembled. Colina could not tell whether he were more bold or simple. She had a sinking fear that here was a young man capable of setting all her maxims on men at naught. She didn't know what to do with him.

''What do you know about me?'' she demanded.

It sounded feeble in her own ears. She felt that whatever she might say he was marching steadily over her defenses. Somehow, everything that he said made them more intimate.

''There was a fellow from here came by our place,'' said Ambrose simply. ''Poly Goussard. He told us about you—''

''Talked about me!'' cried Colina stormily.

''You should have heard what he said,'' said Ambrose with his venturesome, diffident smile. ''He thinks you are the most beautiful woman in the world!'' Ambrose's eyes added that he agreed with Poly.

It was impossible for Colina to be angry at this, tho she wished to be. She maintained a haughty silence.

Ambrose faltered a little.

''I—I haven't talked to a white girl in a year,'' he said. ''This is our slack season—so I—I came to see you.''

If Colina had been a man this was very like what she might have said—to meet with candor equal to her own in the other sex, however, took all the wind out of her sails.

''How dare you!'' she murmured conscious of sounding ridiculous.

Ambrose cast down his eyes. ''I have not said anything insulting,'' he said doggedly. ''After what Poly said it was natural for me to want to come and see you.''

''In the slack season,'' she murmured sarcastically.

''I couldn't have come in the winter,'' he said naively.

Colina despised herself for disputing with him. She knew she ought to have left at once—but she was unable to think of a sufficiently telling remark to cover a dignified retreat.

''You are presumptuous!'' she said haughtily.

''Presumptuous?'' he repeated with a puzzled air.

She decided that he was more simple than bold. ''I mean that men do not say such things to women,'' she began as one might rebuke a little boy—but the conclusion was lamentable, ''to women to whom they have not even been introduced!''

''Oh,'' he said, ''I'm sorry! I can only stay a few days. I wanted to get acquainted as quickly as possible.''

A still small voice whispered to Colina that this was a young man after her own heart. Aloud she remarked lanquidly: ''How about me? Perhaps I am not so anxious.''

He looked at her doubtfully, not quite knowing how to take this. ''Really he is too simple!'' thought Colina.

''Of course I knew I would have to take my chance,'' he said. ''I didn't expect you to be waiting on the bank with a brass band and a wreath of flowers.''

He smiled so boyishly that Colina, in spite of herself, was obliged to smile back. Suddenly the absurd image caused them to burst out laughing simultaneously—and Colina felt herself lost.

Laughter was as dangerous as a train of gunpowder. Even while he laughed Colina saw that look spring out of his eyes—the mysterious look that made her feel faint and helpless.

He leaned toward her and a still more candid avowal trembled on his lips. Colina saw it coming. Her look of panic-terror restrained him. He closed his mouth firmly and turned away his head.

Presently he offered her a breast of prairie chicken with a matter-of-fact air. She shook her head, and a silence fell between them—a terrible silence.

''Oh, why don't I go!'' thought Colina despairingly.

It was Ambrose who eased the tension by saying comfortably: ''It's a great experience to travel alone. Your senses seem to be more alert—you take in more.''

He went on to tell her about his trip, and Colina lulled to security almost before she knew it was recounting her own journey in the preceding autumn. It was astonishing when they stuck to ordinary matters — how like old friends they felt. Things did not need to be explained.

It provided Colina with a good opportunity to retire. She rose.

Ambrose's face fell absurdly. ''Must you go?'' he said.

''I suppose I will meet you officially —later,'' she said.

He raised a pair of perplexed eyes to her face. ''I never thought about an introduction,'' he said quite humbly. ''You see we never had any ladies up here.''

In the light of his uncertainty Colina felt more assured. ''Oh, we're sufficiently introduced by this time,'' she said offhand.

''But—what should I do at the fort?'' he asked. ''How can I see you again?''

She smiled with a touch of scorn at his simplicity. ''That is for you to contrive. You naturally call on my father; if he likes you, he will bring you home to dinner.''

Ambrose smiled with obscure meaning. ''He will never do that,'' he said.

''Why not?'' demanded Colina.

''My partner and I are free-traders,'' he explained; 'the only free-traders of any account in the Company's territory. Naturally they are bitter against us.''

''But business is one thing and hospitality another,'' said Colina.

''You do not know what hard feeling there is in the fur trade,'' he suggested.

''You do not know my father,'' she retorted.

''Only by reputation,'' said Ambrose.

The shade of meaning in his voice was not lost on her. Her cheeks became warm. ''All white men who come to the post dine with us as a matter of course,'' she said. ''We owe you the hospitality. I invite you now in his name and my own.''

''I would rather you asked him about me first,'' said Ambrose.

This made Colina really angry. ''I do not consult him about household matters,'' she said stiffly.

''Of course not,'' said Ambrose; ''but in this case I would be more comfortable if you spoke to him first.''

''Are you afraid of him?'' she inquired with raised eyebrows.

''No,'' said Ambrose coolly; ''but I don't want to get you into trouble.''

Colina's eyes snapped. ''Thank you,'' she said; ''you needn't be anxious. You had better come—we dine at seven.''

''I will be there,'' he said.

By this time she was mounted. As she gave Ginger his head Ambrose deftly caught her hand and kissed it. Colina was not displeased. If it had been self-consciously done she would have fumed.

She rode home with an uncomfortable little thought nagging at her breast. Was he really so simple as she had decided? Had he not baited her into losing her temper—and insisting on his coming to dinner? Surely he could not know her so well as that!

''Anyway, he is coming!'' she thought with a little gush of satisfaction she did not stop to examine. ''I'll wear evening dress, the black taffeta, and my string of pearls. At my own table it will be easier—and with father there to support me! We will see!''

CHAPTER VI

The Dinner

Colina did not see her father until he came home from the store for dinner. She was already dressed and engaged in arranging the table.

John Gaviller's eyes gleamed approvingly at the sight of her in her finery. Black silk became Colina's blond beauty admirably. Manlike, he arrogated the extra preparations to himself. He thought it was a kind of peace offering from Colina.

''Well!'' he began jocularly, only to check himself at the sight of three places set at the table. ''Who's coming?'' he demanded with natural surprise.

Colina, busying herself attentively with the center-piece of painter's brush, wondered if her father had met Ambrose Doane. She gave him a brief offhand account of her adventure without mentioning their guest's name.

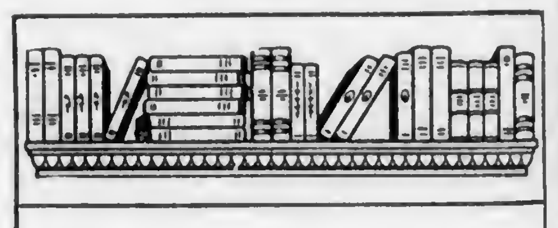
''But who is it?'' he asked.

She answered a little breathlessly: ''Ambrose Doane of Moultrie.''

Gaviller's face changed slightly. ''H-m!'' he said non-committaly.

''Doesn't the table look nice?'' said Colina quickly.

(To be continued.)



PIECES to SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

THE BUSY MAN

If you want to get a favor done
  By some obliging friend,
And want a promise, safe and sure,
  On which you may depend,
Don't go to him who always has
  Much leisure time to plan,
But if you want your favor done
  Just ask the busy man.

The man with leisure never has
  A moment he can spare.
He's always ''putting'' off until
  His friends are in despair.
But he whose every waking hour
  Is crowded full of work
Forgets the art of wasting time;
  He cannot stop to shirk.

So when you want a favor done,
  And want it right away,
Go to the man who constantly
  Works twenty hours a day.
He'll find a moment, sure, somewhere,
  That has no other use,
And fix you while the idle man
  Is framing an excuse.

Right of the Road

I. Right to land by adjoining Owners

By Albert S. Bolles

What rights have farmers to the land in the highways adjoining their farms? Before setting them forth it may be stated that the same rules do not apply alike to the adjoining owners of land lying within cities and boroughs and outside of them. In this article therefore we shall describe the rights of farmers, in other words, the rights of the owners of land lying along our country roads.

When one buys a farm bounded by a highway, what right does he acquire in the land thru which the highway extends? A well known rule is, his ownership extends to the middle of the highway, if the grantor or seller had a title to it and did not retain his title by express words in his deed. If the land is described in the deed as ''bounded on'', ''running along'', ''by the side of'' the highway, or similar terms, the boundary line is the centre of the highway, even tho the dimensions of the lot would exclude the highway, and in all cases of doubt the presumption is always in favor of the boundary being in the centre of the road.

Of course, if one owns on both sides, then he also owns all the land between in the highway subject to the rights of the public. It has been said that there is no instance of a sale by a man of his farm adjoining a highway and of his reservation of the land in the highway itself. As the purchaser becomes the owner, subject to the public rights, it follows, whenever a highway is abandoned or given up by the legislature or other proper authority, the adjoining owners are restored to their original dominion over the land. It is as free from the encumberance of the highway as if it had never existed.

Indeed, one's ownership of land thus bounded by a highway is deemed so important that where he agrees to buy a piece of land at a specified price per acre, which is to be surveyed, the purchaser must pay at that price for the land lying within the highway that is included in his purchase. ''A sale by the acre,'' says one of our justices, ''of a tract of land having one of its boundaries in the centre of a public street is not unusual, nor is there anything in it to reasonably lead to a belief that injustice will be done by the contract according to its terms.''

What rights has an adjoining owner to the use of his land in the highway? In a recent case, Justice Elkin, speaking for the Supreme Court said: ''One who owns the soil over which a highway passes has a right to enjoy his property in every way that may promote his interest or convenience, so long as he does not interfere with the public use. This is a familiar and settled principle of law. However, it must be understood in a qualified sense. It does not mean that a landowner can go upon the public highway and build any kind of a structure that may please his fancy or promote his convenience without the consent and approval of the supervisors. Indeed, it may be stated as a general rule, that the supervisors have the whole care and entire supervision of the public highways, and that no person, not even an abutting landowner can make any permanent private use thereof without their consent and approval, and even then subject to the right of the township to discontinue the private use where it is deemed expedient or necessary in order to promote the use of the highway.'' As this is the latest utterance on the subject by our highest court, it must be regarded as the law.

''In short, the public has the right to pass and repass on the surface without hindrance or interference, and to work and keep the way in condition for easy and convenient travel, but in all other respects the soil and all rights incidental thereto belong absolutely to the owner of the fee, and may be exercised by him, provided, in so doing he does not interfere with the rights of the public to travel the same.''

From this general statement of an adjoining owner's rights, what specific things can he do? He can pasture his cattle on his own land in the highway, as if it were enclosed, but as this right belongs to every highway owner, it follows that no one can pasture his cattle on the land of another in the highway. As an eminent jurist has remarked, the right on the part of the public to depasture the land is not necessary for the exercise of their right to pass over it; nor is the exercise of such a right on the part of the owner inconsistent with any public right. Again, the land was never taken by the public for that purpose, nor has it paid anything for such use of it. The following illustration shows how fine the judicial mill can grind on an occasion. A woman cut the grass in a highway so that her little ones could go to school without wetting their feet. This, the court said, she had a right to do. But, instead of putting the grass out of the path, she gathered it and gave it to the horse of a surveyor of highways, which she ought not to have done, as it belonged to the owner of the land on which it grew. Altho it was worth only a few cents, the owner sued for its value and recovered it.

NATIONAL DAIRY UNION MEETING

The National Dairy Union in recent meeting decided to use its efforts with Congress and the Internal Revenue Department to bring about such changes in existing laws and rulings as will protect the consumer of butter and at the same time prevent excessive punishment and hardship being imposed upon well-meaning makers and sellers of butter because of the 16 percent moisture content ruling. Hon. W. D. Hoard resigned as treasurer of the Union and S. B. Shilling, of Chicago, was elected to succeed him. It was decided to have the Haugen oleomargarine bill put in shape and introduced in Congress at once.

FULL OF HELPFUL HINTS

''We think Pennsylvania Farmer a good all around farm and household magazine. It is full of helpful instruction on many subjects. The article on building hot beds, planting and transplanting vegetables, etc., is worth more than the price asked for the paper; and the story ''Hepsey Burke'' is worth another year's subscription. Long live Pennsylvania Farmer.'' Mrs. Elizabeth Booth, Brandywine Summit, Pa.

FULL OF VALUE

''We think Pennsylvania Farmer is a grand paper. We have been taking it for a number of years and we all enjoy reading it. Its pages are running over with helpful hints. We would certainly feel lost without it. Wishing you success thruout this year, and years to come I remain a constant reader of Pennsylvania Farmer.'' Edna M. Wheatman Newtown Square, Pa.

"GUARANTEED"

IN FARMERS' Bulletin 481, the United States Department of Agriculture says:

"Many brands of Portland cement are on the market, from which the farmer should select some well-known make, *guaranteed* by the local dealer to meet the standard specifications for cement of the United States Government, to be obtained from the United States Bureau of Standards."

THIS word now appears on every new bag of ALPHA Cement. It means that the cement the bag contains was manufactured under a strict system of chemical tests and inspection and will more than meet the United States Government requirements and every other recognized standard.

In all ALPHA plants the chemists are supreme. They make tests every hour, day and night. Their vigilance insures correct proportioning of raw materials, thorough burning, and grinding to flour-like fineness. They make it impossible for cement lacking in binding power to be shipped out. Yet

ALPHA THE GUARANTEED PORTLAND CEMENT

costs no more than any other good Portland cement. By specifying ALPHA you can make sure that the cement which is to become the very sinew of your construction is of top-notch quality—every bag of it.

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ALPHA PORTLAND CEMENT CO., Easton, Pa.
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American Steel Fence Posts

Cheaper than wood and more durable—last a lifetime. Hold fence secure against all conditions.

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Write for booklet on how to set posts and erect fence. Every farm owner should have it.

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American Steel & Wire Company

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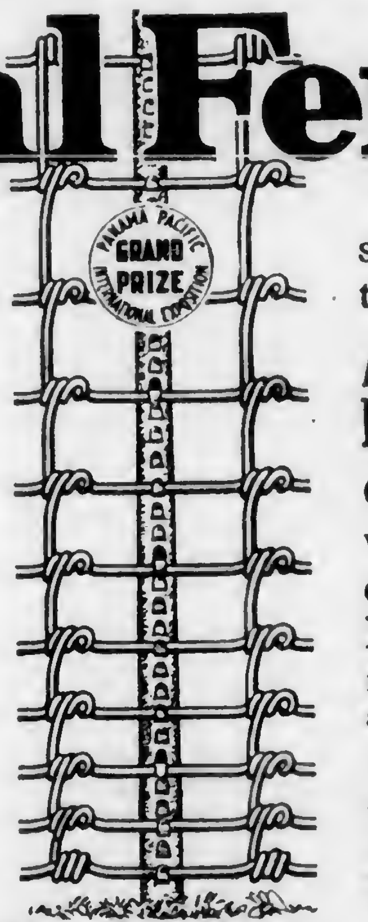
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Just drop me a postal and I will send you free and postpaid my big, new Catalog of Split Hickory Buggies. Shows 150 snappy new styles—wonderful money-saving values and a price splitting offer on every job that has never been equaled on high grade buggies.

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THE OHIO CARRIAGE MFG. CO., Station 288 Columbus, O.

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PAPEC Pneumatic Ensilage Cutters are light running and durable. It is the old reliable cutter, built to last. Cuts, elevates and distributes with an actual saving of power, time and money over other machines. The Papec construction is simple; a few strong parts that are easily adjusted, and keep in perfect alignment. All this, and more, is shown in our new 1916 Catalog; describes the new patented self-feeding device which handles hay or other small growths, also corn. Send postal today.
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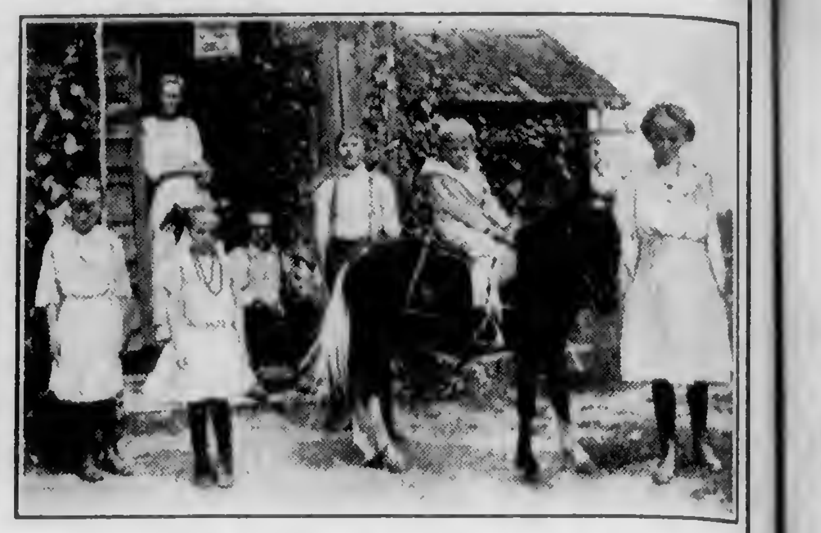
Convenient Distributing Points throughout the U. S.

"Dapple" Given to Ernest

Ernest L. Heckert, of York County, Pa., saw my advertisement and sent in his name. This is the pony "Dapple," and the buggy and harness that I gave him. Ernest is driving here in the Memorial Day parade.

"Dolly" Given to George

George Edwin Adams lives in Cayuga County, New York. He sent in his name and I gave him "Dolly." George says "Dolly" is a very fast little horse and he has been offered $150 for her.



"Pert" Given to Georgia

Georgia Spencer, of Warren County, Pa., was looking through a farm paper one day and saw my free offer. She sent her name and I gave her "Pert." She says "Pert" is as cute and gentle as a kitten and as fat and nice as can be.

All These Ponies Given Free

to Boys and Girls

Read about these beautiful Shetland Ponies I have given away to boys and girls, right in your own state or near by. Besides these eight shown here, I have given away 356 others.

Now, I am going to give away several **more Ponies**---some of the finest Shetland Ponies I could buy---and I want every family that reads this paper to have an equal chance. If you are a boy or girl, send in your name, and if you are the father or mother of a boy or girl be sure to send in your child's name.

Remember, no charges of any kind and nothing to buy. Just send in your name.

Every Boy and Girl Has the Same Chance to Get a Free Pony

"Flasher" Given to Clarence

Here you see Clarence R. Morgret, of Cambria County, Pa., and his new friend "Flasher." Last summer Clarence saw one of my offers in the paper and sent in his name and I gave him "Flasher." He says he has a dandy time.

"Beppo" Given to Larue

Little Larue Wertman, of Carbon County, Pa., is only 7 years old, but she saw my free offer in the paper and sent in her name. I gave her "Beppo," a beautiful black pony with white feet.

"Fluff" Given to Robert

This is Robert Decker, Allegheny Co., Pa. He is another boy who sent in his name and received "Fluffy."

Send Your Name For This Free Book

Pony Picture and Story Book

Children--- Don't put off this chance. Don't wait. Write your name and address in the corner below, cut it off and send it to me. I will then send you the beautiful **free Pony Picture Book** and you will have an equal chance to receive one of the Real Live Ponies that I am going to give away soon. You stand just the same chance as any other child, and it doesn't cost you a cent. Get a pencil and write your name now.

Parents--- Please show this offer to your child and send in the Coupon. You will be interested in the free Pony Book we send and your child will enjoy it immensely and profit by it. I receive many letters from children telling us how they enjoyed reading the book. Besides your child may win one of the Shetland Ponies I am **actually giving away** this season. Your child stands the same equal chance as any other child, no matter where you live.

Address your letter to
THE PONY KING
5700 E. 10th St.
St. Paul, Minn.

"Mayflower" Given to William

William is having a great time with "Mayflower" who doesn't seem to mind the load in the least. William A. Barnes is his full name, and he lives in Westchester Co., N. Y. William also sent in his name and I shipped "Mayflower" to him.

"Toodles" Given to Durrell

This is little Durrell V. Moyer of Lehigh County, Pa. When he saw my offer in the paper he says he got terribly excited and sent in his name right away. I sent him "Toodles" and this little buggy.

FREE PONY COUPON

THE PONY KING
5700 E. 10th St., St. Paul, Minn.

Please send me the free Pony Picture Book, and enter my name in your Pony Club so I will have the same chance. I want one of the Shetland Ponies you are giving away.

My Name Is ....

Post Office ....

State ....R. F. D.... ....

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PENNSYLVANIA FARMER

AGRICULTURE
THE KEYSTONE OF
NATIONAL PROSPERITY

ESTABLISHED 1880

PUBLISHED WEEKLY

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GROWING A CROP OF POTATOES

By C. E. HOYT
Clearfield County, Pa.

Factors influencing a profitable crop of potatoes are proper soil condition, well bred seed of a variety adapted to the soil and climate, planting, good tillage, and a paying market price.

The soil that seems best adapted to potatoes is a deep, light sandy or gravelly loam, with plenty of humus and good air drainage. I plow my ground 6 to 8 inches deep, as early in the spring as the conditions of the ground will permit. I would prefer to plow late in the fall, but I usually put on a light dressing of stable manure, and circumstances demand that most of it be applied during the late fall and winter months. There being considerable straw and undecomposed organic matter in this manure I prefer to plow it under, as it renders the soil more retentive of moisture, more porous and more open for air and roots and gives a better home for the useful soil bacteria, which it also helps supply.

After the ground is plowed I go over it with the harrow and repeat harrowings after each rain, or as often as is necessary to maintain a mulch until time to plant. Then I give it a thoro harrowing, stirring it down deep. I have had better results when the dressing of manure was supplemented with commercial fertilizer, low in nitrogen and giving a liberal allowance of phosphorous and potash.

The Seed

Good seed is important. Disappointment and loss are often the result of not using a variety suited to the locality, or, using seed from inferior plants. The Green Mountain variety seems to be the most popular late potato here, but has proven to be unprofitable with me. My close neighbors report similar results. The Sir Walter Raleigh and most of the Rural types seem to fit our soils and climatic conditions. Potatoes for seed should be stored in a cool place to keep them from sprouting. Several weeks before planting it is a good plan to spread them out on a floor in some well-lighted room, or on trays placed in the sun. This causes them to grow sprouts, which are short thick and tough. These sprouts will not break off readily, and they promote early, uniform and vigorous growth.

Tubers weighing from 2 to 3 ounces make the most profitable seed, provided they are the progeny of large tubers and strong vigorous plants. Small potatoes are all right for seed if they are small only as a result of immaturity, but I should not want them if they were small because the parent plant had not sufficient vigor to produce anything larger. Seed cut in pieces weighing not less than two ounces is best, as the large pieces furnish more nourishment to the young plants and enable them to make stronger growth. This, I think, is more particularly true on thin soils and may be less essential on soils containing plenty of plant food.

MAKING POTATO SPRAYING EASY AND EFFECTIVE.

The proper amount of seed per acre may vary according to the amount of moisture and plant food in the soil. The roots of the potato reach out about 2½ feet each way, and when there are too many plants, the demand for plant food and moisture may be too great and result in small tubers. Ordinarily I think that 18 to 20 bushels per acre give the best results on our soil and under our system.

HARVESTING THE CROP FROM WELL-TILLED GROUND.

I make the rows about 32 to 34 inches apart and set the machine to plant every 14 to 15 inches, and to place them to a depth of 4 inches. The depth to plant varies with the soil conditions. It is better to plant deeper in a light soil than in a compact soil. In any case I believe it better to leave little cover over the seed at first, leaving it as close to the light and air as possible and still have it hidden.

Cultivation

A week or ten days after planting I run the spike tooth harrow over the ground both ways if a good mulch is not made by one harrowing. This destroys all the young weeds and brings up more weed seed to germinate and be killed by another harrowing, perhaps a week later. I keep harrowing after each rain, or as often as is necessary to destroy all the weeds and to maintain a mulch to trap all the moisture I can until the potatoes appear.

As soon as I can see the rows, I get out the cultivator. This time I cultivate deep and close, as there is little danger of destroying the roots. After this cultivation, I take the weeder and run it over crosswise. This moves the ground and breaks whatever crust there may be around the plants, and it destroys any young weeds that might be in the row and missed by the previous cultivation. This treatment may be repeated if necessary until the plants are 6 to 8 inches high.

We are now nearing the time when we should give the roots some consideration. In order to cultivate in an intelligent manner it is essential to know where the roots are, their character and requirements. Examination of the roots 40 days after planting, or about the time the plants receive their second or third cultivation, shows the skeleton root system supplied with numerous delicate hair-like roots. At this stage of development the greatest root growth is in a horizontal direction and the roots from each hill have already met and interlaced; some having reached a length of two or three feet. Close to the hills, some of these roots will be found within less than two inches of the surface and some within one inch, while midway between the rows their depth may be less than three inches from the surface. All the horizontal roots of the plant are in the first six or seven inches of the surface. These horizontal roots send out, every few inches, vertical branches which often descend to a depth of three feet.

Even moderately deep tillage from this time on would destroy nearly all the surface roots, while deep tillage would destroy all the long horizontal roots and with them, their numerous vertical branches by which the potato receives its nourishment. So it is very essential from this time on that the cultivation be shallow, as the loss of roots is very harmful. The value of proper tillage is great and dare not be neglected if you appreciate a full crop. It preserves moisture, aerates the soil and kills the weeds.

The Critical Period

The objects sought by tillage are to increase the crop-producing power of the soil by liberating plant food, maintaining good texture, conserving moisture by the aid of a soil mulch and destroying weeds. Yet I think that tillage may be overdone, especially deep tillage in dry weather just before and during the blossoming period. This is the most critical time for the plant, during which time its life hangs in the balance. At this time tuber formation is just beginning and therefore causes a severe drain upon the plant's energy. Insects and fungi, such as early blight, may attack it and add to its troubles. Cutting off a lot of its roots either just before or about this time, is no doubt the common cause of many failures.

The importance of studying the conditions of the plant at this time will be appreciated when it is remembered that almost the entire crop of salable potatoes is formed after this critical period is past. And success with the crop depends upon keeping the plants healthy for at least one to two months after the blossoming period. Obstructions to growth and development are many and influences of the season and climate develop many troubles.

Diseases

Plant life is similar to animal life. The plants breathe, or take in oxygen and give off carbon dioxide. There is range of temperature at which respiration is normal. When the temperature rises above this, respiration will be less than before and the vitality of the plant will be weakened. It is then most susceptible to blight and other troubles.

Late blight or rot usually appears during damp, muggy weather in August or September. They tell us that the temperature most favorable for the germination of the spores of this disease is 73 degrees and that above 78 and below 50 degrees there is practically no germination of these spores. The fungus completes its life history in 4 or 5 days or less. The whitish mold is made up of stalk-bearing branches. These bear spores which break up and enter the potato leaf thru its breathing pores. Other spores fall on the ground and reaching the tubers carry the disease to them, causing them to rot.

The early blight appears ahead of the late blight and spreads in warmer, drier weather than late blight. It enters the leaf thru tissues weakened by the flea beetle or other agents. It does not cause rot. A preventive for these diseases is the Bordeaux mixture. The trials I have made with it were not made with the proper kind of sprayer and were not applied often enough or thoro enough to obtain good results. But experiment stations report it an absolute protection if done thoroly and with the proper methods of applying. It can be done at an expense of less than 80 cents per acre for material and labor. Spraying increases the vigor of the plants by keeping the stalks and leaves covered with the mixture. That proper spraying increases the yield 45 to 90 bushels per acre is well proven.

Even when no blight is present, the numerous insect pests that attack the tops of the plants must be destroyed at the same time by adding to the solution some of the poisoning compound used for this purpose.

Scab is caused by a fungus followed by other organisms producing the familiar rough scab. Lime, wood ashes and fresh barnyard manure aid in its growth, while an acid condition of the soil retards the development of scab. So any acid fertilizers, like sulphate of ammonia, muriate of potash, sulphate of potash, kanit, acid phosphate and dissolved bone, render the soil less favorable to the disease. It is claimed that scab can live in the ground six years without a known host. Beets, mangels, turnips, and rutabagas are subject to the same disease and should not be grown preceding the potato crop.

Plowing down rye and applying sulphur to the ground was once claimed to reduce scab, but is not now recommended. No real preventive is known when the soil is inoculated with the trouble, but a wide rotation and the use of acid fertilizers are said to assist in controlling it. Treat seed with formalin solution.

The market price is an important factor to be considered in raising a profitable crop of potatoes, and a moderately full crop is not always a profitable one. Statistics giving the amount in bushels and value of the crop in different years show a greater money value in years when the crop was short, to say nothing of avoiding the extra expense in handling and marketing the extra weight of a large crop or of the extra amount of fertility the large crop removes from the soil, which can not be estimated at less than five cents per bushel. It is the producer that raises a crop above the average for the year that gets the profit.

Handy Devise for Regulating the Furnace

Where is there a person who during cold weather does not appreciate having a house well heated? Furnaces are no longer considered a luxury, but frequently persons hesitate to entail the additional expense to provide the system with a thermostat which will insure a comfortable temperature thruout the house when arising in the morning. To those who may be possessed of a short pocketbook, but with a somewhat larger amount of mechanical ability and a few tools, the following illustrations suggest a simple and efficient device for securing the condition desired.

The apparatus consists chiefly of a trap, the release of which throws on the drafts. In order to accomplish this the front and checks drafts are connected by a rope chain which runs thru pulleys in such a manner that when the check draft is closed the front draft is open. An alarm clock is used to released the trap which is weighted sufficiently to throw the drafts.

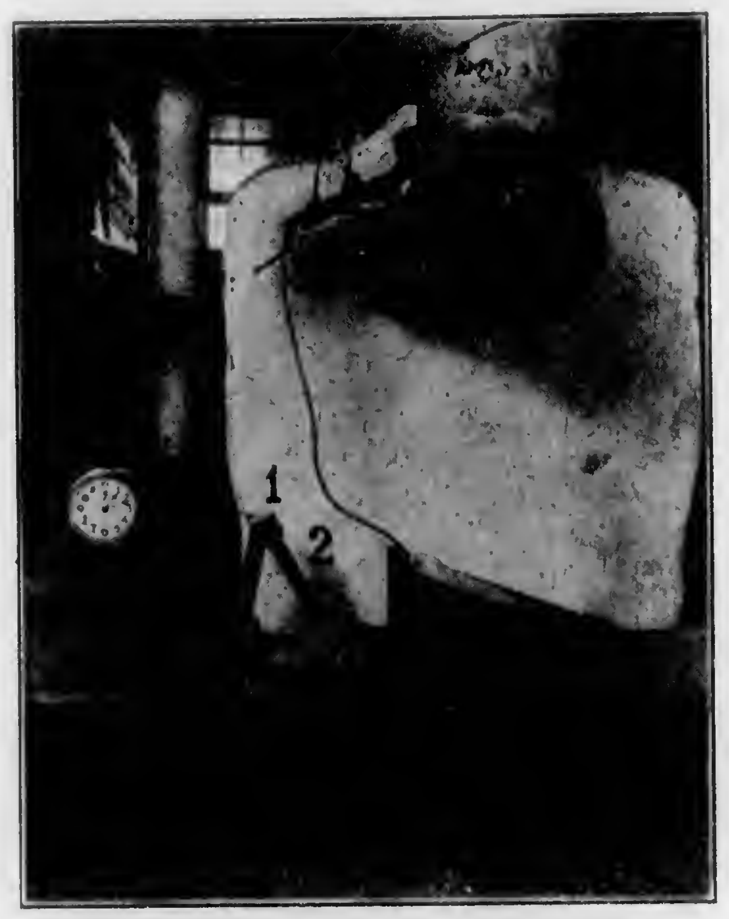


FIG 1. FURNACE REGULATOR SET.

The first illustration shows the apparatus set. A string is used to connect the trap and the alarm clock. One end of the string is looped over the "trigger" (1) while the other end is attached to the wind key of the clock in such a manner that when the alarm is released it will wind around the key and pull the "trigger" until the catch (2) is released. It will be observed that the clock is held firmly in place by blocks which are nailed on the support. The lower part of catch (2) is projected so that when the trap is set it engages the projection (3) shown in the second illustration, which holds the drop in place.

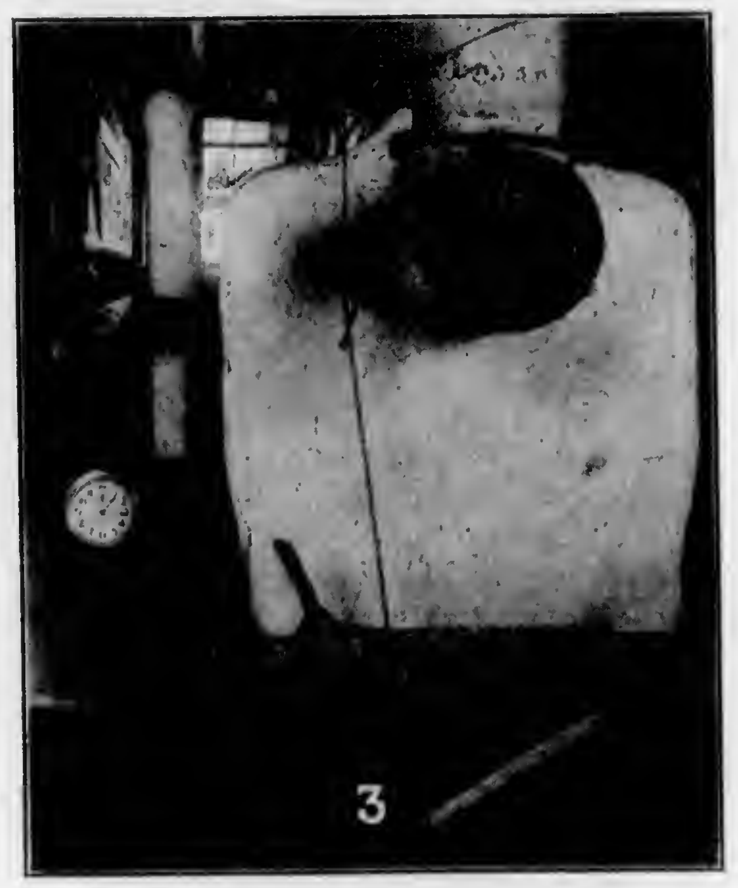


FIG. 2. FURNACE REGULATOR SPRUNG.

This apparatus is attached to a hot water heating system in which bituminous coal is used as fuel. Before it was attached the temperature of the water in the boiler in the morning was usually between eighty and eighty-five degrees, but since it has been in operation the temperature at the same hour in the morning is from one hundred and twenty to one hundred and forty degrees, depending somewhat on the condition of the fire when banked for the night.

The cost of the system, exclusive of labor, was $1.30 itemized as follows: 1 alarm clock, $1; 2 braces for attaching support to furnace, 25 cents; 1 pair of hinges, 5 cents. Total, $1.30.—C. E. Myers, Pennsylvania State College.

Controlling Oats Smut

Farm experts have generally decided that oats is not a profitable crop for the dairying sections of southeastern Pennsylvania. However, if you still wish to raise it to fill out a crop rotation or as a winter horse feed, all assistance possible should be given that will encourage a large yield.

The summer of 1915, with the long continued wet weather, was an unusually favorable season for oats smut all over the country. Those who treated the seed as a preventive measure saw the beneficial results as never before and could congratulate themselves on saving a large part of the crop.

We watched our 5 acres of oats with great interest. On 3¾ acres the seed was carefully disinfected and the remaining 1¼ acres left untreated as a test. The difference was noted as soon as the heads commenced to appear, and it became more and more conspicuous as they developed. The smut was not simply a mildew on already perfect heads of grain but instead seemed to show a diseased condition of the whole oat plant. Those sickly plants would throw out the deformed heads that were black, smutted and blighted, while still in the enclosing envelope. The treated section of oats was dense on the ground: individual plants of a healthy color, with strong stems and leaf growth, heads large and heavy. Only a very occasional smutted plant was seen. In the untreated plot the diseased plants were poor and weak in growth and color. By actual count down the row 25 to 30 out of a 100 heads were smutted and worthless. In average years the count was usually about 10 percent spoiled heads.

The yield from the two lots can not be given as the harvested grain was not kept separate. The average for the five acres was 67 bushels—if all had been treated the yield would have been exceptional as the cool season was favorable for oats.

We use formaldehyde to disinfect the seed. "Formalin" recommended by some authorities is a patented German trade name for exactly the same material, but on account of advertising it has become widely known. "Formalin" is practically out of the markets now, while formaldehyde can be purchased at any drug store. The latest price quoted us was 45 cents a pint. When fresh and strong it is a clear liquid, but it does not keep well and is worthless if a cloudy precipitate forms. It is necessary to use what is known as a 40 percent solution.

One pint of formaldehyde was mixed with 45 gallons of water. (This will treat 25 to 50 bushels of grain. The oats was spread on a clean barn floor and the liquid sprinkled on with a watering pot. It was stirred and mixed until every grain was moistened, and then shoveled into a pile. The bags to be used as containers were dipped in the solution and laid closely over top, so as to hold in the gas. Everything the seed might touch was treated; the measure, the shovel and old broom used for stirring, even the grain drill had a dose, carefully administered so that the water would not harm the machinery. Oats smut is a fungus growth and the spores are very persistent and easily carried.

After two hours the bags were hung out to dry, and the oats spread out two or three inches deep so as to dry quickly. Care must be taken that the piled wet grains do not heat and cause premature germination. For this reason we select a dry sunny day, and then stir frequently. Seed treated at noon one day will be dry enough to sow next morning. We find, tho, that the grains have swelled so as to require altering the drill accordingly. For instance if it is intended to sow 2½ bushels per acre, set the drill at 3 bushels and with the swelled seeds, it will only actually amount to 2½ bushels.

While individual farmers can do much toward saving their crop by seed treatment every year, it has been suggested by government authorities (see Farmers' Bulletin 507—"The Smuts of Wheat, Oats, Barley, and Corn") that the effectiveness of such treatment would be greatly increased by co-operative effort. If a community would properly organize with a central station for treating seed in quantity, and use only clean threshing machines, smut could be entirely eradicated.—E. S. B., Chester Co., Pa.

Results of Seed Corn Selection

By A. B. Twining, Harford Co., Md.

A. B. TWINING, HARFORD CO., MD.

Evergreen Farm is now almost exclusively devoted to Holstein cows corn and alfalfa. I think this a very good combination. The corn and alfalfa feed the cows, and the cows make the manure pile to grow the corn and alfalfa. I have been working on my corn breeding longer than on the other lines and, if I may be permitted to boast a little, when I get a herd of Holsteins that will compare with the leading herds of the country as I am sure my corn now compares with any strains or varieties grown, think I may be in line to go after some world's milk and butter records.

I have been working on my present line of corn breeding for 10 years and I consider that the type of corn I now have is a good reward for my labor, and is not an accident. When a farmer takes ten nice ears of corn to a corn show and wins first honors it is often remarked that it is an accident, and that his crop is not as good in proportion. And sometimes winning a prize is rather accidental, but when those "accidents" continue year after year and are backed up by field average yields of from 90 to 115 bushels of shelled corn per acre it shows more.

With my corn breeding work it is a case of the survival of the fittest, as found out by my ear-to-row test plots. I plant a portion of the ear on each individual row in the test plot numbering the rows and their parent ears. The remainder of the ears are carefully kept, the yield of each row weighed and thus the best producing parent ears are found. These best producers are then mixed together and planted the next spring in the seed plot. Ears that look alike in nearly all points will show a great difference in yield. The few barren stalks I have found in the past were detasseled before they could spread their barrenness to other stalks, and now I am about entirely free of barren stalks. I know some types of corn that have become run out that will show 20 to 30 percent barren stalks.

I select my seed corn partly when standing and partly when husking. I like to select while standing, so as to choose ears that are not too high on the stalk and ears that hang down when maturing. Ears that hang down will shed moisture and are less likely to mould. They also show a slim shank and husk easier. While hauling in corn I have a box secured to the wagon bed and am on the job when all the corn from the select breeding plots is hauled. I there select the balance of my seed and show corn. The next selection I make is my market seed corn, into which I put nothing that is not absolutely sound and dry. This is put in a rat- and mouse-proof slatted crib, only six feet wide and I never saw a mouldy ear come out. I have a seed room for my breeding and show ears with shelves for the corn, because it is more accessible for selection. I prefer natural air and sun-cured seed to that cured by artificial heat.

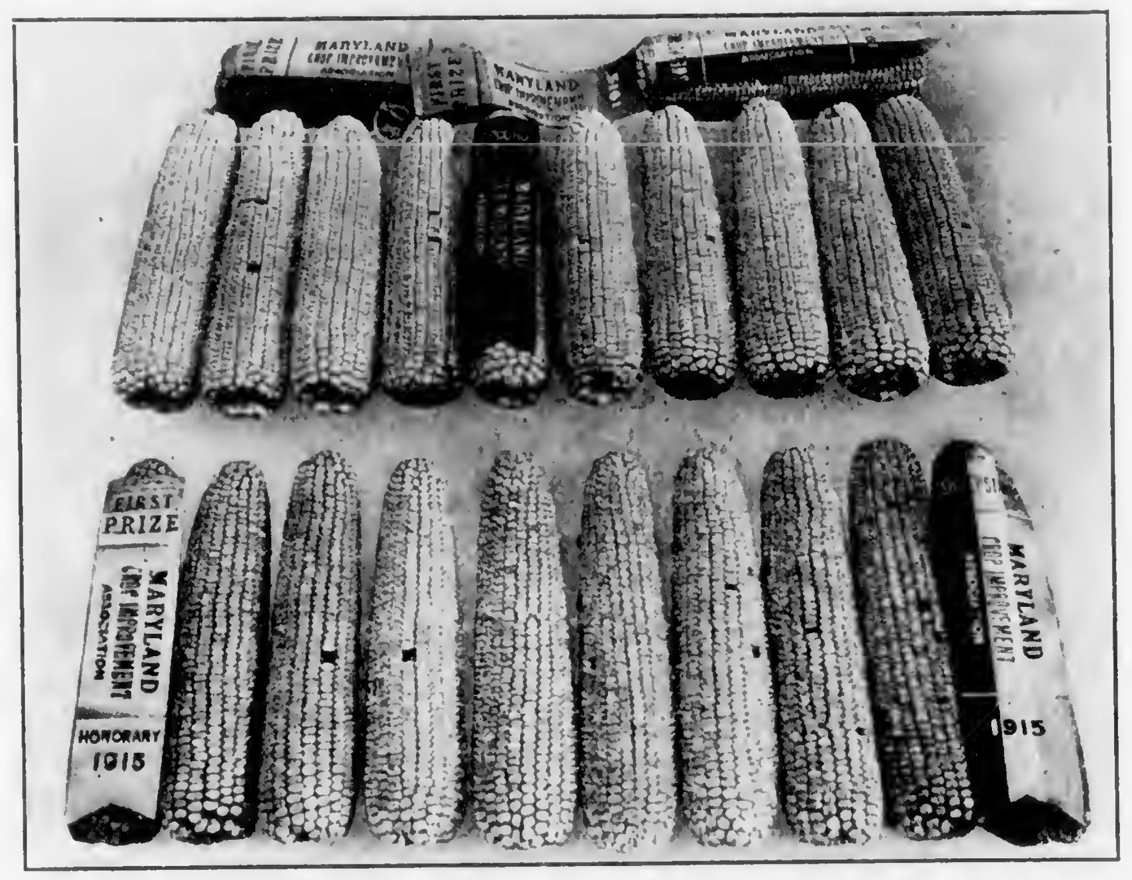
Don't be afraid to spend a little time in selecting your seed corn. It will pay you good wages. I prefer a fair sized ear for seed, but not necessarily the largest, because that may have grown under very favorable circumstances. Select for a medium size cob, well filled both butt and tip. Look for straight uniform rows of deep wedge-shaped kernels, tight on the cob and rather on the rough dent order. All our breeds of corn originally came from old flint, shallow-grained varieties, and if allowed will degenerate to them. I find I get a deeper grain corn by selecting a rough dent grain rather than the smooth variety.

I grow both the Boone County White and Yellow Dent, and I like them both so well that I would not want to give up either. The Boone County is a larger foddered corn and makes a fine crop of ensilage and requires about 10 days longer season than the yellow dent. Both are of the dent varieties and there is practically no difference in the feeding value. I regard the seed, soil, season and cultivation equal factors in the production of our king crop, and I advise all to select a corn to their liking, either their own or some one's else. Give it the germination test, run the plow good and deep and use such manure, lime and fertilizer as are within your reach. Do not be afraid of harrowing too much. Plant carefully, work thoroly and see if, in 1916, you can not raise the best crop of Old King Corn you ever had.

Bacteria and Their Relation to Nitrogen in the Soil

In studying the soil we find it to be the home of millions of tiny living bodies which are known as bacteria. These bodies are so small that they can not be seen with the eye except by the aid of a very powerful microscope. Like all other forms of plant and animal life, these small organisms have their work to perform.

We have all heard of the bacteria that live in the tubercles or knots which are found only on the roots of such plants as alfalfa, clover or soy beans. These bacteria take the nitrogen from the air which can not be used by the plant for food, and change it into such a form that the plant can use it. Thus, a great service is performed for man as he is able to improve the grain fields which are so necessary to his existence, by growing such plants as clover and alfalfa and turning them under and by this means put large amounts of nitrogen back into the soil for the use of future crops.


FIRST PRIZE
MARYLAND CROP IMPROVEMENT ASSOCIATION
HONORARY 1915
MARYLAND CROP IMPROVEMENT
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THE PRIZE WINNING PRODUCT OF SEED SELECTION ON A B. TWINING FARM, HARFORD COUNTY, MD.

By far, the greater portion of the nitrogen in the soil which can be used for plant food exists in the form of organic matter which is nothing more than decaying vegetable material. In this form, the nitrogen is in an insoluble state. It is made soluble, however, by the action of certain bacteria which puts it in a form that the plant can use. These bacteria may be likened to a stockman who prepares the feed for his cattle. The nitrogen in the organic matter is not changed into a soluble form so fast but what the plant can take up the great portion of it. Experiments have shown definitely that there is a great deal more nitrogen found in the water which drains off of a field without a crop on it than there is when there is one.

The value of having these bacteria in the soil is readily seen and it should be the duty of the farmer to make conditions in the soil ideal for their development. They do not do well in cold, wet soils or sour soils. They like a soil that is loose, and which contains large amounts of organic matter. By putting organic matter in the soil in the form of manure or some crop turned under, the conditions are made ideal for bacterial growth; the physical condition of the soil is also greatly improved by making it more friable and increasing its capacity for holding moisture.

There are certain temperatures at which soil bacteria act best. During the winter months when the ground is frozen there is little activity. As spring approaches, the activity becomes greater with the result that the amount of nitrogen available for plant use increases in proportion to the activity.

Authorities vary as to the exact temperature which is best suited to bacterial action. However, it is most generally conceded that one of around 70 degree Fahrenheit is most suitable to them.

Director J. G. Lipman of New Jersey Experiment Station has carried on some experiments in regard to the effect of fertilizers on bacterial action. He found that lime, soluble phosphates and nitrates stimulate the activity of the soil bacteria.

In the case of spring crops like oats and wheat it would seem that an application of a high grade commercial fertilizer would serve a double advantage not only in the additional plantfood which is applied, but in the effect that it has on the bacterial action of the soil. In the early spring when the soil is still cool the amount of nitrate found in the soil is comparatively small, the addition of some plant food material which can be readily used by the plant is of an immense advantage at this time in furnishing additional quantities of nitrogenous plant food other than that produced in the soil. This results in an early, vigorous growth which is so essential to good crop production.

Plant food in the form of commercial fertilizer can be mixed with the soil before planting, by applying it thru the fertilizer attachment on the drill, or thru a lime spreader, and then harrowed in with a tooth harrow. It can also be used as a top dressing when the plants are three or four inches high. The harrow can be used to good advantage in working the fertilizer into the ground. This harrowing will do the crop a great deal of good, provided the teeth are not set too straight.—D. T. Lewis.

Queries and Comments

"I would appreciate some information on the growing of mangles in the Queries and Comments department. When should they be planted and should the young plants be transplanted? I want to congratulate you on the good paper you are publishing." P. M., Pleasant Valley, Pa.

Mangle-Wurzels require a good loamy soil for best production. They are planted in the spring as soon as the ground can be worked, in rows two feet apart, to permit of horse cultivation, and are thinned to ten to fourteen inches in the row. From four to six pounds of seed are required for an acre. If the seed is good this is sufficient to give a good stand and will have to be thinned. This is cheaper than transplanting from a plant bed and the beets grow better. The ground should be as free from weeds as possible so as to lessen cost of keeping clean. The weeds must be kept down. If the seeds are soaked a few hours in hot water germination will be quicker. The crop should be pulled before heavy frost and stored where they will not freeze. It has been found that mangles pay even when silage is fed, but especially when the roughage is dry hay and fodder. A good way to feed them is to run them thru a root-cutter, put them in the feeding trough and place the grain feed on op. Stock will leave almost any other kind of feed for mangles.

Kerosene and Gasoline

Let me give you a word about mixed drinks for the gasoline engine. I noted a recent reference to a Pennsylvania Experiment Station test of mixing coal oil with gasoline for engine power. I have a six-horsepower gasoline engine. When gasoline was selling at 18 cents I used it. Then it went up and up, and I began to mix drinks. I first used 1 part kerosene oil and 2 of gasoline, and the engine worked all right. Next I added more oil, making 1 part kerosene oil and 1 part gasoline, and still it worked all right. Later I made the mixture 2 parts oil and 1 part gasoline, and at times I have used all oil.—T. A. Gardner, Cumberland Co., N. J.

"ANOTHER DESTROYER"

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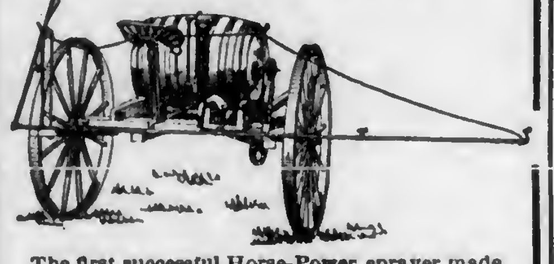

The first successful Horse-Power sprayer made in America. The experimenting has all been done-you buy an assured success when you buy a Perfection Sprayer. Sprays Six Rows at a passage.

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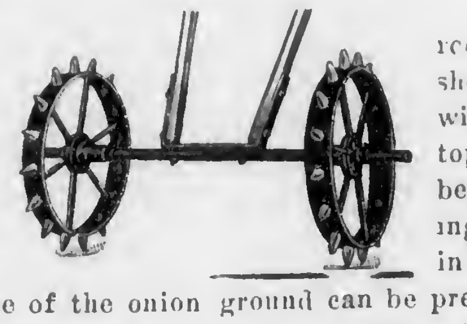
ALLENS SEED HOUSE, Geneva, O.

Growing Onions From Sets

By Harris T. Kille, College Farm, N. J.

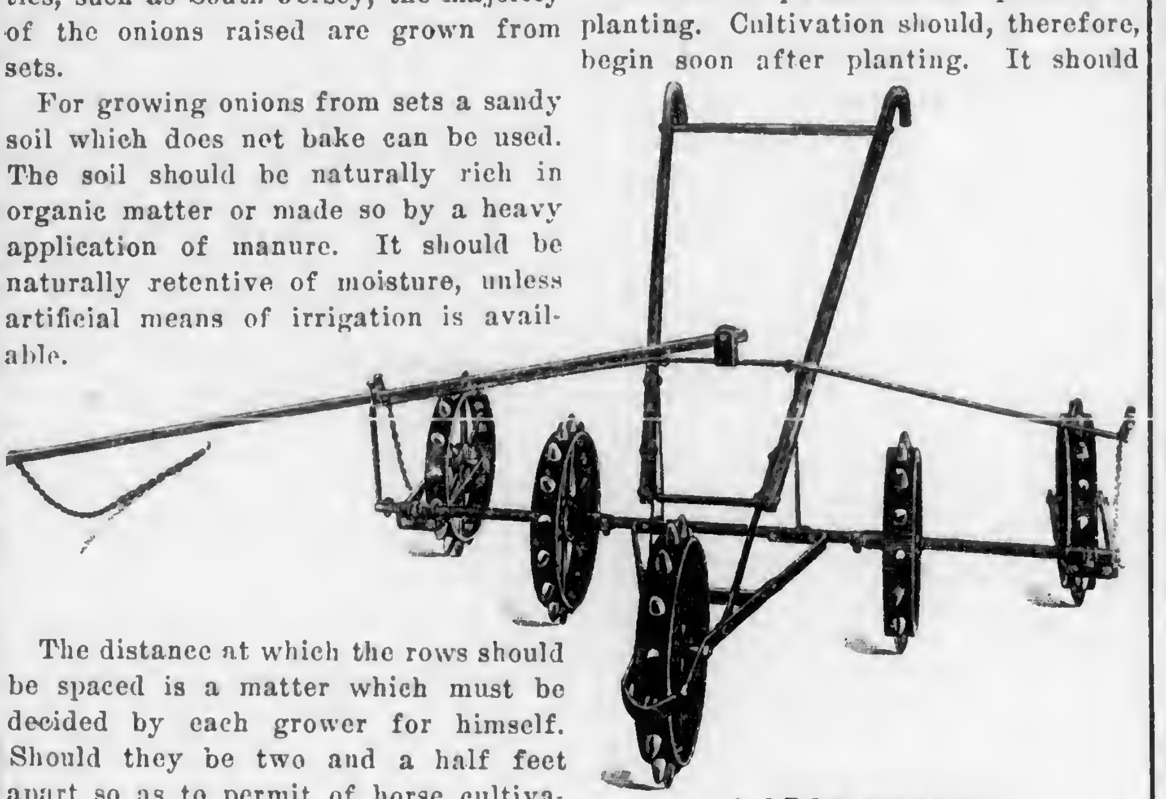


In the United States onions rank third in importance as a vegetable crop. According to the 1910 census there were 47,625 acres devoted to this crop. Its value was $6,709,005. The importance of the onion is due to its numerous uses and wide range of climatic and soil adaptations.

There are three methods of growing onions for their bulbs. These in order of their importance are: First, Growing from seed; second, growing from sets; third, growing from transplanted plants. In this article the second method—the growing of onions from sets—will be considered.

The production of bulb onions from sets, tho of less importance than their production from seed, has many advantages. Onions can be grown from sets on land where it would be very difficult to grow them from seed. Producing bulb onions from sets requires less labor than the other two methods. Onions grown from sets are the earliest to mature. They, therefore, command the highest prices. In certain localities, such as South Jersey, the majority of the onions raised are grown from sets.

For growing onions from sets a sandy soil which does not bake can be used. The soil should be naturally rich in organic matter or made so by a heavy application of manure. It should be naturally retentive of moisture, unless artificial means of irrigation is available.



A 5-ROW MARKER.

The distance at which the rows should be spaced is a matter which must be decided by each grower for himself. Should they be two and a half feet apart so as to permit of horse cultivation, or should they be but a foot apart and the cultivation done with wheel hoes? The best way to decide this question is for each grower to ask himself which, under his local conditions, is the most expensive item in the production of the onions, land or labor. Where good land can be purchased for less than $125 per acre it is probably the most profitable to plant a large acreage and use the less expensive horse labor to cultivate.

The amount of commercial fertilizer used on an acre depends upon the planting distance, a ton or more being used where the rows are a foot apart and 800 to 1000 lbs being used for the wider distance. Ordinarily a 4-8-10 brand of fertilizer is used. This year the potash will have to be omitted because of the excessive prices charged for it.

The rows should be ridged slightly. The distance in the row at which the sets are to be planted is marked by a special marker. This is a wheel-barrow-like tool, the wheel of which has short stumpy pegs spaced 2 inches apart about its circumference. The wheel is run down the center of the row leaving the holes into which the onion sets are stuck by hand. It requires considerable labor to plant an acre, but there are no machines on the market which will plant the sets right side up at so close a distance. School boys, being quick and nimble, are often more satisfactory, if under proper surveillance, than men, for sticking the sets. The root surface of the sets should be in contact with moist soil. The tops may or may not be below the surface. Planting is done just as early in the spring as the ground can be prepared. Freezing does not injure the sets.

There is little choice among the varieties of set onions. The yellow onions are most commonly grown. The white onions command a higher price than the yellow but they are more difficult to grow and do not give as large yields. Yellow Danvers and Strasburg (Philadelphia Yellow Dutch) are two good yellow varieties. Silver Skin (White Portugal) is the most extensively grown white variety.

Large sets are likely to run to seed; small sets make a weak start and are slow to reach a marketable size. There is a happy medium. Sets ranging from ½ inch to ¾ inch in diameter are the best. With sets of this size it requires from 7 to 8 bushels to plant an acre where the sets are planted 2 inches apart in rows 2½ feet apart.

The soil is packed in the process of planting. Cultivation should, therefore, begin soon after planting. It should be frequent and shallow. When the tops of the onions begin to fall, indicating maturity, cultivation will have to stop. By the first of July in New Jersey the onions are usually mature enough for pulling to begin. If possible they should all be harvested and sold before the onions grown from seed begin to reach the market, for at that date the price usually drops. We find Italian labor very satisfactory for harvesting this crop. They pull, remove the tops and roots and basket them for 2½ cents a ⅝-basket.

Our best success with onions grown from sets was in 1914 when from 1 1-3 acres grown, spaced for horse cultivation, we harvested 603 ⅝-baskets; the average net price of which was $1.26 a basket, thus giving $760 for the 1 1-3 acres. Last year was probably the poorest year, for prices were so low it did not pay to grow them. If the law of extremes holds true, this year should be a good year for the profitable production of onions.

In order to reduce the expenses many writers advocate the home growing of sets. This may or may not be a wise thing. Already many truck farmers and market gardeners are growing too large a variety. The labor which would be spent in growing enough sets for an acre might mature enough onions from bought sets to buy the sets and leave a profit. Most of the onion sets are produced near Louisville, Ky., and Chicago, Ill. These localities must have certain advantages, else the sets would not be grown there in such large quantities. Baring natural advantages, the growers in those localities have the advantage of special equipment, knowledge and skill.

FROST INJURY TO FRUIT BUDS

Pennsylvania

Washington Co., Pa., March 27.—Replying to your inquiry relative to the extent of winter injury of fruit buds in this county, wish to say so far as my inspection has gone the peach buds are all killed. The apples are not injured and while I have not examined the cherries, plums or pears, I do not believe they will be injured.—J. M. McKee.

Chester Co., Pa., March 27.—I find on personal examination that the peach buds are fully 50 percent dead, depending on varieties. Some kinds all killed, others uninjured, many kinds only partially hurt. Other fruits are apparently all right so far.—S. L. Brinton.

Butler Co., Pa., March 28.—In reply to your inquiry the apples are all right. From what I have seen would say about 5 percent of peach buds in my orchard are killed. A northwestern exposure and good air drainage.—Jesse C. Turk.

Clarion Co., March 28.—On our farm at present peaches and cherries only bearing; fruit buds not injured as yet. Neighbors say their peaches killed.—Harvey Bros.

Clearfield Co., March 24.—Percentage of buds killed (estimated); Apple, none; pear 50 @ 75 percent; peach, budded, 90 percent; peach, natural fruit, 45 percent; grapes, none; red raspberry, slight damage to canes, say 10 percent; black raspberry, to canes, 20 percent; blackberry, to canes, 5 percent; currant and gooseberry, none.—T. L. Wall.

Crawford Co., March 24.—I cannot find that there has been any damage done to apple, pear, plum and peach buds by hard freezing and sleet to date. —J. C. Boyd.

Maryland

Calvert Co., March 21.—Speaking for my section I can say I do not think peach buds here are injured, i.e., healthy buds. Last season being such a heavy crop, orchards that were not carefully attended naturally have many buds that would bloom but not fruit. Vine fruits not hurt.—Frank O. Smith.

Caroline Co., March 20.—Very few peaches are now grown here. Buds are in good condition with a very small percentage killed. Farmers are delayed in planting peas, a large crop here, and the season is at least two weeks backward.—J. Spencer Lapham.

Dorchester Co., March 20.—I do not think there is any serious injury to fruit buds in this locality from winter killing. Fruit prospects at this time are as good as usual with little fear of spring frosts as the buds are kept back by the cold weather.—W. W. Byrn.

Worcester Co., March 20.—Answering your inquiry of recent date will say about 50 percent of peach buds killed; 75 percent of plums killed; pears and apples apparently all right.—F. E. Matthews.

Allegany Co., March 18.—Beg to say the extent of winter injury to fruit buds is very serious. Peach buds killed, 90@100 percent; cherry, 75 percent; apple, 50 percent. I understand some sections are a little more fortunate.—Fred R. Sloan.

Wicomico Co., Md., March 22.—Replying to your favor of the 18th, we beg to say that all fruit at this time seems to be in good condition, except the peach buds are about three-fourths killed; the other fourth, if nothing happens to them from now on, would make a very fair crop.—W. F. Allen.

New Jersey

Monmouth Co., N. J., March 23. Peach buds are 90 percent dead, some varieties more. Apples seem to be good. Red raspberries good so far but time to be hurt. That is all I know anything about. In fact, I know of no way of telling at this time.—C. C. Hulsart.

Timely Fruit Notes

By Dr. J. P. Stewart

A Nostrum for Treating Scale

''What do you think of the following method of combating San Jose scale?

A mixture containing, I believe, caustic soda, lime, sulphur, cow dung, etc., is ''self-boiled'' and then painted on the trunks and sometimes extreme base of the branches of the trees. The theory is that if the trees are thus painted early in spring the sap flow will convey this substance up to the infected parts, whereupon the scale hastily leaves for some cooler climate.'' D. E. P., Mifflin County.

From other parts of this letter, it is evident that the writer himself has not been misled by this so-called theory. It is strange how many others are being fooled by it, however, so that it may be well to give it a little attention.

This nostrum is a little less dangerous than many of those that have been proposed in the past, especially those involving the boring of holes and injections of various sorts into the trees. But even the present scheme is not without its dangerous aspects, because of the sense of false security that it may arouse in those who happen to ''fall for it''.

All schemes of this sort are based on incorrect notions of plant physiology in general, and especially of those phases of it which deal with the internal movements of fluids. As a matter of fact, even if the present mixture were efficient and able to penetrate the outer bark, the first movement of liquids that it would encounter would be downward rather than upward and outward. And if it should manage to cross this stream without disaster, and then go on thru the living cambium layers without injury to them, and thus finally come to the minute channels thru which the upward movement of soil moisture takes place, there is no evidence whatever at the present time that it would be carried for any appreciable distance in that stream, or that it would be of any service against scale or any other pest even if it were so carried.

The other principal objection to the present mixture is the fact that its value against scale would be very doubtful even if used as a direct coating over them. The only ingredients in it that have any importance in this connection are the soda, lime and sulphur, and with only the heat of slaking available, there would hardly be enough sulphur put into the solution to do any good. In fact, it is very doubtful whether the material would kill any scale that it was actually placed upon, except possibly by simply smothering them and this is not particularly easy.

The addition of cow dung and similar substances to tree ''dopes'' is a very ancient practice,—one of the earliest records being that of John Parkinson in ''Paradisus'' The Ordering of the Orchard, published in 1629. In that he very solemnly assures us that a concoction involving this material will cure cankers and various other maladies of the trees. All such ingredients are doubtless chosen on the notion that materials that are offensive to us will also be offensive to the insects or diseases, which of course is not believed by any one now.

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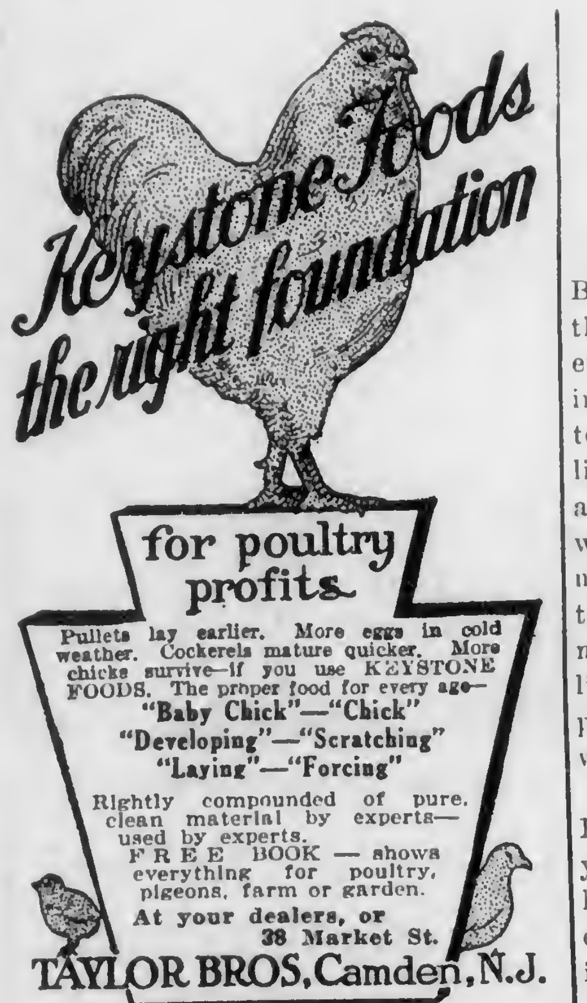

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A Little Flyer in Poultry

By Howard Mitman

Speaking of hens, there was Brown. Brown and his wife, his three sons and their wives, successfully ruined a grocery business. After the third failure in a score of years, they were unwilling to make a fourth attempt in the old line; so it was determined to strike out a new path in the wilderness. They would turn their collective backs on the ungrateful town, and recoup their fortunes in the country. Naturally, and naturally, also, they saw their trail lined with hen coops, interspersed with primroses; while at the end of the trail was a rainbow, with its pot of gold.

They knew all about the hen business. Every second man they had met, for years, had told them "There's money in hens," and, as was inevitable, they came to believe it. Everybody said it, and what everybody said must be so. Besides, had they not had long experience in buying and selling vast quantities of the fruit of the cackling mob? Did they not jointly, on family occasions, and severally, partake of the luscious broiler, the acme of table delicacies, to say nothing of humbler fowl in season? Of course they did; and all this experience added to the knowledge gained by much study would now stand them in good stead.

Brown was a quiet man, not given to undue boasting; but when once filled with the hen idea he could not help allowing some to run over occasionally, When I learned of his new venture most of the preliminaries were already over. In his quiet, convincing way he proved to me that there was more money in chickens than had ever been taken out. I could not gain-say it, he was so sure of his facts and figures. "An egg," said Brown, "is laid by a hen. For commercial purposes but one hen is considered — the female of the rooster. And the rooster, as every one knows, is the male of the hen, er—that is, well what we commonly call chickens. I have known chickens all my life, but for some time past I have been studying them from a new angle, several new angles, in fact, as a business proposition. I believe there's easy money in hens. The Experiment Station"—In short, Brown had devoured all the hen literature he could lay his hands on, and had really accumulated a vast array of poultry facts, to say nothing of fictions.

What could I say but assent, when he showed from one Bulletin that the feed necessary for one Plymouth Rock hen for one year at current market rates cost $1.50; the eggs she produced during the same period numbered 131, and at the market prices were worth $3.01, leaving a net return of $1.51 to be applied to housing, care and profits? "One man can attend to at least 4000 hens, the books say; but to be safe we will cut that in half; $1.51 multiplied by 2000 makes a very tidy little income these days," said Brown, with infectious optimism. "But then," he continued, "it is not necessary to be satisfied with ordinary market prices for first class eggs. There are plenty of people everywhere, with money, and a desire for the best, who are willing to pay a premium for strictly new-laid eggs. Likewise it is not necessary to depend on market eggs alone. There are broilers, and eggs for hatching, baby chicks and breeding stock; why, there's no end to the profits that can be made if the thing is worked right. It is like picking up money from the floor." Brown had a severe attack, that was plain.

It was late, near the middle of June, when he finally succeeded in winding up his town affairs and was ready to set off for the country. He had formerly been a market gardener, and had secured a place about twenty miles up the river that was perhaps better adapted for vegetables than for chickens, tho it is common enough for your neighbor's hens to thrive abundantly in your nicely kept garden; on a large scale it may be different. He had saved a little money from the wreck, and with it had bought baby chicks and some other chicken fixings. I was told he had ordered 5000 chicks to be delivered in lots of a thousand or more; and the first lot had come in on the last day of his stay in town, while he and his boys were busy closing up the odds and ends. "This is my busy day," was his cheery greeting, when he saw me. Everything was a-bustle; people were hurrying back and forth, expressmen were unloading box after box of vociferous chicks, which added their noise to the confusion. "We are off today; but say! I struck a bargain in those chicks. When I first wrote the hatchery about them they wanted 25 cents each for the kind of stock I wanted; but when I told them I wanted 5000, money on the nail, they came off the roost, and I got the lot at 15 cents each. There's a deal of difference between cash and conversation."

The rest of the story is soon told. The Browns went to their new place with their thousand chicks and their enthusiasm and with little else. Their knowledge of how to care for the youngsters was based on rather dim recollections of ante-urban days when the old hen drew a straggling band after her thru the garden. This was supplemented by their reading of scores of authorities, no two of which agreed even on essentials. Their troubles began on that first day. Trans-shipping those chicks and the delay incident thereto proved fatal to many of them. At the farm no quarters were ready to receive them. They were placed in boxes where they huddled for warmth, and more died. The Browns worked hard, but rarely to advantage, and from the first everything went wrong. Without buildings or equipment, even tho it was midsummer, they lost chicks by the score, by the hundred. An experienced chicken man might have improvised something that would have saved the day until the quarters then building were ready. Other thousands came until the full count had been received. Additional stock was bought, about one thousand eight-weeks-old chicks being received early in September. These only helped to swell the tale of the dead, for with inadequate provision for those already on hand the new arrivals had to shift for themselves. It kept one of the Browns busy collecting and burying dead chicks.

Meanwhile, buildings were going up, colony houses were purchased and set up and all that their inexperience suggested was done, with little or no avail. Brown said the neighbrs told him the soil of his place was not suited for the raising of poultry; it was too rich, which he interpreted to mean that it lacked gravel. The end came as quickly as the beginning had been made, and in October, four months after starting out, the Brown outfit was back. The salvage included about two hundred scrawny, half-grown chickens, and a lot of second hand colony houses. About $2000 had disappeared. Brown had proved there's money in hens, by hiding a lot of his own there.

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E. J. Reefer, the poultry expert, 4404 Reefer Bldg. Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure It." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

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Poultry Queries

Rations for Goslings

"Would like to know what to feed young geese." P. W., Bangor, Pa.

Geese are from the first essentially grass eating birds and their first feed should be grass. After that, two or three feeds daily of scalded cracked corn, or mash. If they are confined in a grassless yard or on a tough sod where they can not eat grass, they must be given all the succulent feed they will eat. If it is desired to fatten them after six weeks, feed them a moist mash made of equal parts of corn meal and wheat bran, all they will eat, three times a day. Never omit grass or other such feed.

Market for Poultry Products

"Can you give me suggestions on selling poultry and eggs? It would be greatly appreciated." E. M. L., Lancaster County, Pa.

Unacquainted as I am with your local market conditions, and with the quality and quantity of products you have to offer, it is a hard matter to offer any suggestions other than those of a general nature. Taking for granted that the quality is good, the whole matter resolves itself into a question of how much goods one has to offer and how large a regular supply can be guaranteed.

Considering the market for eggs first, it is always well, where a few dozen a week are had, to look about the home neighborhood for possible customers, as the home retail trade is often overlooked as not worth while. The families of mechanics and others who raise no poultry, living in the community, are often glad to know of some one who can furnish them with a regular supply of fresh eggs and poultry. Such trade saves the producers transportation charges.

The parcel post also gives the producer a chance to develop a good retail market in the nearby tows. The best way to develop such a trade is to select some promising neighborhood of the city and approach the housekeepers, telling them what you have to offer and your prices delivered to their door by parcel post. A small attractively printed pamphlet is a good investment for such trade, the development of which will depend upon a good quality product attractively packed and sold at a reasonable price.

Where quantities of eggs are had, say half a crate or over every week, some of the fancy grocers and first class hotels of large cities will be found willing to buy the product, provided it is of the best quality and absolutely fresh. However, in supplying such trade one must have a reasonable quantity to offer and be able to guarantee a certain amount per week, as few will bother with very small quantities and irregular supplies.

Outside of a private trade, the large hotels and restaurants are the best trade for the broilers and roasters produced, provided the producer can dress and pack the poultry in an attractive manner. Old fowls can often be sold to best advantage alive during the Jewish Holidays when fat fowl are in demand.

If the inquirer has any quantity of poultry to sell, it would be time well spent to visit a nearby city and seek an outlet for his goods. It should be remembered, however, that only good quality will find a ready market and that attractive appearances are of great value.—J. Raymond Kessler, Chester Co., Pa.

MAKING THE FLOCK PROFITABLE

The old saying —it isn't what you make but what you save that counts—when applied to poultry raising should be —it isn't what your products sell for but what you clear that counts. Last year I housed seventy-five hens thru the winter; this year I am housing twelve and my net profits up to the present date have been greater from the twelve than from the seventy-five. Last year I kept everything in the shape of a pullet that I raised that year; this year I selected only twelve from the whole flock, thus having the twelve hens that would make the greatest profit thru the winter without having a lot of non-producers to board all winter. I thought quality would be preferable to quantity. After selecting my stock I sold off all the surplus and closed my two larger poultry houses for the winter; the twelve select biddies were placed in a tight little colony house and the house was placed on a strip of rye that had been sown for a cover crop. The flock soon showed their appreciation of the change by beginning to lay and they have continued laying ever since. I keep a strict account of everything fed them in the line of commercial feeds; of course they have green food and table scraps at times. The ration that I feed is much simpler than many rations advised by Experiment Stations but it seems to give me as many eggs as I could reasonably expect from any ration. It is not so expensive as some rations, and expense is what we must keep down in order to make a good profit.

The flock is given free range every afternoon. This gives them a chance to pick up many bits of food that chickens like, also they are quite likely to lay their eggs in the morning in the building where they are not so likely to freeze in cold weather.

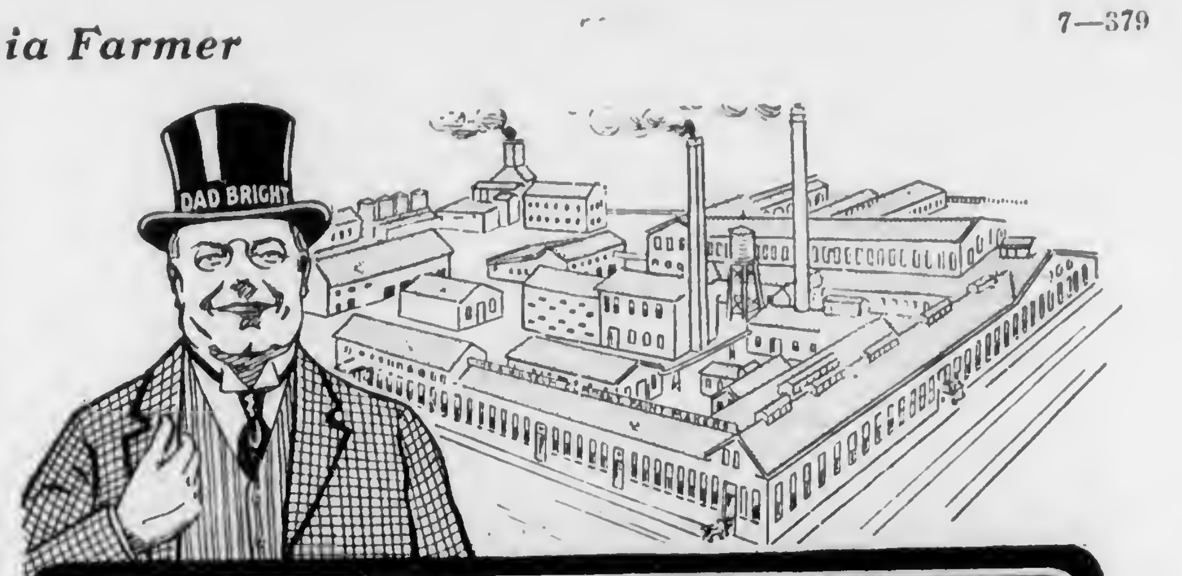
My method of feeding is wheat in the morning; this is thrown in deep litter to make the hens work to get it. Bran is kept before them all the time. They are also given chicken meat every other day in limited quantities. Some advocate keeping the meat before them at range part of the time I get good results all times but where they are given free with my method at quite a saving in expense. At night the hens are given a generous feeding of corn because it helps to keep them warm thru the night.

Most of my eggs are sold to private customers at a premium of about five cents above market price. I have white Wyandottes and they lay a nice, large brown egg that is readily sold. With these twelve hens I intend to work out some problems that bothered me when I had a larger flock and when I have a large flock again I hope to have it on a paying basis, as my small flock now is.—Everett H. Sheppard, N. J.

CHILLING NOT ALWAYS FATAL

Years ago, I discovered that it is much harder to kill a strong germ in an egg than most people think. I remember one instance in particular. After sitting on fifteen eggs for a week the hen changed her mind and went to the roost with the other hens. When the fact that she had deserted the nest was discovered, the eggs had been without heat for twelve hours, and the night had been rather cold—so cold, in fact, that a little ice had formed in vessels outside the building. I, of course, thought the eggs were ruined, but finally persuaded another broody hen to take charge of them. The result was that on the twenty-fourth day twelve chicks hatched, eleven of which were raised to maturity.

The effect of chilling does not necessarily kill the germs in the eggs, but it always arrests or delays incubation. Oftentimes eggs may feel cold to the touch, when their contents are still warm. When, for any reason, the eggs are chilled, it is advisable to keep the lamp going for two or three days.—Z.



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Philadelphia, Pa., April 8, 1916.

MARKET NEWS SERVICE

The federal Department of Agriculture is offering a market news service that should be of value to producers during the coming summer. Branch offices of the Bureau of Markets, with special field men in charge, have been established in a number of the largest cities, including New York, Philadelphia, Pittsburgh, Buffalo and Chicago. Other men will be located in producing sections. The work of these agents will be to collect information concerning conditions in producing districts and marketing centers and make this information available to both shippers and dealers. The purpose is to promote the most profitable distribution of perishable crops, prevent glutting of markets and avoid delay in shipping. The service will be of greatest value to those who ship in carload lots, which is more likely to be the local dealers than the actual producers. But if it will do what is hoped it will be an incentive to co-operative shipping in which communities may profit.

SAVE WASTE PAPER

Every farmer appreciates the wisdom of saving the waste rubber, old rags, waste and broken iron, brass, etc., for the annual call from the junk dealer. The return is small, of course, but any return is a clear profit as it disposes of an absolute waste product. This year waste paper should be added to the list. The junk man may not give much for it, but the conditions in the paper market justify his paying a price that will make it well worth while to save the papers. What is classed as common paper waste, including waste basket scraps, wrapping paper, broken pasteboard boxes, etc., is now selling readily at 25 to 30 cents per hundred pounds. Old newspapers, magazines and smooth folded stock of that sort sells at 40 to 60 cents per hundred. The prices are dependent primarily upon the distance from paper mills, the freight charge in transportation being a big factor. Prices in Philadelphia are considerably higher than those here quoted. In addition to the price returned from such waste, there is the opportunity to enforce a much needed practice of conservation; a need that is being forcibly emphasized by the European war. The embargo on wood pulp is causing paper prices to soar in this country. The saving of paper waste will do much to relieve the situation and check a needless waste that has long been practiced.

FREE OF FOOT-AND-MOUTH DISEASE

All quarantines and restrictions against the shipment and movement of live stock due to the foot-and-mouth disease were removed by order of the Secretary of Agriculture on March 31. All federal restrictions on shipment of cattle due to this disease are now rescinded, and the long fight is over. It has been a costly experience from which there has been no return except a valuable lesson. This lesson applies to the individual stockmen and farmers of the country no less than to the federal authorities who drew so much criticism in this particular outbreak. The complete eradication of the disease and withdrawal of all restrictions on shipping at this date is a vindication of the methods of quarantine and compulsory slaughter used. The methods appeared harsh and raised vigorous objections in this as well as other states. These objections are being kept alive in sections of the state by a few agitators, and in one case at least by a single individual who apparently seeks to attain some real or imaginary personal gain. But the slaughter system is established as the only safe method of handling. The federal Department of Agriculture reports that in the recent outbreak the disease gained a foothold in 22 states, appearing in 269 different counties of the country. The plague broke out in Denmark at about the same time that it appeared here. The area of Denmark is about equal to that of Massachusetts, Connecticut and Rhode Island, but with a large dairy cow population. The Danish authorities resorted to quarantine control without slaughter, and the estimated loss in milk in one year in that small country is approximately one-third of the total cost of eradicating the disease in the 22 states of this country. And the disease there is not yet under control. Count the loss from restricted shipments, the decrease in growing all classes of live stock which would inevitably result from a continuous quarantine system here, and add a loss from decreased products similar to that suffered by Denmark, and we have some conception of the folly of abandoning the slaughter system here. The outbreak of the disease is a calamity at any time and any place, but the only way to limit its destruction is prompt action in slaughter of diseased animals.

FARMERS PAGANS?

The ideal farmer is: (a) an efficient workman; (b) a business man; (c) an intelligent citizen, and (d) a Christian gentleman. America is largely what it is today because the American farmer, hitherto largely in majority, has been in varying degree all these things. Recent criticism tends to doubt, if not dispute, his title to all these qualities. One of the most recent was expressed by a man with the title Reverend before his name speaking before a conference considering the "problem" of the rural church. Among other bits of wisdom was the expression that "Rural people are essentially pagan." In the name of patronizing patricians, what next? We know that farmers, in common with all humanity, are not yet perfect in any of the four qualities named above, but it is a surprise to be told that they are different from others in that they are pagan. A pagan is an irreligious person; one who worships false gods; one not a Christian. We are aware that the human family as a whole may only partially understand the fulness of the teaching of the Great Teacher, but we deny that they who daily work with God's creatures and creations—in fact are co-partners in creative work—know less or care less about Him than others. We deny that there is evidence in the lives of country people that the test of discipleship would fail more frequently here than elsewhere. "By their works ye shall know them," is the final test. There may be less of the superficial in their manner; less display of so-called religious activity; a greater independence of thought, and a broader conception of God because of a more intimate acquaintance, but we brand as an impertinent assumption the idea that these things make men pagan. You who would criticise, if you have some remembrance of the spirit of the country; if memory recalls its hospitality and freedom; if you have not forgotten the effect upon you of birds and flowers and children, turn to the Master's final testing and separation into two classes, the sheep and the goats, and then if you can still say that the country begets pagans, we pity you.

LOCAL RESPONSIBILITY

There are two institutions which are vital to the welfare of every country community, and in the majority of instances they are not satisfactory. These are the public schools and the dirt roads, and the management of both has been almost wholly in the hands of the local people. It is true that within the past few years this control has been gradually slipping away and is as gradually being assumed by the state. Why? For twenty years there has been a growing dissatisfaction and in no place is the dissatisfaction with results and conditions more pronounced than in the rural districts themselves. We will treat the road question separately, but the thoughts aroused by the symposium on the rural schools printed elsewhere leads us to query where the cause of inadequacy of these schools exists. The general tenor of these letters shows that farmers themselves realize that the shortcomings and lack of interest on the part of those in charge is responsible to a large degree. There is, regretably, a growing tendency in almost every class and locality to look outside of themselves for help. In other words, the inactivity and inefficiency of people tends to increase paternalism in government, something we all condemn yet are continually furthering because we will not do for ourselves what we demand shall be done. Numerous examples show that what is needed to develop a real, live and efficient rural school is first, an earnest, united, active community spirit in favor of the best possible school; second, sufficient intelligence and business enterprise on the part of directors to manage the financial end to the best possible advantage. All these are possible in almost every neighborhood if people will lay aside party politics, petty jealousies and personal prejudices and enter whole-heartedly in the job of making the schools what they ought to be. There are enough laws and still sufficient local control to make this possible. Why not do it? It is not too early for some good, tactful people in every neighborhood to get together to study the needs and possibilities and begin to weld together public sentiment which is bound to result in better schools next year. Do not wait for new school laws or waste time condemning the old. It is wise local support and guidance that is needed rather than additional legislation. Few laws can do for a community what the people of the community are unwilling to do for themselves.

STATE ROADS OR BOULEVARDS

The Lincoln Highway project, proposing a great roadway from coast to coast, is practically assured. That part of it which passes thru Pennsylvania is well onto completion. This Highway, while promoted with all of the familiar claims of developing the country, increasing the value of adjoining real estate, cheapening the cost of marketing farm products, etc., is primarily an automobile road. It was conceived by the affiliated automobile clubs of the country, first financed by the automobile manufacturers, and later aided by the state highway departments of the states thru which it passes. Admitting its every advantage, its benefits to the small percentage of state population living adjacent to it, its use in bringing tourists from other states thru those sections, its beauty and convenience as a tourist road, and its value as a part of a great transcontinental highway; admitting all of these, it must still be considered primarily as a tourist road and not a business road or state highway serving the state's greatest needs. And every expenditure of state money upon it must be considered as a state contribution to a luxury rather than an investment looking to the development of a state-wide asset. Perhaps the state can afford such a luxury. If the common country roads of the state were under a system of even fair construction and maintenance, the state could well afford to use its surplus energies in the higher priced luxury of a state boulevard. Even with the gross neglect of the country roads with which most of our rural sections have to contend, the people have accepted the Lincoln Highway as an inevitable state undertaking and are prepared to make the best of it. But the boulevard enthusiasts are not satisfied with the single cross-state highway. They must now make it a loop. They are clamoring for a new William Penn Highway to parallel the Lincoln Highway and joining the two at Greensburg, Westmoreland County, thus making a great 610-mile loop. The advocates of this new road have organized the William Penn Highway Association, and are prepared to press their demands before the, apparently, willing State Highway Department officials. In support of their claims for this new boulevard, these boosters point out that it passes thru more large cities, presents a wider variety of scenery, impresses the tourist with the things that make Pennsylvania notable, such as industry, farming, mountain and river scenery, etc. and lastly that it would add to the preparedness of the nation in case of war. This latter argument is supposed to be a "clincher" at this particular time and withstand all argument and logic. If we may be pardoned for refusing to be overwhelmed by this suggestion of preparedness, we would ask our highway authorities these questions: Regarding our public roads as state property whose value should be equally distributed to all sections and all classes of the state, has a second tourist route a just claim upon the limited road funds of the state? As a business proposition in the development of the state for all classes, what is our greatest need, business and market roads or automobile roads? As a department of state government, does the State Highway Department favor good roads for all or boulevards for a few? Until the state has made good on its obligations to townships under the dirt road law, has it a moral right to spend money on a second tourist road? We ask these questions because we believe every state should have a well-defined state road policy as affecting such projects and we believe the people of the state should know what that policy is

HARRISBURG NOTES

Politics in State.—The state administration is in politics with the exception of a few departmental agencies whose chiefs have refused to divert energies from public service to factional politics and there are signs that interests which desire something from the next legislature are taking steps to make their own campaigns. The organized labor people, the local optionists, the corporations, the liquor interests, all of which have figured in the shaping of legislation, or its manhandling, in the past give indications of avoiding alliances with either of the factions of the dominant political party. A campaign for control of a political organization such as the state seems about to have inflicted upon it is bound to have important results on the following legislature. It was so in 1897, it was so in 1901, it was so in other years, notably 1913, the famous long, and expensive session. The present state administration started off with an ambitious agricultural program along with others. Some have gotten thru, but as to what real progress has been made toward advancement of agriculture or the improvement of rural educational facilities is much debated here, probably elsewhere. The organized and individual agricultural interests of the state have been expecting much of the next general assembly. A legislature torn by factional quarrels may lapse into old time practices and the appropriations needed for advancement of state enterprise may go to institutions which ought to be supported at home.

The Jitney Cases. — The question whether the jitney auto or bus line will eventually come to be of value to the farmers of the state seems to have bobbed up in the Public Service commission in a rather unexpected way. The commission is just now struggling with the protests of trolley companies against issuance of certificates to jitneys, it having been held that the automobiles which run on certain routes and have fixed fares are subject to state regulation. As a number of applications came from rural communities, routes traversing farming sections, the contention was raised that the jitney might come to be of as much service to the farmer who does not own an automobile as it has to his city brother who does not live near a trolley line. For a while there were doubts about the value of the trolley car in the rural districts, but they have passed and the trolley people are now bucking the jitneys.

The Fertilizer Situation. — Some rather interesting observations are being made by farm advisors and men connected with the bureaus of the Department of Agriculture as to the utilization of manure and other home fertilizers because of the war and the cutting off of European supply of potash. More lime is being used than at any time in 25 years, and various domestic ingredients are also being employed to a greater extent than for years. It may take the lesson of the war to teach Pennsylvanians to use what they have been throwing away. Incidentally, the decline in the potash supply has cost the state money because in 1914 it received $32,495 for the registration of 1,834 brands and this year only $19,040 for 1,071 brands. Many of the brands carry very little potash. The boom in lime is shown by the fact that 161 brands for agricultural use have been licensed by the state.

State as Farm Agent.—Considerable interest is being shown at the Capitol in the manner in which the state's effort to place lists of farms for sale before the public will work out. Last year the bulk of the inquiries came from persons who thought of going to the farm without thinking what it meant or for persons who wanted small farms for truck gardening and who wanted them close to cities or railroads. A number of inquiries have come in, but whether they have led to sales is not known. In any event the bulletin will have the effect of showing that there are not so many farms lying around as bargains.

The Usual Bunk.—The usual information from "unquestionably reliable sources" is at hand to the effect that the cold weather has ruined the peach and other fruit prospects and the damage can not be estimated. Notwithstanding these reports careful inquiry at the Capitol, where close tab is kept on the orchards, fails to show more than a dozen instances in which any number of trees suffered to any extent. These reports came from exposed farms. This year a special effort has been made to get lines on the real situation in the fruit raising districts and orchard demonstrators fail to find much damage.

Good Roads Day.—Governor Brumbaugh has called upon the people of the state to go out and dig on May 25 for the second "good roads" day. Last year something like 100,000 people went out and worked on the roads and there are hopes that more will turn out this year and that those who can not will pay for labor or material. Efforts will be made to have the work done in cooperation with state, county or township supervisors who will mark out sections which need attention so that the cheerful labor will be where it will do the most good.

Prompt Repair Work.—In some sections of the state the road patrol work on state highways is already under way and Highway Commissioner Cunningham is authority for the statement that April will see the dirt flying in every state highway district. This spring will give a chance to test out the new organization because owing to the late winter much of the work is really of an emergency character. — Hamilton, Harrisburg, April 3.

NEW YORK LETTER

Novel Plan for Better Milk.—Sanitary supervisor Wakeman tried out a novel plan for improving the milk supply in the three counties of his district. In co-operation with Dean Cook of the Agricultural School at Canton, he arranged for a bacteriological test to be made of all milk sold by dealers in his district and offered a prize to that dealer whose milk showed the smallest count of bacteria for the grade of milk produced. Local health officers were instructed to take samples of milk from the wagon of each dealer sometime between December 1, 1915 and January 15 following, and over 100 samples were so taken. There was a wide interest in the proceedings and the most satisfactory results accrued. In one city the daily demand for the highest scoring milk was increased 700 quarts and one milk dealer, at least, had to go out of business. Much of the Grade C raw milk was found to be absolutely filthy and eight dealers supplied milk of that grade. Over one-half the dealers supplied Grade B milk and of these there were 16 that showed more than 100,000 bacteria. Another result of the count was that some of the boards of health have required monthly counts of milk sold in the cities.

Township Schools.—There is bound to be a hard fight before the present system of schools in the rural districts is changed to correspond with township limits. A bill has been introduced in the legislature which is favored by the education department, providing for the township system but it is understood that it will not be forced to passage at this session inasmuch as the state grange desires that the whole proposition may be discussed in the local granges and the resultant opinion may be ascertained as provided for in a resolution adopted by the state grange at its past annual meeting, and which will be reported to the next annual session. Without the support of the granges it is hardly likely that such a proposition could find great favor in the legislature. Incidentally, this is a very nice compliment to the influence of the grange in legislative affairs that affect the rural districts.

More Agricultural Bills.—If a bill carries that has been introduced relative to the inspection of slaughter houses, creameries and such allied food-producing establishments these plants will have to conform more strictly to the requirements of the state boad of health. If the health department approves the report made on these establishments then it will not be necessary for them to be inspected by municipalities. Another bill prohibits the selling or giving away or returning to patrons any skim milk or whey without pasteurization. If the examination of a dairy indicates the presence of pathogenic bacteria in the milk, and if such milk is delivered to creameries, cheese factories or milk stations the skim milk or whey therefrom cannot be returned to patrons unless it has been subjected to a degree of heat sufficient to kill tubercle bacilli. The state commissioner of agriculture is to prescribe the rules and regulation for carrying out the provisions of this section of the law.—D.

NEW JERSEY FARM NOTES

Agricultural Bill Passed.—The House last week concurred in the action of the Senate in passing over the Governor's veto Senate Bill No. 21, reorganizing the agricultural departments of the state. The vote in the house was 36 to 12. The Economy and Efficiency Commission had concluded that it was not ready to make any recommendations as to a reorganization of the agricultural department, and as the measure added an expense of $10,000 to the state there was no pretense of economy in it.

Compensation Law Amended.—Farmers of New Jersey scored a victory when the Senate passed one of the measures amending the workmen's compensation law, modifying the law as to exclude farm labor and domestic help from its operation.

Pass Highway Bill.—Attempt after attempt was made to amend Senator Egan's $7,000,000 road bill, but they were all defeated. The bill passed both houses and was signed by the Governor. The bill as signed provides for 13 specified trunk lines of roads on which the money received from the $7,000,000 bond issue will be spent. There is a referendum provision by which the question of issuing the bonds shall be submitted to the voters. The interest and pricipal of the bonds if they are issued are to come out of the motor vehicle fund. The law will favorably affect every county in the state.

New Farm Station.—Salem County farmers are eager to see work started on the new branch agricultural station which is to be established at Monroeville. Cold and wet weather have delayed the operations so far, but officials at the main station have stated that the work will be started just as soon as possible. There are enough different varieties of soil on the Monroeville farm to make possible the growing of practically every kind of crop that can be found on the general run of farms in South Jersey. Previous owners have raised big crops of grain and truck. The legislature appropriated $25,000 for the purchase of the farm station site, which actually cost $18,500. The State Board of Farm Managers has made a preliminary appropriation of $3,000 for repairs to the building and other equipment.

Must Cool Milk.—A rule has been made by the State Department of Health, to take effect May 1, requiring all milk delivered by producers at creameries or milk shipping stations to have been cooled to a temperature of 60 degrees Fahrenheit or below. This is an attempt to regulate one of the most difficult phases of milk handling. While the present rule applies only to the temperature of milk at the time of its delivery to the creameries or milk shipping stations, it is expected that a standard of the temperature of milk at the time of delivery to the consumers will be adopted as soon as the State Department of Health can complete its arrangements for enforcing such rule.

Convict Work Halted.—The experiment of the state in the use of convicts on road work is to end in failure. The State Road Department has notified the Board of Prison Inspectors that the Road Department will have no further use for the 133 convicts now employed in the three road camps. Arrangements will have to be made to take these men back to the prison. The cause is laid to the door of the Appropriation Committee of the Legislature, which cut down the request of the road department for funds to such an extent that it will be impossible to carry on the work.—L.

SUBSCRIPTION SWINDLER SENTENCED

We have had occasion to warn readers against giving subscriptions to Pennsylvania Farmer to agents of the Higgins Circulation Bureau of Columbus, O. As stated in these warnings, we had a number of complaints from sections of northeastern Pennsylvania, northern New Jersey and southeastern New York that a Higgins' agent was taking subscriptions to Pennsylvania Farmer and the paper failed to arrive. The Higgins Bureau was never authorized to take subscriptions, and as it showed no disposition to control the actions of its agents, we were forced to deal with the agents direct. The offending agent was arrested in Binghamton, N. Y., about February 20. He was tried on the complaint of farmers to whom he had promised Pennsylvania Farmer and other papers, and was sentenced on April 1. Similar charges against him are still pending in this state, but will not be pushed unless he continues his misrepresentation after being released. The Broome County authorities are to be congratulated upon the interest manifested in the protection of rights of their country constituents.

We have made good every subscription taken by this man and reported to us with the receipt given. We have made every effort to protect readers who have paid their money in good faith. And we have done what we can to protect ourselves. We will continue to prosecute every agent who attempts to misrepresent us or victimize farm readers by taking subscriptions to Pennsylvania Farmer by fraud.

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(Signed.)

NEFF LAING, Manager.

Sworn to and subscribed before me this 31st day of March, 1916.

H. C. KNIGHT, Notary Public.

(My commission expires April 22, 1919.)

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Cooperative Leases for Dairy Farms

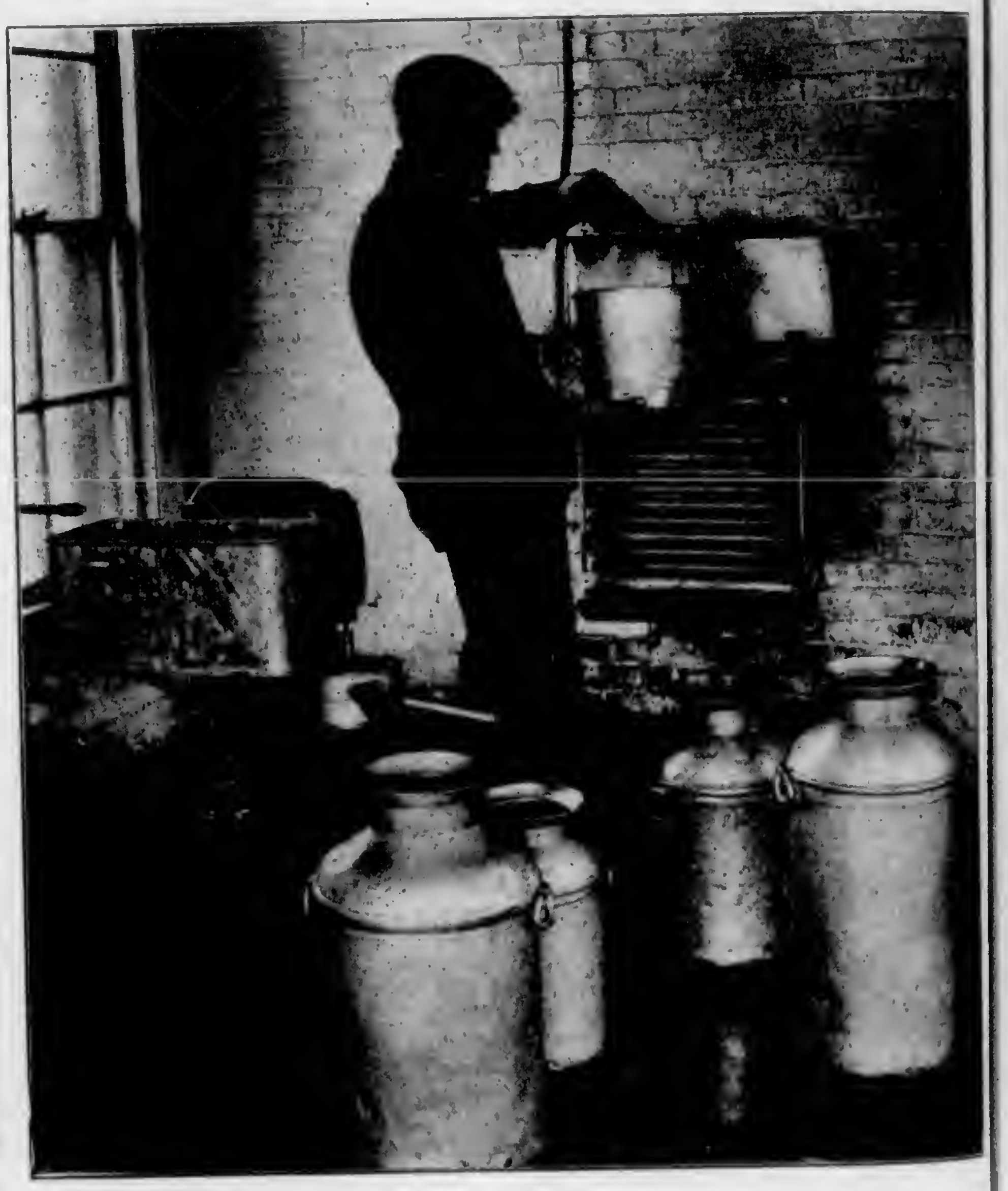
By W. M. Kelly, New York

It is a difficult undertaking to work out a just and equitable system of partnership, or co-operative leasing for dairy farms. A man with a desire to maintain his farm in a productive condition and keep up the permanent improvements on the premises is, in most instances, unwilling to rent for cash and have the tenant assume full control of the property. Abrupt changes in plans of management usually prove more or less disastrous. The most successful farmers recognize the advantages of a definite method of procedure that has been laid out several years ahead, and, so far as possible, adhered to. As land values increase there is a greater necessity of maintaining the productivity of the soil in order that the farm will pay interest on the higher valuation.

It is no easy matter to find a thrifty tenant who is willing to conduct a farm along the lines prescribed by the owner, and the transient tenant is the antithesis of efficiency in dairy farming, as in all other agricultural spheres. My theory is that the tenant to accomplish anything must see sufficient profits ahead to make the task interesting, and it is a matter of absolute fairness that he should have an adequate share of the income. If the owner furnishes the farm and cows, it is only fair that he shall have undisputed control of the crop rotations, buying new cows and selling the products, but he will promote his own interests by doing all that is possible to increase the profits of the business and establish a feeling of respect and business confidence on the part of the tenant.

This policy will, in my judgment, do much toward insuring a better system of dairy farm tenantry and solving a present labor problem. Given the ordinary comforts of life, and a proper share of the income from the business, many competent young men now following uncongenial lines of work will return to the farm. By adopting a profitable and efficient system of crop growing and dairying, and finding a competent young man who will rent the farm for five or ten years, I am convinced that, with the right methods, we shall be able to work out a system which will prove equally attractive to owners and young men, who lack the necessary capital to start in farming for themselves.

Good Buildings.—The first step toward working out an efficient system is providing adequate farm buildings and conveniences to make the work interesting. We must simplify and eliminate the humdrum phases of the business as much as possible. The same argument also applies to getting the fields in condition so that a rational crop rotation may be practiced, the work systematized and the fertility maintained. The man who is interested in the outcome, and who has the loyal support of his landlord, will do better plowing and cultivating as every favorable development will furnish him with the necessary stimulus to do things the proper way.



CREAM SHOULD BE COOLED AT ONCE AFTER SEPARATION.

Grass Land.—One of the most difficult problems confronting owners of rented dairy farms is that of maintaining the meadow and pasture lands in good condition. The interest of the average tenant in any system of farming depends upon its proved ability to yield the most cash during the one year. The question is—will it pay this year? Promises of future profit do not govern their attitude. If a system of crops will pay this year its adoption is sure to follow. In order to maintain good meadows on the rented farm, special provision must be made for seeding as large an area of grass land as is broken up each year. This practice works no hardship to the tenant; it is only fair that he shall leave the farm in as good condition at the end of the year as it was at the beginning. If the owner of the farm is interested in maintaining his meadows, he will purchase good clover and grass seed and be on hand to see that the work of seeding is done in a businesslike manner.

As a safeguard to the owner it is always best to plan the crop rotations so that the clover and grass crops will occupy the ground at least two years. The high price of grass and clover seed and the unexpected factors, such as dry seasons, the scarcity of farm help and uncertainty of the new seeding going thru the winter in good shape, have convinced many of the best farmers that it is better to keep a portion of the land in older mowings and not confine their lands to the short system of rotation, which is so easily broken up by adverse conditions or one year's bad management. My observation and experience prove that this is the best system of handling clover and grass lands, especially on rented dairy farms.

Equitable Division. — A just and equitable division of the income from the dairy and other lines of farming is not a difficult problem to work out. In this community, if the land owner retains control of his property and furnishes the cattle and farm equipment, except the work teams and harness, an equal division of the profits is the most satisfactory solution. Division of the operating and incidental costs must be determined by agreement. No rules can be laid down which will apply with equal fairness to all farms, men and conditions. If a cash crop is grown in the rotation, and the farm situated a long way from market, the tenant cannot be expected to do all of the marketing when the crop is sold, unless he is paid for the extra labor and team work. On the other hand, if the work teams are fed from the grain that is raised on the farm, the owner has a right to demand that they should be used to market his share of the crops. All of these things should be given careful consideration in order to avoid trouble at marketing time.

Equitable Accounting.—In order to protect his own interests and make it safe for him to invest the capital necessary to make the business profitable, the owner of the property should retain control of the financial end of the farming, but it is only fair that he should give a statement of the business at the end of each month, or whenever demanded by the tenant. I know that many will question this assertion, and no doubt claim that I am saying this for the benefit of landowners. This is wrong. Why, let me ask you, should the owner of a valuable property sign his name to a lease which binds him to do thus and so, when the tenant cannot be held equally responsible to carry out his part of the agreement? Do banks and business concerns do business that way? Can you go to a bank and borrow money without giving security? Can you start in business and buy goods from a large mercantile house before you have established your credit? Of course not. Then, why is it just and equitable for you to go to a landowner and insist that he give you a lease which gives you absolute control over his farm and personal property for a term of years without you putting up a bond which will hold you equally responsible to carry out your part of the agreement?

He is good for all that he agrees to do, and you will no doubt hold him to the letter; but if you are not equally responsible what can he get out of you providing you should decide to be dishonest? If you have property and put up ample security that you will faithfully perform your part of the agreement, you should have a lease which gives you equal rights in handling the cash and buying and selling the supplies and products of the farm. If you cannot do this you should not ask a man to give you a lease which takes his farm

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You may say one cannot get tenants that will enter into that kind of an agreement, but any good tenant who seeks to make a profit from his farming would prefer to do business with a landowner who is willing to furnish him with a good farm, suitable stock and conveniences than to rent some run-down farm which has been skinned for years by shiftless tenantry. Business is business, and a high-class tenant knows the advantages of conducting his farming on a systematic basis and is willing to listen to the advice of a liberal land owner who takes an interest in doing what he can to increase the efficiency of the farm.

An Example.—In order to make my points plain let us consider what happened to a dairy farmer in this community. This man had a large farm, well-stocked and well-equipped for producing milk for the city trade. His tenant had taken hold of the farm and dairy and showed every indication of being a hard-working, intelligent farm manager. The cows were doing well and the crops gave promise of good yields. The owner had made it a practice to buy all of his grain feeds during the spring and summer, thus saving from $5 to $8 a ton on his feed bills. He made the suggestion to his tenant that they could save so much by buying their feedstuffs early. The tenant did not have the ready money to pay for his half of the feed, but the owner readily consented to sign a note with him for the full amount of the feed bills, or $900, to be paid the first of the next February.

Things moved along smoothly until that time. The tenant in the meantime had sold his share of the crops, fed out nearly all of the grain feeds and pocketed his share of the money. The result was that the owner of the farm had to meet the note at the city bank when it became due while the tenant left him with his cows and farm on his hands and moved to new and fresher pastures in an adjoining county. This could not have happened if the owner of the property had retained control of the business. This is only one instance where land owners have suffered severe losses by signing notes and doing business in a slip-shod manner with irresponsible tenants.

A Better System.—In order to illustrate what has been found a just and equitable division of profits from a partnership or co-operative system of leasing dairy farms which I have outlined, let me describe the methods practiced by one of the most successful dairymen in this end of the state. This man has succeeded in working out a system of handling his dairy business with tenants so well that his ideas and practices are being put into practice by other land owners. Not long ago I visited his farms and asked him to give me a brief outline of his methods and practices in dealing with his tenants. He said as follows:

"Several years ago I became sick and disgusted with the hired help problem. Years ago when I could take the lead and keep the work moving I had but little trouble in hiring and keeping good men, but as soon as other interests demanded more of my time and attention the help began to do about as they pleased. I put up with the trouble a little more than two years. Finally, I made up my mind to get the best young dairyman I could get track of and make him an offer to take full charge of my farm work on a partnership basis. I furnished everything except the work teams and agreed to divide the profits equally. I have full control of my farm, plan the rotations, buy the new cows when needed to keep up our city milk contract, and sell those that fall down in their milk yield or that are otherwise incapacitated during the year. I furnish one-half of the purchased feedstuffs, pay one-half of all the running expenses outside of the hired laborers. We allow $10 per cow for the depreciation of value in the milking herd during the year and share the loss equally. I set those figures after an experience of more than 20 years producing milk for the city trade and consider them very reasonable. In this way it is up to me to maintain the efficiency of the herd during the year.

"Our rotation crops are 20 acres of potatoes, 20 acres of wheat, 20 acres of corn and 20 acres of clover and timothy. We plan to have 40 acres of clover and mixed hay each year. This leaves about thirty acres of tillable and orchard land. About 20 acres are used for alfalfa and soiling crops. The pasture here on the home farm consists of 50 acres and this, with a very little supplemental green forage, silage and a little grain feed, keeps the cows producing profitably during the grazing season. We sell from 80 to 100 gallons of milk a day for the entire year and figure on producing from 2,400 to 4,000 bushels of potatoes for market.

"By conducting my farm in this manner I find it far more satisfactory than hiring men to do my work; besides it affords us a more pleasing and satisfying home life than in the case when we are boarding two hired men and keeping a hired girl to assist with the house work. I have two other farms that I am conducting the same way. The young man who leased my farm the first year is still with me and has laid up quite a nice sum of money. My other tenants are young men that began farming on my farms, and they are doing as well as could reasonably be expected. I find time to look after the three farms and keep things going as well as I could on the home farm when I depended upon hired help. By co-operating and buying our dairy feedstuffs and supplies together I save the boys a good many dollars each year, and what is best of all, they seem to appreciate my efforts. By changing work at threshing and silo filling time and when we are cutting wood, shredding fodder and doing other odd jobs, my engine and cutter, shredder and wood machine do the work for the three farms as well as for one. Altogether I have found that it is possible to get along with men when they feel that they have an interest in their tasks and know that the owner of the farm is interested in something more than skinning them out of their year's wages."

There must be a harmonious and intelligent co-operation on the part of the land owner with his tenant if the farm is to be kept up and put on a money-making basis. There must be a judicious blending of capital with brains and labor. Some land owners have disheartening experiences with shiftless and dishonest tenants. Many rented farms are owned by men who have abundant capital to give the right kind of a tenant a good show, but unless they have confidence in the man they begin to tighten their purse strings.

On the other hand, many owners of dairy farms have no knowledge of profitable dairying and think that a tenant should give them about all they ask for. As a rule, they find some shiftless, dishonest fellow who cheats them every chance he gets and in the end they are far worse off than they would have been if they had given a good tenant a liberal show. Many tenants have failed to make good simply because they have been restricted and cramped by penurious and exacting land owners who have claimed everything in sight and refused to put any money in the business.

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SEND US REPORTS

The editors of Pennsylvania Farmer are well pleased with the interest people are taking in reporting organization work thruout our field. There are still some districts where we have many readers that are not reported and from which we should be glad to receive write-ups of special events. The purpose of the department is to give an opportunity for reviewing constructive work done and condensed reports of especially helpful addresses. Of course, correspondents will realize that the printing of programs of purely local interest are of little value to general readers. The point is when you or some individual does somethings, or says something that you think would be good for others to know, send it in.

While the granges have been most active in reporting their work and meetings we wish it understood that this department is open for furthering the interests of all agricultural associations. We invite reports from farmers clubs, unions, exchanges—in fact all co-operative bodies of farmers which are designed to further develop agriculture and agricultural people.—Editors.

THE GRANGE FIELD

In a recent letter from national grange master Wilson to Patrons everywhere he says "The grange must become a far greater force and power than it has ever been; much as it has accomplished in the past it must assume far greater responsibilities in the future. I am one who believes that the membership will prove true to their trust and the grange record for good will increase. The Order will not shirk a single responsibility that is placed upon it, but it will for all time be alert and never weary of fighting the battles of the American farmer."

. . .

Early in February the legislative committee of the national grange had a conference with Postmaster General Burleson concerning certain improvements in the rural mail delivery service. The committee claimed that the long mail route served by autos is not so satisfactory to country people as two routes half as long at half the cost. Mr. Burleson said that the law compelled them to pay $2400 for two carriers or to try to serve the same people with one auto service at a cost of $1800. The law is too inflexible. If the Postmaster General were allowed to make standards for different conditions of routes, quantity of mail handled, etc., and pay for the service according to the different standards the government could save $10,000,000 a year. Mr. Burleson assured the committee that the department did not consider economy in the service the primary consideration, and that if routes had been established that did not give constant and reliable service they would be changed. When the committee suggested that some city deliveries now numbering as high as eight per day, could well be reduced in number the Postmaster General acknowledged that in some cities that condition had been developed in order to give employment to more carriers. While he considered it unjust there seemed to be no way under the law to remedy the matter. We believe that if the national grange legislative committee will keep in close touch with the postal department they will be able to secure marked improvements in the rural service in time.

National Grange meeting at Washington in November. There should be a rousing attendance of grangers from all over the eastern states. The national grange executive committee has already made the preliminary arrangements for headquarters which will be at the Hotel Raleigh where about 1000 people can be accommodated. The sessions of the grange will be held in the same hotel but the Seventh Degree will be conferred in the National treatre which will occur on Friday afternoon, April 10. The sessions of the grange will open Wed., Nov. 8, and probably conclude on Fri. Nov. 17. Full information as to hotel and railroad rates will be given at an early date. We anticipate the formation of many excursion parties of grangers to the Capitol City on this occasion.

. . .

Waltham grange, No. 282, of Waltham, Mass., recently held "a legislative night". There were 300 guests present including Governor McCall, who is a member of Winchester grange. Other guests were members of the legislature who are members of the grange and officers of the state grange, and others. Governor McCall told the assemblage that the grange had become an important factor in the political life of the state and has been instrumental in securing the passage of measures beneficial to members and non-members alike. He further assured the assemblage that any measures passed by the state legislature that the grange favored would receive his signature.

. . .

Reports come from the Pacific coast that the grange out there is backing a proposition for making more practically useful to the farmer the parcel post system. The idea is to bring producer and consumer closer together to the advantage of both. A newspaper dispatch dated at San Francisco says that the system is to be given a trial by the grange organizations of that state. A bill is now before Congress to provide for such use of the parcel post. David Lubin is the originator of the plan which is to "mail-orderize" as he puts it, the parcel post department of the post office. The system calls for a series of tags and forms which are to be purchased by farmers and each farmer so purchasing is to receive a number. The postoffice sells to the consumer or purchaser a purchasing book similar in form to the railroad mileage book. Farmers desiring to do business in this way register their names and numbers at the postoffice. This is how the plan is expected to work: Suppose a farmer wants to sell 10 pounds of butter direct to the consumer. He makes out 10 blue forms which are sent to the postoffice by the rural carrier. The postmatser puts the form in a rack arranged for that item. The housewife want to buy 10 pounds of butter. She goes to the postoffice, consults the "butter" files and notes the prices asked and the number of the farmer who offers the butter for sale. She pays the postmaster the price who indicates the amount in her purchase book. The postmaster sends the order to the farmer who fills it and the carrier brings the butter to the postoffice. At the end of the week the farmer fills out a "total slip" for all the sales made during the week which he sends to the postoffice and then the postmaster remits to him the amount due. This closes the transaction. The scheme seems to be practical. We shall watch its progress with interest.—D.

Some of the best things we have were hooted out when first proposed.

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Forage Crops for Swine

By Paul Gerlaugh, Pennsylvania State College

The feeds which will grow and properly develop a pig from weaning age to a 200-pound hog have been given more attention during recent years than formerly. This has been due to a marked increase in the prices of feeding stuffs and to a knowledge that the hog's carcass is influenced by the feeds which are fed.

Pigs after being weaned are often fed a ration composed too largely of corn to enable them to make their best growth. A pig should be supplied with feeds which are rich in mineral matter and protein. If robbed of mineral matter the bone will be weak and the thrift of the animal will be lowered. Protein is necessary to develop muscle tissue in the body. Feeds which will furnish these nutrients are skim-milk, buttermilk, tankage, oats, barley and middlings. The milk products are usually considered superior and tankage a close second. Oats and barley are good but for very young pigs should be ground and the hulls sifted out to avoid irritation to the intestines which leads to scours. Middlings are a satisfactory feed for young pigs but should be fed as a slop as they are not palatable when fed dry. The amount of protein supplement fed to pigs after being weaned should be greater than to mature animals.

The high price of feeds has led many to utilize forage or pasture crops for the feeding of pigs. This has proven to be one of the cheapest sources of feed and more satisfactory than feeding in a dry lot. The pig is naturally adapted to consuming concentrated feeds or grains. Growing crops are succulent and contain the feed nutrients in an easily digested form. A pig does not have a large stomach and cannot be expected to consume large quantities of forage at first or to ever become able to do well on forage crops alone. They will soon learn to consume fairly large amounts because of its palatability, however, and they make much use of it even if given all the concentrated feed which they will consume in addition. The exercise they get in gathering forage is also beneficial.

GIVE PLENTY OF WATER IN HOT WEATHER---SUNSHADE IN BACKGROUND.

Crops to Use

Crops which can be used for the production of forage crops are numerous. Any of the grasses can be used, bluegrass having the advantage of being permanent if rooting by pigs is prevented. It does not give such a large amount of forage as some other crops but will furnish forage thruout the summer if rain is abundant. The legumes, such as clover, alfalfa, soy beans and Canada field peas can be used with good results. It is necessary to have a crop which will remain succulent or to use a series of small lots containing such crops as will furnish a fresh crop after one has been used.

The Pennsylvania State College has used several with good results as forage crops for pigs. Oats and Canada field peas sown at the rate of one and one-half bushels each have been used as a first crop. If sown as early in spring as possible, about April 1st, the growth will be sufficient to start the pigs the latter part of May. The pigs will not consume large quantities at first but will become accustomed to eating the forage by the time the oats start to head out. This forage has been found to continue succulent and furnish feed for about six weeks. The pigs seem to prefer the peas at first, but as the oats begin to fill they show preference for oats. It has been found desirable to sow the peas about a week earlier and a little deeper than the oats. They require a little longer to germinate and the two crops will be more uniform if this method is followed.

The next crop has been either rape alone or rape sown with oats. During the summer of 1915 rape alone was used and, due to the heavy rainfall, furnished forage from July 15th to October. Dwarf Essex variety should be used and should be sown late in April if wanted for forage during the latter part of June. It can be sown broadcast or in rows, the former method being used at the College, at the rate of eight pounds to the acre.

Corn broadcasted at rate of one bushel per acre will also furnish much forage of good quality. Clover makes a very desirable forage crop. As soon as the clover comes into bloom a small portion can be pastured and another portion cut early to allow the second growth a good start by the time the first is matured. Alfalfa can also be pastured without serious results to the stand if not overstocked.

The number of pigs which an acre will supply varies with the season and the size of the pigs. During an average season oats and peas will supply forage for 25 fifty-pound pigs for about a month. From ten to twelve pigs weighing one hundred pounds each will be sufficient to consume the forage produced by an acre of most crops.

Returns

Experiments conducted at the Pennsylvania State College during the summer of 1915 showed large profits due to the feeding of forage crops. Two lots of 22 pigs each were used. One lot was fed from a self-feeder in a dry lot. There was corn meal in one compartment and tankage in another, the pigs being allowed the use of either. They were kept in a dry lot of about one-quarter acre in size. The other lot was given access to the same feeds from a self-feeder located in an acre plot of oats and Canada field peas, and later on moved to rape, this being followed by corn. The rape plot was not completely used and furnished forage for another twenty pigs after the first were removed. The results are clearly shown by the table which shows the results covering a period of 133 days.

	Forage Lot Lbs.	Dry Lot Lbs.
Average initial weight	38.2	40.9
Average final weight	176.2	138.5
Gain per pig	138.0	97.6
Average daily gain	1.037	.733
Grain feed cost per lb. of gain	$ .051	$ .074
Returns per lot after paying for feed	79.85	16.72

Corn was computed at 70 cents per bushel; tankage at $55 per ton.

It was noticeable from the first that the pigs on the forage crop were making more rapid and more uniform gains than the dry lot pigs. The pigs on forage ate one pound of tankage to 21.6 pounds of corn meal, while the dry lot pigs ate one pound of tankage to 9.12 pounds of corn. This shows that the forage crops take the place of much protein feed. The result shows that a credit of over $60 should be given to the forage crops.

If one has a bluegrass pasture on which the pigs can be turned and later given access to a patch of clover or some other crop which will be relished by the pigs, returns will be surprising when compared to pigs confined to a pen or a dry lot. The bluegrass may not give such returns as the crops given above, but will be found to be very valuable. Any green forage will produce good results and seldom is a farmer unable to use some crop if given just a little attention, and the returns are very satisfactory.

PIGS AFTER WEANING SHOULD NOT BE CONFINED TO A PEN.

PREPAREDNESS AT FARROWING TIME

Farmers who intelligently feed and care for their pregnant sows, so as not to overload them with fat, but instead give them feeds for the development of bone and muscle, are on the right road toward the production of strong healthy litters. Their preparedness program, however, does not end here. Two weeks before farrowing the sow should be put into a farrowing pen so that she will become acquainted and contented in her new quarters. The farowing pen should be dry and free from draughts. Provide the pen with a guard rail made of 2 by 4-inch planks set 8 inches from the wall and 8 inches from the floor to prevent the sow from crushing the pigs against the wall. Use only a small quantity of bedding; leaves or straw are preferable. See that the sow has plenty of fresh water.

It pays to keep the sow quiet. Assistance at the time of farrowing should be at hand if needed, but the sow need not be helped if she is getting along well. In cold weather put the newly born pigs in a well warmed basket and after farrowing is over the pigs should be placed with the sow, care being taken that each one gets to a teat. When the afterbirth is passed, it should be removed from the pen at once and burned or buried.

After farrowing, the sow should have nothing but water and a little thin slop for the first day. The feeding for the first three or four days should be light, and the time consumed in getting the sow on full feed should be from a week to ten days, depending on the condition of the sow and the size and thrift of the litter. It takes plenty of sow's milk to make healthy growing pigs. If the pigs begin to scour, feed the sow less and give her plenty of strong lime water.

It is very necessary that the little pigs have plenty of exercise and all the sunlight that can be given them. Do not allow the pigs to run out during a cold rain. If possible, provide green feed or roots. These keep the sow healthy and cheapen the ration. Encourage the pigs to eat grain after they are three or four weeks old. Build a creep for them so they can feed alone. At this age feed for bone and muscle. Give them all the skim milk you can. If skim milk is not available, give them some meal and plenty of pasture. In about eight or ten weeks the pigs will have practically weaned themselves. After they have been successfully weaned the most perplexing job is over.

Pig Ration.—Will you kindly suggest a suitable grain ration for pigs weighing from 60 to 70 pounds each? I can get middlings at $1.70 per cwt; bran at $1.35; rye middlings at $1.50; oats at 45 cents per bushel and 40 percent digester tankage at $45 per ton. N. J. F., Wing Gap, Pa.

If the rye middlings are of good quality we would use them in preference to wheat middlings as there is a difference of 20 cents per cwt. in price. You do not mention corn, but it should be available at a price comparable with your other grains. If good corn can be obtained we would make the mixture 1 part tankage, 4 parts middlings and 6 parts corn, feeding the tankage and middlings mixed in heavy slop and the corn separately, or grinding the corn and mixing all in heavy slop. The pigs will also pay a good price for clover hay fed in racks.

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How Do Your Schools Suit You?

A Symposium of Opinions by Readers

Introduction

We asked editorially some time ago for personal expressions on, "How do Your Schools Suit You?, and the following letters are representative of the replies received. We leave you to judge as to how much helpful, constructive criticism is contained in the symposium. One thing is evident, and that is that many school boards are not chosen because of their especial fitness for their duties; but the responsibility for their election, however, lies with the people. We are fully convinced that most school boards would be more efficient if a part of its members were women, something which the laws of Pennsylvania and perhaps other states allow, and which is too infrequently recognized by voters. We believe that their counsel and assistance would correct many of the official short-comings of some school boards. We will follow this discussion with two articles, each telling how a one-room school was transformed from a condition of inefficiency to one of ideal usefulness. We hope our readers will watch for and read these articles carefully, because they show how, under present laws, individual tact and a spirit of community helpfulness may bring success out of failure.—Editors.

Some Good Suggestions

Our rural school building is now in a fairly good state of repair, altho new seats and new outbuildings are much needed.

I believe, generally speaking, that the rural teachers of today are doing good work, but they need more hearty co-operation from parents.

There are only a few pupils in our districts, and some of the tax payers wish to transport them to another district.

Personally, I am in favor of continuing the one room rural schools for pupils below high school. I think the playgrounds should be equipped with some apparatus from which even a few pupils may get enjoyment.

For instance, a croquet set, one or two swings, part of the school grounds flooded in winter for skating. A phonograph, or a stereoscope would help keep up interest.

How can we make good farmers of the children, if we teach them objectively that for even an elementary education they must be transported to some town?—Mrs. A. B., New York.

Co-operation Needed

I will endeavor to give my views on the rural schools. I think co-operation of parent and teacher is most needed for the welfare of the school. But instead we find much back-biting done by the parent. And very often the most "biting" is done by the former teacher who ought to know and sympathize with the trials of the teacher. Then again, how can a child have confidence in a teacher when he sees a teacher doing things that he has been taught at home to be wrong.

I have known teachers to chew tobacco during school hours. One to drink intoxicants to excess during the term and some to allow profane language to be used on the playground. Also to dislike children to such an extent as to never speak with them except in class. Now I think the most trouble lies with the schoolboard. I believe it is too much of a political trap. The favored ones get schools often times regardless of qualifications. The school is next the home and I could not respect one who would vote a bad man into office simply because he had done him a material favor. So I think a teacher should have an impeccable character. So with the school directors, only men who have the school's welfare at heart should be nominated to run for director. A teacher should be fully qualified for teaching and get a school on his or her merits and not by the amount of influence his or her menfolks have on votes.

Then the parent should refrain from bringing all the weak points of the teacher before the child. How can a teacher do her best when the child is always looking for faults?

By visiting the school frequently the parent could often make suggestions that would be appreciated by a competent teacher, that would be ignored by one who might be engaged for political reasons.

Politics should not be brought into the home and school. Some of us parents think we are too busy to visit the school and some never even think of it But a vast amount of good could be done thereby.

I am a mother of nine—five girls and four boys. The four eldest, two girls and two boys, go to high school, three girls and one boy to a rural school and we expect to start our baby boy next term.

We have always had more trouble to keep them out of school when necessary than to get them to go, but have had lots of experience in explaining away wrong impressions of the teacher, caused by the fault-finding parent and the children of those parents.

Let us elect clean directors and eliminate favoritism and the school will be better. I do not think grand surroundings essential. If the teacher cannot get the child interested, surroundings will not count for anything. A certain amount of thought, time and money should be devoted to the surroundings, but it is not most important. The school buildings sholnd be as comfortable and pleasant as it can be made and with the real teacher in charge most of the pupils (if not all) will respond to kindness if they hear no outside fault-finding.—A subscriber, Lancaster Co., Pa.

Lack of Control

The rural school has not been satisfactory to us. As a rule the teachers are too young and too easy with the children to begin with and don't have any order in school. Later on they try to make them mind but have lost control over them. Our children seemed to learn very little while they attended the rural school.

Two or three members of the board take an interest but the rest are there only once in a while when the board meets.

The buildings used to be in poor condition but of late have improved on account of the law requirements. The neighborhood didn't appear to take any interest in them.

We feel if they would pay better wages and get older and more experienced teachers it would be better. Another thing we don't like is the transportation of the children by bus, as some of the boys are rough and use language that is not fit for children to hear.—J. S., New Jersey.

Poor School Directors

Noting an article in a recent issue of Pennsylvania Farmer referring to the rural school and asking the question "Do the schools suit you" I will try and state a few facts as I find them in my visits to my township schools, having been elected a director in my township last fall.

I do not wish to be regarded as a pessimist but I am sorry to state that, in the nine schools in my township, there is a vast difference both in the number of pupils enrolled and in the manner in which the teachers conduct them. No doubt all progressive readers of Pennsylvania Farmer will agree that our educational facilities in the rural districts are not in keeping with the progress made in other lines. The question arises how are we to over-come the difficulties? In the first place we know that political influence in the election districts puts men into office at times without the educational qualities necessary to the office, and the results are that some school districts have a very poor board of school directors. Consequently the schools are not making much progress. I know of instances where men of political influence when attending an educational meeting are inclined to visit saloons. Such directors have held office for the past sixteen years. As long as such men are in control of our rural schools we cannot expect any improvement.

With regards to school visiting on the part of directors, some in my own township have not visited a single school this term and I have learned from some of the teachers that they did not visit them the term of 1915. Under such control on the part of directors the teachers are not inspired to greatest enthusiasm, as some told me. Another thing that is lacking in school districts is the gross carelessness on the part of parents in visiting the school. It reminds of an old song I used to hear: "Oh, dear, what can the matter be parents don't visit the school." As long as parents do not take more interest in our public schools I am afraid they will not measure up to the standard which should be exacted of them.

With regards to teachers employed, I might state that we have some very good ones and some just the opposite. School teachers in some respects are like employees in business, it seems that they are after the dollar, and the shorter the day and the larger the dollar the better, but being in sympathy with the teacher I know their's is a pretty hard road to travel, and they sometimes receive undue criticism.

In my own township, consisting of nine teachers, the entire enrollment does not exceed 200 pupils, and two of the schools have nearly one-third of the enrollment. The number in the smallest two was 12 and 14 respectively. The teacher of the smaller school is a normal graduate receiving a salary of $50 a month and none of the pupils are very far advanced. On the other hand, we have a couple of teachers receiving but $40 a month and have an enrollment of more than 30 pupils each. With such a difference in the enrollment of schools we find that some teachers have a comparatively easy time, with more salary. As long as this condition exists we cannot have good rural schools.

I believe that every patriotic citizen should welcome a system of schools which would bring or unite two or more schools together in what is known as a consolidated school. This I believe could be accomplished by different townships uniting. The expense of my

township this present school term will be about $3,000 for 200 pupils for a 7-month term. Should our schools be consolidated it would of course cost more at the start but who is not willing to pay more school tax than he is now paying, for better educational facilities for the children? With such a system we could have modern and model school buildings and ample grounds for play and other purposes, especially agriculture. We could employ the best of teachers and we could employ a man and a team to take our children to and from school. With such schools farm values would be enhanced, the moral character of the community is improved and religious activities strengthened, and a better all round citizenship is the result. We find by our present school facilities our school houses are not properly heated, the results being that some pupils who are weak physically take cold and are compelled to miss a portion of the term. The play grounds are not ample enough and in some places we find the rural school on about the roughest place in the district.

In my township we have a text book on agriculture, but it seems that the teachers are reluctant in the teaching but I believe that agriculture is in primary phases should be taught and it would be better to spend an hour every day at least on plant and insect life than on some of the studies that are in the curriculum.—A School Director.

Lack of School Spirit

Your request for criticisms of the rural school would put before me the question "What is an Ideal Rural School, Director, Teacher, Patron and School Property." I have served as a school director for several terms and know some of the failures of the system. One thing that always puzzles me is that where there is a weak teacher there is always about fifty percent of the pupils who progress as rapidly as when there is a first class teacher and it can generally be traced back to the home influence, while the remaining portion of the school fail. Parents talk over these weaknesses of the teacher before the children or uphold the child in its misconduct or praise the child for its rash actions. A teacher who is of a nervous disposition, no matter how well trained for her work, should never be employed. Teachers who have been very successful in their early life and strong in discipline have failed in later life owing to a nervous breakdown.

The board of directors should be men of some business ability, property owners, and should represent the various pursuits in that district. I know of a district where there is not a farmer on the school board altho it is an agricultural district. They are trying to solve the problem of centralizing, and establishing an agricultural high school. I have no fault to find with those men but they should have a majority of farmers on the board. It might be they will plunge heavily into debt which would overburden the taxpayers for mere sentiment. Centralization is being tried out in many districts thru Pennsylvania and is no longer an experiment. The fatal question is how are we to finance them in the small districts. It can not profitably be done. —X.

Laws Not Enforced

We have some very good school laws and it is to be regretted that they are not enforced, and that children are still allowed to stay out of school or go at half-past nine or ten o'clock. This is strictly a violation of the laws. I believe in paying the teachers good wages and it should be her duty to report any violation of the school laws. Teachers are too ready to excuse a pupil on any slight pretext. In one district near us a teacher is paid $19 per month for teaching 12 or 14 pupils but she will not teach the eighth grade. Is it her duty? One pupil in the eighth grade has to go two miles to a town school and pay tuition. This does not seem right. I believe the school laws should be printed so that every one might become acquainted with them. I do not know whether it is ignorance or indifference that is the matter with parents in relation to the children's education.—Mrs. I. G., New York.

Too Much Foreign Control

In this paper of March 11, an editorial asking for a discussion on our public school problems and wondering why no one had replied to a previous request, caught my eye. The school problem of this country is a big one, and to attempt to criticise from a local viewpoint and then attempt to remedy the various faults locally will not and can not accomplish much. It is true there are some things that might be made better locally, but the people as a whole do not pay much attention to school management. Why? Because they have learned that they have very little voice in school management. If one visits his school and tries to take an interest in educational affairs he will not offer more than one or two suggetsions along any line of management or curriculum before he will be told that what is suggesting is not in accord with State Board ruling, or it is against the County Superintendent's instruction. "We are not allowed to do it" is a common expression coming from the teacher, hence parents of the school district have washed their hands so-to-speak of all responsibility. This has allowed indifference and apathy to take the place of interest, hence some local troubles manifest themselves that ought not to be, but nobody cares. What is the cause of all this? Why a school system that takes the whole educational problem out of local control and places it in the hands of a State Board of Education? This body of men are entrenched behind laws of their own construction that act like bulwarks behind which they can domineer over local school boards.

There has been a desire in this state for some time past to have some of the authority now vested in the state board of education taken out of their hands and returned to the local authorities as it should be. I believe there is now a bill in our legislature to remedy this trouble. What State School Board sitting in offices in any of our State Capitols know, or can know local needs as well as those living in that community? Today our local school trustees have only to throw the "spit balls" that some body else makes and hands them. They are nonentities. Give local school boards local control and it will not be hard to find men, or women either, that will be glad to take an interest in local school matters, who will gladly serve on our local school boards efficiently too.

Teachers employed, Oh my! If there is any fairly capable one among them that one goes to the town or cities and what available timber there is left is usually young, untried girls who are only using this means of support until the man comes along who will lead them to hymens altar. This is occuring constantly, hence we are compelled to choose from the young untried teachers. Should a man be sought he would not be found, unless it be some disgruntled old failure everywhere else, because if he was of any value he would not accept a rural school because the pay is not large enough, neither is the position sufficiently dignified to suit his lordship. So there you are. This is a pessimistic picture but is too true nevertheless as all can testify. — A Subscriber, New Jersey.

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Sale will be at the Farm, Fairmount, N. Y.

Farm is on the Genessee turnpike about 5 miles west of Syracuse. On day of sale Auto Bus will meet trains at Fairmount on the Auburn steam line, also will be at the end of the Solvay trolley line from Syracuse.

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Homemade Easter Things

Sweet Peas for Your Easter Hat

They can be made, loads of them, for the very next thing to nothing. First, collect all the scraps of silks, satins, crepes—even some of the finer cotton crepes will do, and select from these those colors that suit you best for your sweet peas. Pinks and lavenders should prevail, and pale yellow and sand-color work in beautifully. Some white or ivory, too, and the cerise and purple shades if you want the flowers on your Easter hat to run the whole gamut of shades of these wonderful butterfly flowers of the garden.

Cut 1¼ to 1½-inch squares of light and darker materials for just twice as many flowers as you want on your hat. Gather these into little puffs, and sew a light and a darker harmonizing puff together, trying to pinch it into a natural-looking sweet pea shape.

It is easiest to make the stems of green stem wire, which comes, many yards of it, at 5 cents a spool, and can be bought where they sell crepe paper and crepe novelties. Seed cups or culots, in packages of a dozen each for five cents, can be bought at the same place as the stem wire. Ask for the small culots used in making rosebuds.

Your stem lengths will depend on whether you want them for a wreath, a shorter spray, or bunches. It is prettiest to have them long enough to show the natural-looking twists and bends of the real sweet pea stems. Each stem should be twisted to form a tiny loop at one end. This loop is sewed firmly to the raw edges of the sweet pea blossom. Next slip a seed cup or culot onto the wire and push it well up over the raw edges of the blossom. Dent your wire stem unevenly two or three times, and, if your flower has been made in the natural colors of the sweet pea, you will feel just like smelling it to enjoy its dainty fragrance.

For a wreath, fine wire may be used to attach the blossoms to a longer wire here and there. One might even cover any slender wire and the raw edges of the blossom with green sewing or embroidery silk; but this method would be rather laborious; better buy the ready-covered spool wire.

Home-Made Easter Cards

Why not encourage the children to make their own Easter cards this year? If any member of the family can draw or paint with water colors or crayons, these are beautiful ways with which to decorate cards and send out springtime and Easter greetings to one's friends using birds' nests, flowers, or just budding branch-sprays for the decoration. But exquisite Easter decorations can be cut out from scraps of wall paper, and then very carefully pasted onto the cards, which could be cut the right size with a rule and a very sharp knife, or done at a stationer's or anywhere they cut glass.

Here are some bits of verse that match the decorations that go with them. On a card paste a yellow lily, tulip or jonquil and under it this nature toast:

''This yellow lily's for you, dear; a
pretty sunshine-cup,
From which to drink with just your
nose, and sniff the sunshine up.
I'll pledge to you, in fragrance from
the wond'rous fairy thing,
For Easter hope and happiness, and
all the joys of spring.''

A wee bird and a pink blossom might have this couplet:

''A song and a wing and a shining
thing, that's a shred of spring
sunshine and rain;
A bit of pink bloom and a floweret's
perfume tell of spring-time and
Easter again.''

Both these cards might be sweet-scented by laying them away for a few days in a box with a fragrant sachet, dried rose-petals, or whatever the idea suggests; and the verses written in gold ink would be very pretty.

Any one with a little practice can draw roughly the outlines of an aeroplane in gold ink in one corner of a card. A touch of pale blue, like a ragged patch of sky as its background, might be washed in with water color paint and thoroly dried before the airship is added. Apparently falling from the aeroplane are the tiniest possible bouquets or wee flowers, and on this card is written:

''My thoughts are golden airships
With wishes good and true;
They flit about the whole day long
And throw bouquets at you.''

''He is risen, risen, dear!
Risen in each heart today.
Soul, take courage by the 'signs'
Trust Him! Trust Him all the way.''

Scattered daintily about on the card containing the above verse are the ''signs''—a violet, a bird's nest with little eggs in it, a bluebird—anything that proclaims: ''Winter's over! God was not asleep.''

Easter Eatings

And mother or big sister can add to the delight of the Easter dinner table with kiss pudding and chickabiddies for dessert.

Kiss Pudding.—This is just a very smooth boiled custard using only the egg yolks and a little flour for thickening. The egg whites are beaten to a stiff froth, and spread thickly on top, for one's own favorite meringue. The size of the eggs, the kind of sugar used, the purpose for which they are intended are one's ''guiding light'' in making a meringue, in my experience. Maple flavoring in the meringue makes a delicious addition to a kiss pudding. And cocoanut sprinkled over the meringue and browned delicately is both dainty-looking and palatable.

Chickabiddies.—Cut the bottom out of a half-pound baking powder can and shape the can into an oval cooky cutter. Cut out your dough ovals for chickens, and lay them in the baking pan. Indent each one slightly with the fingers to shape a head, brush lightly with the meringue given below, add currant eyes, and bills and three-toed feet made of candied orange peel. A few shreds of cocoanut sprinkled on for a wing will add realism to your chicken. The meringue is just an egg white beaten stiff with a rounding tablespoonful of granulated sugar. This should be added thinly, and all the decorating done afterwards. Bake in a moderate oven. These should puff up into very fluffy chickabiddies, and the orange bills and legs may be protected with thick white paper laid over them if there seems any danger of their browning.

Humpty Dumpties.—Whenever eggs are used for a week or so before Easter, mother can take pains to break off just a little from the large end of the shells, letting the contents run out of this hole, then let dry and pour a little paraffine into each shell, and let harden after being weighted with a small pebble so that these humpty dumpties will stand on their small ends. Let the children draw funny faces on them with pencil or crayons. A rosy-cheeked eggshell lady will add variety to the group. Each head is now covered with a bright paper cap or hat pasted on to cover up the hole in the large end of the shell. A white paper collar and gay tissue paper tie will make one Humpty Dumpty

look very funny. Another may have paper ears and be a bunny; the more variety in their dress and characters the more amusing the game.

The fun is to serve each member of the family with a Humpty Dumpty after dessert. Each one now tries to make his own Humpty Dumpty lie down. This can not be done, and the motions of these funny little egg people are very amusing as they topple and twist determined to stand just as soon as one lets go of them; they are especially amusing if their faces are comical.—Nina W. Wallace, Broome Co., N. Y.

WHY NOT USE MORE RICE

Why is not more rice used in this country? Surely, if we recognized its value as a food, its consumption would be much more general. Considering its high food value, it is really a cheap food. Thruout the Southern states rice takes the place of Irish potatoes to a certain extent, as it contains about the same nutritious elements. Possibly this is due to the fact that Irish potatoes are somewhat difficult to keep growing during the hot summer months, altho the early spring crop is easily raised.

Each fall we purchase a 100-sack of excellent table rice direct from the grower, freight prepaid, for $5, or 5 cents per pound. The same quality from our local grocer would cost us 8 cents a pound.

We prepare rice in many ways, using it both as a vegetable and as a dessert. Have the water boiling hard, salt the water to taste and do not stir while cooking, and use a lot of water so that the kernels will bob around as they boil; this prevents them from sticking together in a gluey mass. When done, drain and dry in a warm oven or on the back of a warm stove. Plain boiled rice lends itself well to various breakfast dishes. When having stewed chicken, I usually make a gravy to eat with plain boiled rice. I also make a good brown gravy when frying ham to use with plain boiled rice.

When we use rice in place of some vegetable, I add cream and butter. Occasionally I serve rice pudding. To the plain boiled rice I add milk, sugar, eggs and flavoring in the following proportions: To 1 pint of plain boiled rice use 2 eggs, 1 cup sugar, 1 quart milk, and any desired flavoring. Bake and serve while hot, using cream or a sauce. Tomatoes are splendid used in combination with rice. Bring a canful of tomatoes to the boiling point, then put thru a sieve; add 1 green pepper chopped fine, 1 scraped onion, 1 tablespoon butter creamed with 1 teaspoon flour, 1 tablespoon of sugar, and cook all together gently for 15 minutes over a slow fire. Place on a hot platter spoonfuls of plain boiled rice, pouring over them the cooked tomatoes.

I am convinced that as a nation we have not cultivated the taste for rice. It is a cultivated taste that enables one to eat with relish. Because rice is very easily digested and one of the most highly nutritious foods, and in addition very reasonable in price when bought in large quantities, I believe it should be used in larger quantities.—Mrs. P. C. Henry, Catawba Co., N. C.

TO SHRINK CREPE DE CHINE OR CREPE METEOR

It is always advisable to shrink materials before making up as they so often become unwearable because the process of washing has caused severe shrinking. The more delicate silks such as crepe meteor and crepe de chine shrink considerably, and if the material is of a light color which will soil easily it will require frequent cleansing.

Before making the waist of this material try shrinking it. It is not a hard task, simply takes time and patience, which will well repay for all its trouble.

Immerse the material in a basin of hot water—not boiling—and allow it to remain in the water for two hours. Carefully squeeze out, place between two heavy turkish towels and roll up. After half an hour heat an iron. This must not be hot, simply warm enough to do the work. Over the board place a dry turkish towel, then the damp material and last a thin old damask napkin or piece of tablecloth. The napkin between the iron and the silk prevents that shiny look, and old linen is the best material for this purpose. The heavy towel beneath serves as a cushion thus bringing out the crepy look again. If the waist is laundered in this way, using a pure white soap suds, then a clear water, and then ironed under a piece of linen, the material will look like new.—Mrs. Effie P. Loomis, Delaware Co., Pa.

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1630.—Boys' Russian Blouse Suit.—Cut in 4 sizes: 2, 3, 4, and 5 years. It requires 2½ yards of 44-inch material for a 5-year size. Price of pattern, 10 cents.

1634. — Child's Dress, with Panel Yoke.—Cut in 5 sizes: 6 mo., 1 year, 2, 4 and 6 years. Size 4 will require 2⅝ yards of 36-inch material. Price 10 cents.

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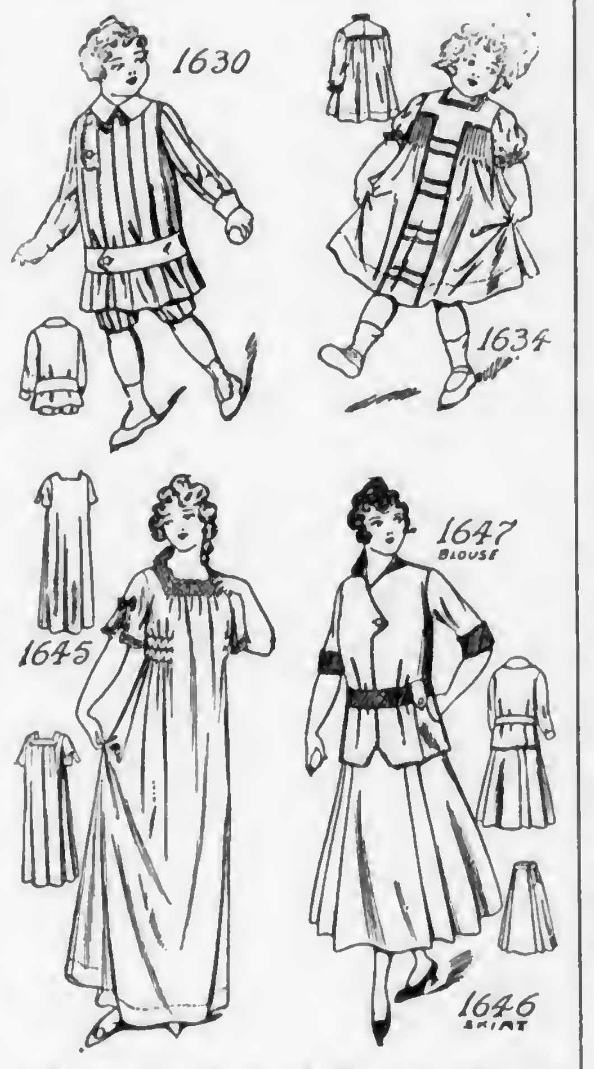

1647.—1646.—Costume for Misses and Small Women.—Blouse, 1647, and Skirt, 1646, are both cut in 4 sizes: 14, 16, 18 and 20 years. It requires 3½ yards for the skirt and 2½ yards for the blouse of material 44 inches wide, for a 16-year size. The skirt measures about 3½ yards at its lower edge. This calls for two separate patterns, 10 cents for each pattern.

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ATLANTIC REFINING COMPANY
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Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., April 3, 1916.

Nearly one hundred cars of potatoes have been offered on the tracks daily in the past week and the market opened this week with ninety-three cars. This quantity has proven only a moderate supply and under active trading the record prices of the season are being maintained. Pennsylvania stock forms but a small proportion of the offerings. The bulk of receipts are from the West. Fancy first-grade Pennsylvania potatoes are selling at $1.35 to $1.40 per bushel and when sold thru the jobbers are bringing as high as $1.50 per bushel. York State potatoes are in rather light supply and selling at $1.15 to $1.18. Michigan potatoes in sacks of 150 pounds sold at $3, and in bulk at $1.15 to $1.20 per bushel. New potatoes from Florida are now moving in small lots and selling at $7 to $8 per barrel for first grade and $6 to $7 for the second grade.

Cobblers and Green Mountain seed stock from Maine are offered on the market around $4 per sack of 2¾ bushels, or an average price of $1.46 per bushel. Near-by Pennsylvania and Maryland seed is selling at an average of $1.40 to $1.50 per bushel.

Fancy prime sweet potatoes have been in light supply and continue at 80 to 90 cents per hamper. Medium sweets are selling at 40 to 75 cents per hamper, depending on the grading and quality.

Vegetables

Thirty cars of onions were on the tracks at the opening of this morning's market and from this lot only 10 cars were unloaded. Fancy Texas yellow bermuda stock sold at $1.25 to $1.40 with white stock at $1.50 to $1.75 per crate. New York yellow globe onions sold at prices ranging from $1 to $1.75 per 100-lb. bag. The quality of all receipts was only fair.

York State Danish cabbage is in limited supply and is meeting with considerably less demand. Sales are ranging from $12 to $18 per ton with the average sales being made at $15. New Southern cabbage is in heavier supply and filling a large part of the market demand. South Carolina stock sold at $1.50 to $2 per crate and Florida cabbage in hampers at $1 to $1.25 when fancy.

Pennsylvania farmers are thru with their celery crop for the season and in many instances their root crops are entirely sold. The root crops have been in very slight request during the last few days and there is a tendency toward lowering prices. Fancy carrots are being offered at $2.75 to $3 per barrel; beets, $2 to $2.25; parsnips, 85 to 90 cents; white turnips, $1.50 to $1.65 and rutabagas, $2.50 to $3. The demand for beets at this season has been far below that of previous years.

Southern Vegetables

Shipments of southern vegetables have moved out promptly and at good figures when fancy, but a poor quality has constituted a large portion of receipts. Asparagus from Georgia and South Carolina are added to the list of vegetables now moving from the south. From Florida the following vegetables are being received: Beans, green and wax, selling $2.50 to $3.50 per basket; lima beans, $4 to $5 per basket; peas, $4.50 to $6 per basket; cucumbers, $3 to $4.50 per hamper; lettuce, $2.50 to $3.50 when fancy; eggplants, $2.50 to $3.50 per crate; peppers, $2 to $3 per crate; tomatoes, fancy, $1.50 to $2 per carrier, choice, $1 to $1.50. Spinach from Norfolk section sold at $1 to $1.50 per barrel and kale at 60 to 75 cents per barrel with the quality generally inferior. Asparagus from South Carolina and Georgia ranges in price from 10 to 16 cents per bunch and extra fancy marks higher. The package used is a crate containing two dozen bunches.

Fruits

The bulk of apples offered this past week have been taken from the local storages and receipts from outside points have been light, altho ample for the trade. Fancy marks of practically all varieties sell at good prices when offered, but the Greenings and Yorks show considerable scald and much of the fruit offered is only fair in quality. There is but slight change in the quotations from those offered last week. Kings are selling at $2.75 to $3.25; Greenings, $2.25 to $2.75; Baldwins, $2.75 to $3.25; Spys, $2.50 to $3.25; Russets, $2.25 to $2.75; Ben Davis, $2 to $2.50; Winesap, $3 to $3.75; York Imperial $2.50 to $3. Number two grades of good stock sold at $1.25 to $1.75 per barrel. Western boxed apples are moving slowly at $1.25 to $1.75 with only the extra fancy grades bringing full quotations.

Poultry

Sales of live poultry have continued at the good prices quoted last week with the market brisk under a firm demand. Fowl of choice stock have held steadily at 18 to 19½ cents; roosters, 12 to 13 cents; spring chickens, 19 to 20 cents; ducks, 18 to 20 cents; geese, 17 to 19 cents.

The dressed poultry market is in excellent condition with receipts light and a fair demand. Fancy selected, fresh killed, dry-picked and dry-packed fowl sold at 19 to 21 cents when extra heavy, smaller sizes sold at 17 to 18 cents. Old roosters, dry-picked sold at 15 cents. Fancy broilers weighing about 1½ lbs. each sold at 40 to 45 cents per pound; larger sizes, 35 to 38 cents per pound. Turkeys are scarce and fancy young hens and toms continue to sell at 31 cents per pound; fair to choice stock sells at 25 to 30 cents; old toms, 25 cents. Near-by spring ducks have advanced to 25 to 30 cents per pound under scarcity of supply.

Eggs

Strictly fresh eggs have been in fair demand and receipts are quite moderate for this season of the year. The market continues steady with only slight change in the quotations offered last week. Near-by extras in free cases sold at 26 cents; near-by firsts, 22 cents; near-by current receipts, 21½ cents; Western extras firsts, 22 cents; firsts, 21½ cents; seconds 20 to 21 cents. Fancy selected candled fresh eggs jobbed out at 27 to 29 cents per dozen.

—Selmarad.

NEW YORK PRODUCE

New York City, April 3, 1916.

Butter market developed considerable weakness under heavier receipts and restricted buying. Little trading being done in cheese. Trading in eggs is not very active today but tone continues firm. Not much buying for storage yet. Near-by whites in greater supply. Not much change in poultry, either live or dressed. Apples in free supply and much of it poor in quality. Old potatoes strong with moderate offerings.

Butter. — Creamery extra, (92 score) per pound, 37c; higher score, 37½@38c; thirds to firsts, 33@36c; state dairy, 30@37c; packing stock, 22@25c.

Cheese. — Whole milk specials, 18¼@18½c; daisies, 18@18½c; skims, 13½@16¼c.

Eggs. — Fresh gathered, extra, 22½@23c; dirties, 19c; near-by whites, fine to fancy, 25@26c dozen; ordinary to good, 22@23c; browns, 23@24c.

Dressed Poultry.—Philadelphia and Long Island, fancy, 3 to 4 pounds to pair, 45@50c; Philadelphia fancy roasters, 25@28c Fowls, 16@19c; old roosters, 15c; squabs, $2.50@5.25 dozen. Spring ducks, per pound 28c. Turkeys, dry picked, 30@32c.

Apples.—These prices show the range from "B" to "A". York Imperial, barrel, $2.25@3.50; Winesap, barrel, $2.25@4.50; Greening, barrel, $2@3; King, bbl., $2@3.25; Northern Spy, $2@4; Baldwin, bbl., $2@3.25; Hubbardston, bbl., $2@2.50; Ben Davis and Gano, bbl., $1.50@3.

Vegetables. — Beets, per bbl., $1@1.25. Carrots, bbl., $2.50@3. Cabbage, Danish, ton $8@12. Turnips, bbl., $1@1.25. Onions, yellow, $2@2.75 bag. Squash, Hubbard and Marrow, $1.75@2 bbl. Potatoes, Pennsylvania, $3.50@3.75. Long Island, $4.25@4.50 bag. Sweets, 60c@$1 per basket.

Country Dressed Veals—

Choice	18½@14
Prime	12½@13
Fair to good	11 @11½
Coarse, heavy	12 @12½
Common	10 @10½
Buttermilks	10 @10½
Grassers	9 @ 9½

YORK PRODUCE MARKETS

York, Pa., April 3, 1916.

The markets were poorly attended during the early part of the week. In fact the entire months of February and March were cloudy and rainy, making marketing for the city folks very disagreeable. Saturday was an ideal day over-head and the eager buyers showed they thoroly enjoyed the first real spring day so far. Cabbage is scarce and advancing. Potatoes are being held higher, yet everyone except the seller predicts they will soon drop. This depends largely on the conditions of the southern crop.

Eggs.—19@21 cents per dozen.

Butter.—Country, 28@34 cents per lb.; separator, 32@35 cents lb. Milk, 6 cents per quart.

Poultry.—Scarce, 15@17c per lb.; dressed, 50c to $1.25 each.

Vegetables.—Potatoes, 12@18c per ½-pk.; $1@1.25 per bushel. Cabbage, 4@10c per head. Lettuce, 5@10c; loose, county, 2c each. Beets, 4@5c bunch. Radishes, 5@8c per bunch. Onions, 3@5c per bunch; 10@14c ½-pk. Lima beans, 16@18c quart. Soup beans, 14@18c quart. Lard, 13@15c lb. Turnips, 8@10c ½-pk. Sauer kraut, 6@8c quart. Spinach, 15@18c ½-pk.

Fruit.—Apples, 12@30c ½-pk; $1@2 per bushel. Pears, 12@15c ½-pk. Strawberries, 30@35c per box.

Retail Grain Market.—Wheat, $1.18; corn, 82c; oats, 60c; rye, 90c; bran, $1.45 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.08; corn, 73c; oats, 50c; rye, 82c; bran, $27 per ton; middlings, $31@32 per ton.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., April 3. 1916.

Receipts for the week ending Saturday evening, April 1:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	...3,282	6,555	6,132
Previous week	...3,023	6,507	6,122

Calves. — Total receipts of calves for this week were 1,516 against 1,410 last week.

Beef Cattle.—There was a dull and indifferent undertone pervading the market, in touch with primary point conditions, and there was a fractional easing off in values. Ample numbers of Pennsylvania and Western cattle were on sale. Bulls and cows of the choice sorts realized former rates, but calves were weak, lower and plentiful.

Best steers	$9.00@9.10
Choice	8.75@8.85
Good	8.50@8.75
Medium	8.00@8.25
Common	7.50@7.75
Bulls	5.50@7.50
Fat cows	5.00@7.00
Thin cows	3.00@4.25
Veal Calves.—	
Exceptional lots	$11.00@
Good to choice	10.00@10.50
Medium	8.50@ 9.00
Common	7.00@ 8.00
Southerns and barnyards	5.00@ 6.50

Sheep and Lambs.—Prices were well maintained on every grade, under seasonable disposal of satisfactory stock.

Wethers, extra	$ 9.00@ 9.25
Choice	8.50@ 8.75
Good	7.75@ 8.00
Medium	7.00@ 7.25
Common	5.00@ 6.00
Ewes, heavy, fat	7.00@ 8.00
Lambs, extras	11.75@12.00
Good to choice	11.25@11.50
Medium	10.00@10.25
Common	8.00@ 9.00
Hothouse, apiece	6.00@ 8.00

Hogs.—The market closed weak at a fractional easing off, tho trade was fair. Quotations for Westerns, $10.60@10.80 gross weight, $13.25@13.50 net weight.

City Dressed Stock.—Every description of high-grade meats ruled steady to firm, but demand was only moderate. Calves and hogs, however, dropped a fraction.

Steers	10 @14
Heifers	9 @13
Cows	8 @11
Veal calves	14 @15
Extra calves	16 @
Southerns and barnyards	10 @13
Country dressed	13 @14
Extras	15 @
Sheep	14 @15
Extra wethers	16 @
Lambs	17 @18
Extra lambs	19 @
Hogs	13½@

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., April 3, 1916.

The supply on sale was 75 loads compared with 70 loads the week before. The market ruled active and 10@15c per cwt. higher on all good fat cattle of medium and weighty grades, while the plain grades were only steady. Not many heavy cattle on sale. Heifers in fair supply and market ruled steady on best and slow on the plain thin grades. Cows in liberal supply and market ruled steady on all grades. Bulls in liberal supply and market ruled draggy. Best fresh cows steady; other grades and springers slow. To-day's supply was 90 loads. With a moderate demand the trade ruled slow, and the market was easier on all grades.

Good to choice	$9.15@9.50
Good, 1300 to 1400 lb.	8.85@9.15
Medium to good, 1200 to 1300 lb.	8.10@8.75
Tidy, 1050 to 1150 lb.	8.15@8.75
Fair to medium, 1000 to 1100 lb.	7.50@8.25
Fair 900 to 1000 lb.	6.75@7.50
Common, 700 to 900 lb.	5.50@6.25
Rough, half-fat, 1000 to 1300 lb.	6.25@7.25
Common to good fat oxen	4.00@6.75
Common to good fat bulls	4.25@7.75
Common to good fat cows	4.25@7.25
Heifers, 700 to 1100 lb.	4.75@8.25
Bologna cows	3.75@4.40
Fresh cows and springers	$25@85

Calves.—Receipts of calves fair and market ruled steady all week at Monday's prices. Today's receipts were 900 head, which sold lower, but were active at the decline.

Veal calves	$7.00@9.75
Heavy and thin calves	5.00@7.00

Hogs.—The supply of hogs has been light but with warm weather and lower prices at western markets our market ruled slow with prices 40@45c per cwt. below Monday's prices. Today's receipts were 45 double-deck loads and all grades sold higher.

Prime heavy	$10.00@
Heavy mixed	10.00@
Prime medium weights	10.05@
Best heavy Yorkers	10.00@
Light Yorkers	9.50@
Good pigs	8.75@9.00
Common to good roughs	8.50@8.75
Stags	7.00@7.50

Sheep and Lambs.—The supply of sheep and lambs has been fair and the demand ruled fair, with prices ruling steady on all grades, the better grades having the best demand. Today's supply was 12 double-deck loads, nearly all clipped. With a fair demand the market ruled active and higher on choice lambs, but sheep sold steady.

Prime wethers (clipped)	$7.50@ 7.60
Good mixed	8.50@ 9.00
Fair mixed ewes and wethers	7.00@ 8.25
Clipped sheep	4.00@ 7.50
Wooled sheep	5.50@ 9.25
Culls and common	4.00@ 5.50
Spring lambs	7.50@11.75
Clipped lambs	6.00@10.00
Wooled lambs	7.50@11.75
Culls to choice yearlings	6.00@ 9.50

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., April 3, 1916.

Offerings of hay are moderate and the market holds about steady. There is a fair demand for all grades of stock. Straw is quiet but unchanged.

Wheat is showing slight advances in spite of the lull in export business. The market shows an advance of about 5 cents per bushel over last week. The local demand is fair and western reports are encouraging. Corn is firm at last week's quotations. Offerings are light and the demand is fair. The oat market is firm.

Hay.—No. 1 timothy, medium bales, $21.50@22; No. 2 do., $19.50@20; no grade, $10@14. Light mixed clover, $19@19.50; No. 1 do., $18.50@19; No. 2 do., $15.50@16.50.

Straw.—No. 1 straight rye, $13@13.50; No. 2 do., $12@12.50; No. 1 tangled rye, $11.50@12; do., No. 2 $10.50@11. No. 1 wheat straw, $10@10.50; No. 2 do., $9@9.50. No. 1 oat straw, $10@10.50; No. 2 do., $8.50@9.

Wheat.—No. 2 red, $1.17@1.20; No. 3 red, $1.17@1.20; rejected A, $1.14½@1.17½; rejected B, $1.13@1.16.

Corn.—No. 2 yellow western, 79½@80c; steamer yellow, 77½@78½c; western, No. 3 74½@75½c; No. 4 yellow, 72½@73½c; ear corn, 78@79c per 70 pounds.

Oats.—No. 2 white, 51@51½c; No. 3 do., 48½@49½c; No. 4 do., 40½@47½c; standard white, 49½@50½c; sample oats, 43@44c.

Feed.—Winter bran, 100-lb. sacks, $24.50@25; spring bran, do., $23@23.50.

Flour.—Car lots, winter clear, $5@5.25; straight, $5.25@5.50; patent, $5.60@5.85. City mills, choice to fancy patent, $6.15@6.65; do., regular grades, $5@5.25. Rye flour, $5@5.50 per bbl.

NEW YORK HAY AND GRAIN

New York City, April 3, 1916.

Hay and Straw.—The hay market is firm at an advance of about $1 per ton over last week. Exceptional sales at principal harbor points are occasionally higher than quotations given. This applies only to top grades of timothy and best mixed. There is a very slow market for low grade clover and heavy mixed. Rye straw is scarce and firm.

Grains.—Wheat is firmer and about 9 cents per bushel higher than last week. Main interest in wheat has shifted from the export trade to domestic crop news and is firmer as a consequence. Reports all indicate a materially reduced crop in comparison with the production of the past few years. Acreage was hastily prepared last fall, seed was poor and reports of winter injury are heavy. Corn is holding only fairly steady. Oats are firm but rather quiet.

Hay.—Large bales.—No. 1 timothy, $27@28 No. 2, $25@26; No. 3 $21@23; fancy clover, light mixed, $24@26; No. 1, $20@23; No. 1 clover, clear, $19@21.

Straw.—Per ton, No. 1 rye, $15@16; do., No. 2, $14@14.50; oats straw, $10.

Wheat.—No. 1 Northern, $1.43; No. 2 $1.32; No. 2 hard winter, $1.29.

Corn.—No. 2 yellow, 85½@86c; No. 3 yellow, 84½@85c.

Oats.—No. 3 white, 50@50½c; No. 4, 49@49½c. Ordinary to fancy, 50@50½c.

Rye.—$1.02.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $22.85. Standard middlings, $24.25; flour, do., $28 to arrive. Red dog, to arrive, 140-pound sacks $31.50@32. Oil meal, $35.50@36. City feed bulk bran, $23. Heavy feed in bulk, $24. Red dog, $33. Flour middlings, $32.50.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., April 3, 1916.

Hay.—Receipts have dropped off considerably during the week and arrivals are very light. There is an active demand for all grades of good, sound hay, particularly No. 1 and No. 3 timothy also No. 1 light mixed and No. 1 clover mixed. No. 1 timothy, $20@20.50; No. 2 timothy, $17.25@18.75; No. 3 timothy, $14.75@16.25; No. 1 light mixed, $17.25@17.75; No. 1 clover mixed, $15.75@16.75; No. 2 clover mixed, $13.25@14.75; No. 1 clover, $13.50@14; No. 2 clover, $8.25@11.25; No. 3 prairie, $11@11.50; No. 4 prairie, $8.50@9.

Straw.—Receipts of straw have fallen off within the last few days while the demand has increased. Good sound straw will sell readily. No. 1 oat, $8@8.25; No. 2 oat, $7.25@7.50; No. 1 wheat, $8@8.25; No. 2 wheat, $7.25@7.50; No. 1 rye, $9.25@9.75; No. 2 rye, $7.75@8.25.

Ear Corn.—Receipts light; demand has improved a little. Market better. New No. 2 yellow, 78@79c; No. 3 yellow, 69@72c; No. 2 high mixed, 74½@75c; No. 2 mixed, 72@73c.

Oats.—Receipts while not heavy are about equal to the demand; market a little quiet. No. 2 white, 48½@49c; Standard, 47½@48c; No. 3 white, 46@46½c; No. 4 white, .@45c; Rejected, 86½@41c.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., April 3, 1916.

Receipts of western creamery butter continue light and prices hold firm in spite of lower advices from other points. There is no difficulty securing top prices for strictly fancy goods while medium and low grades are kept well cleaned up at the inside range of quotations. Ladles are in light supply. Receipts of prints are light and the demand absorbs all offerings at firm prices.

The cheese market rules firm under light offerings and a fair demand.

Butter.—Solid packed creamery, fancy specials, 40c; extras, 38c; extra firsts, 37c; firsts, 35@36c; seconds, 34@35c; ladle packed, 24@26c; nearby prints fancy, 41c; average extras, 39@40c; do., firsts, 36@37c; do., seconds, 34@35c; special fancy brands of prints, 44@47c.

Cheese.—New York, full cream fancy, 18¾@19c; fair to good, held, 18@18½c; do., part skims, 11@16c.

NEW YORK MILK MARKET

New York City, April 3, 1916.

The market is quiet. The sudden change in weather conditions is reflected in the demand for cream and the increased receipts over those of the previous week amounting to 1,138 cans. The increase in receipts of milk was 5,270 cans. The market value for April for Grade B in the so-called 26-cent zone is a shade under 3½ cents a quart.

The receipts of milk and cream in 40-quart cans for the week ending April 1, were as follows:

Railroad	Milk	Cream
Erie	45,948	2,476
Susquehanna	8,570	597
West Shore	18,275	1,075
Lackawanna	60,950	1,820
N. Y. Central (long haul)	93,699	2,011
N. Y. Central (short haul)	22,750	42
Ontario	38,161	3,076
Lehigh Valley	39,460	1,227
Homer Ramsdell Line	3,790	39
New Haven	6,850	21
Pennsylvania	8,175	225
Other sources	1,245	29
Totals	347,868	12,633

ELGIN BUTTER MARKET

Elgin, Ill., April 1, 1916.

Butter sales today were made at 36 cents per pound. Sales of 40 tubs were made at that figure.

CHICAGO HORSE MARKET

Chicago, Ill., April 3, 1916.

Horses were in fair supply and in good demand last week at generally unchanged prices, with large purchases for the French and Italian armies. Light southern horses brought $50@70, light farm workers, $70@90, medium class farm horses, $95@120, chunks $165@225 and drafters $230 and upward, with the best ones scarce and largely nominal around $175@300.

GRASS SEED MARKET

Toledo, O., April 1, 1916.

Cloverseed.—Prime, cash, $10.70; April $9.85; October, $8.60. Alsike. — Prime cash and April, $9.25. Timothy.—Prime cash and April, $3.40.

VISIBLE GRAIN SUPPLY

New York City, April 3, 1916.

The visible supply of grain in the United States shows the following changes:

Wheat decreased 1,170,000 bushels.
Wheat in bond increased 49,000 bushels.
Corn decreased 574,000 bushels.
Oats decreased 617,000 bushels.
Oats in bond decreased 758,000 bushels.
Rye decreased 225,000 bushels.
Barley decreased 7,000 bushels.
Barley in bond unchanged.

TOBACCO MARKET

No sales were reported during the week but the small amount of tobacco yet in growers' hands would sell readily at $10 and 3 per cwt., which is the price at which the vast majority of crop was sold. Local dealers report inactivity, owing mainly to lack of stock as they did not succeed in procuring any considerable amount of new crop. During the week attention was turned mainly to new crop and there was much speculation as to the probable extent of new acreage. It may be said that growers were fairly well satisfied with the price and early sale of the 1915 product, despite the only fair quality, and that for these seasons they expect good and even better prices this year. Plant beds are being made in all localities and all sorts of early preparation are being pushed as fast as the more or less unfavorable weather will permit. Farmers are urged to use due care in making beds as the success or failure of such is almost sure to be seen in final results. It is especially important to have soil as fine and nearly free from weed seed as possible; to have beds well thrown up to insure sufficient drainage and to use good seed of a desirable strain, the seed recleaned if possible.

In the Pennsylvania section a two weeks' campaign has been made in the interest of the Pooling Association which is being promoted by Mr. Kimbrough and others. A total membership of 343 growers was reported and some 2,200 acres pledged. Field agents will, it is said, carry on the work thru the summer and until at least 75 percent of the crop has been pledged at proposed prices.—H. E. Tweed, April 3, 1916.

The Fur Bringers

By Hulbert Footner

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SYNOPSIS OF PRECEDING CHAPTERS

Ambrose Doane is the junior partner of the firm of Minot and Doane, fur traders in competition with the Company in the fur country. The free traders have the friendship of the Indians and trappers, but the enmity of the Company officers. Doane learns that Colina Gaviller, daughter of the Company boss, is visiting her father at Fort Enterprise. He makes the trip there to make her acquaintance. By rare fortune he meets her on the river bank outside the fort and is invited to the Gaviller home for supper. Mr. Gaviller does not appear particularly pleased to learn of their guest, but gives way to Colina in preparation for the supper.

CHAPTER VI (Concluded.)

Colina viewed the supper table critically. "Don't you think it looks nice," she asked.

"Very nice," said her father.

"We must prove to ourselves once in a while that we are not savages!"

"Naturally! Do you want me to dress?"

Colina, who had not looked at her father, nevertheless felt the inimical atmosphere. She stooped to a touch of flattery. "You are always well dressed," she said, smiling at him.

"Hm!" said Gaviller again. "Call me when you're ready." He marched off to his library.

Colina breathed freely. So far so good! Ambrose Doane had not been to call on her father. He was hardly the simple youth she had decided. But she couldn't think the less of him for that.

When she heard the door-bell ring — Gaviller's house boasted the only door-bell north of Caribou Lake—her heart astonished her with its thumping. She ran up to her own room. Ambrose according to instructions previously given was to be shown into the drawing-room.

Another wonder of Gaviller's house was the full-length mirror imported for Colina. She ran to it now. It treated her kindly. The crisp, thin, dead-black draperies showed up her white skin in dazzling contrast.

On second thought she left off the string of pearls. The effect was better without any ornament. Her face was her despair; her eyes were misty and unsure; the color came and went in her cheeks; she could not keep her lips closed.

"You fool! You fool!" she stormed at herself. "A man you have seen once! He will despise you!"

She could not keep the dinner waiting. Bracing herself, she started for the hall. A final glance in the mirror gave her better heart. After all, she was beautiful and beautifully dressed. She descended the stairs slowly, whispering to herself at every step: "Be game!"

Tho the sun was still shining out-of-doors, according to Colina's fancy, every night at this hour the shutters were closed and the lamps lighted. The drawing room was lighted by a single tall lamp with a yellow shade.

Ambrose was standing in the middle of the room. He had changed his clothes. His suit was somewhat wrinkled, and his boots unpolished, but he looked less badly than he thought. At sight of Colina he caught his breath and turned very pale. His eyes widened with something akin to awe. Colina was suddenly relieved.

"So you dared to come!" she said with a careless smile.

He did not answer. Plainly he could not. He stood as if rooted to the floor. Colina had meant to offer him her hand, but suddenly changed her mind.

Instead, with reckless bravado considering her late state of mind, she went to the lamp and turned it up. She felt his honest, stricken glance following her, and thrilled under it.

"You have not met my father?"

Ambrose "took a brace" as he would have said. "No," he answered.

"I thought very likely you would see him this afternoon," she said with a touch of smiling malice.

His directness foiled it.

"I waited down the river," he said. "I didn't want to have a row with him that might spoil to-night."

"What a terrible opinion you have of poor father!" said Colina.

"Does he know I'm coming?" asked Ambrose.

"Certainly!"

"What did he say?"

"Nothing! What should he say?"

"He has boasted that no free-trader ever dared set foot in his territory."

"I don't believe it! It's not like him. Come along and you'll see."

"Wait!" said Ambrose quickly. "Half a minute!"

Colina looked at him curiously.

"You don't know what this means to me!" he went on, his glowing, unsmiling eyes fixed on her. "A lady's drawing-room! A lamp with a soft pretty shade!—and you—like that! I—I wasn't prepared for it!"

Colina laughed softly. She was filled with a great tenderness for him, therefore she could jeer a little.

Ambrose had not moved from the spot where she found him.

"It's not fair," he went on. "You don't need that! It bowls a man over."

This was the ordinary language of gallantry—yet it was different. Colina liked it. "Come on," she said lightly, "father is like a bear when he is kept waiting for dinner!"

The two men shook hands in a natural, friendly way. With another man Ambrose was quite at ease. Colina approved the way her youth stood up to the famous old trader without flinching. They took places at the table, and the meal went swimmingly.

Ambrose, whether he felt his affable host's secret animosity and was stimulated by it, or for another reason, suddenly blossomed into an entertainer. When her father was present he addressed Colina's ear, her chin or her golden top-knot, never her eyes.

John Gaviller apparently never looked at her either, but Colina knew he was watching her closely. She was not alarmed. She had herself well in hand, and there was nothing in her politely smiling, slightly scornful air to give the most anxious parent concern.

Under the jokes, the laughter, and the friendly talk thruout dinner, there were electric intimations that caused Colina's nostrils to quiver. She loved the smell of danger.

It was no easy matter to keep the conversational bark on an even keel; the rocks were thick on every hand. Business, politics, and local affairs were all for obvious reasons tabooed. More than once they were near an upset, as when they began to talk of Indians.

Ambrose had related the anecdote of Tom Beavertail who, upon seeing a steamboat for the first time had made a paddle-wheel for his canoe, and forced his sons to turn him about the lake.

"Exactly like them!" said John Gaviller with his air of amused scorn. "Ingenious in perfectly useless ways! Featherheaded as schoolboys!"

"But I like schoolboys!" Ambrose protested. "It isn't so long since I was one myself."

"Schoolboys is too good a word," said Gaviller. "Say, apes."

"I have a kind of fellow-feeling for them," said Ambrose smiling.

"How long have you been in the north?"

"Two years."

"I've been dealing with them thirty years," said Gaviller with an air of finality.

Ambrose refused to be silenced. Looking around the luxurious room he felt inclined to remark that Gaviller had made a pretty good thing out of the despised race, but he checked himself.

"Sometimes I think we never give them a show," he said with a deprecating air. "We're always trying to cut them to our own pattern instead of taking them as they are. They are like schoolboys, as you say.

"Most of the trouble with them comes from the fact that anybody can lead them into mischief, just like boys. If we think of what we were like ourselves before we put on long trousers it helps to understand them."

Gaviller raised his eyebrows a little at hearing the law laid down by twenty-five years old.

"Ah!" he said quizzically. "In my day the use of the rod was thought necessary to make boys into men!"

Ambrose grew a little warm. "Certainly!" he said. "But it depends on the spirit with which it is applied. How can we do anything with them if we treat them like dirt?"

"You are quite successful in handling them?" queried Gaviller dryly.

"Peter Minot says so," said Ambrose simply. "That is why he took me into partnership."

"He married a Cree, didn't he?" inquired Gaviller casually.

Colina glanced at her father in surprise. This was hardly playing fair according to her notions.

"A half-breed," corrected Ambrose.

"Of course, Eva Lajeunesse, I remember now," said Gaviller. "She was quite famous around Caribou Lake some years ago."

Ambrose with an effort kept his temper. "She has made him a good wife," he said loyally.

"Ah, no doubt!" said Gaviller affably. "Do you live with them?"

"I have my own house," said Ambrose stiffly.

Here Colina made haste to create a diversion.

"Aren't the Indian kids comical little souls?" she remarked. "I go to the mission school sometimes to sing and play for them. They don't think much of it. One of the girls asked me for a hair. One hair was all she wanted."

The subject of Indian children proved to be innocuous. They took coffee in John Gaviller's library.

"Colina brought these new-fangled notions in with her," said her father.

"They're all right!" said Ambrose soberly.

Colina saw the hand that held his spoon tremble slightly, and wondered why. The fact was the thought could not but occur to him: "How foolish for me to think she could ever bring her lovely, ladylike ways to my little shack!"

He thrust the unnerving thought away. "I can build a bigger house, can't I?" he demanded of himself. "Anyway, I'll make the best play to get her that I can!"

In the library they talked about furniture. It transpired that the trader had a passion for cabinet making, and most of the objects that surrounded them were examples of his skill. Ambrose admired them with due politeness, meanwhile his heart was sinking. He could not see the slightest chance of getting a word alone with Colina.

In the middle of the evening a breed came to the door, hat in hand, to say that John Gaviller's Hereford bull was lying down in his stall and groaning. The trader bit his lip and glanced at Colina.

"Would you like to come and see my beasts?" he asked affably.

"Thanks," said Ambrose just as politely. "I'm no hand with cattle." He kept his eyes discreetly down.

Gaviller could not very well turn him out of the house. There was no help for it. He went.

CHAPTER VII

Two Interviews

The instant the door closed behind Gaviller, Ambrose's eyes flamed up. "What a stroke of luck!" he cried.

It had something the effect of an explosion there in the quiet room where they had been talking so prosily. Colina became panicky. "I don't understand you!" she said haughtily.

"You do!" he cried. "You know I didn't paddle three hundred miles up-stream to talk to him! Never in my life had I anything so hard to go thru with as the last two hours. I didn't dare look at you for fear of giving myself away."

There was an extraordinary quality of passion in the simple words. Colina felt faint and terrified. What was one to do with a man like this! She mounted her queenliest manner. "Don't make me sorry I asked you here," she said.

"Sorry?" he said. "Why should you be? You can do what you like! I can't pretend. I must say my say the best way I can. I may not get another chance!"

Colina had to fight both herself and him. She made a gallant stand. "You are ridiculous!" she said. "I will leave the room until my father comes back if you can't contain yourself."

He was plainly terrified by the threat, nevertheless he had the assurance to put himself between her and the door.

"You have no cause to be angry with me," he said. "You know I do not disrespect you!" He was silent for a moment. His voice broke huskily. "You are wonderful to me! I have to keep telling myself you are only a woman—of flesh and blood like myself—else I would be groveling on the floor at your feet, and you would despise me!"

Colina stared at him in haughty silence.

"I love you!" he whispered with odd abruptness. "No woman need be insulted by hearing that. You came upon me today like a bolt of lightning. You have put your mark on me for life! I will never be myself again."

His voice changed; he faltered, and searched for words. "I know I'm rough! I know women like to be courted regularly. It's right, too! But I have no time? I may never see you alone again. Your father will take care of that! I must tell you while I can. You can take your time to answer."

Colina contrived to laugh.

The sound maddened him. He took a step forward, and a vein in his forehead stood out. She held her ground disdainfully.

"Don't do that!" he whispered. "It's not fair! I—I can't stand it!"

"Why must you tell me?" asked Colina. "What do you expect?"

"You!" he whispered hoarsely. "If God is good to me! For life."

"You are mad!" she murmured.

"Maybe," he said, eying her with the resentment which is so closely akin to love; "but I think you understand my madness. Talking gets us nowhere. A dozen time today your eyes answered mine. Either you feel it too or you are a coquette!"

This brought a genuine anger to Colina's aid. Her weakness fled. "How dare you!" she cried with blazing eyes.

"Coquette!" he repeated doggedly. "To dress yourself up like that to drive me mad!"

Colina forgot the social amenities. "You fool!" she cried. "This is my ordinary way of dressing at night! It is not for you!"

"It was for me!" he said sullenly. "You were happy when you saw its effect on me! If it's only a game I can't play it with you. It means too much to me!"

"Coquette!" still made a clangor in Colina's brain that deafened her to everything else. "You are a savage!" she cried. "I'm sorry I asked you here. You needn't wait for my father to come back. Go!"

"Not without a plain answer!" he said.

Colina tried to laugh; she was too angry. "My answer is no!" she cried with outrageous scorn. "Now go!"

He stood studying her from under lowering brows. The sight of her like that—head thrown back, eyes glittering, cheeks scarlet, and lips curled—was like a lash upon his manhood. The answer was plain enough, but an instinct from the great mother herself bade him disregard it. Sudderly his eyes flamed up.

"You beauty!" he cried.

Before she could move he had seized her in her finery. Colina was no weakling, but within those steely arms she was helpless. She strained away her head. He could only reach her neck, under the ear. She yielded shudderingly.

"I hate you! I hate you!" she murmured.

Their lips met.

Colina swayed ominously on his arm. She sank down on the sofa, still straining away from him, but weakly. Suddenly she burst into passionate weeping.

"How did you dare to kiss me?" she murmured.

At sight of the tears he collapsed. "Ah, don't!" he whispered brokenly. "You break my heart! My darling love! What is the matter?"

"I am a fool—a fool!—a fool!" she sobbed tempestuously. "To have given in to you! You will despise me!"

He slipped to the floor at her feet. He strove desperately to comfort her. Tenderness lent eloquence to his clumsy, unaccustomed tongue.

"Ah, don't say that! It's like sticking a knife in me! My lovely one! As if I could! You are everything to me! I have nothing in the world but you! Forgive me for being so rough! I couldn't help it! I couldn't go by anything you said. I had to find out for sure! It had to happen! What does it matter whether it was in a day or a year? The minute I saw you I knew how it was. I knew I had to have you or live like a priest till I died."

Colina was not to be comforted. "You think so now!" she said. "Later, when you have tired of me a little, or if we quarreled, you would remember that I—I was too easily won!"

"Ah, don't!" he cried exasperated. "If you say it again I'll have to swear. What more can I say? I love you like my life! I could not despise you without despising myself! I don't know how to put it. I sound like a fool! But—but this is what I mean. You make me seem worth while to myself."

Colina's hands stole to her breast. "Ah! If I could believe you!" she breathed.

"Give me time!" he begged. "What good does talking do! What I do will show you!"

Little by little she allowed him to console her. Her arm stole around his shoulders, her head was lowered until her cheek lay in his hair.

They came down to earth. Ambrose seated himself beside her, and looking in her shamed face laughed softly and deep. "You fraud," he said.

Colina hid her face. "Don't!" she begged.

He laughed more.

"What are you laughing at?" she demanded.

"To think how you scared me," he said. "With your grand clothes and high and mighty airs. I had to dig my toes into the floor to keep from cutting and running. And it was all bluff!"

"Scared you!" said Colina. "I never in my life knew a man so utterly regardless and brutal!"

"You like it," he said. Colina blushed.

"I had no line to go on," said Ambrose with his engaging simplicity. "I never made love to any girls. I haven't read many books either. I guess that's all guff, anyway. I didn't know how the thing ought to be carried thru. But something told me if I knuckled under to you the least bit it would be all day with Ambrose."

They laughed together.

John Gaviller's step sounded on the porch outside. They sprang up aghast. They had completely forgotten his existence.

"Oh, Heavens!" whispered Colina. "He has eyes like a lynx!"

Ambrose's eyes, darting around the room, fell upon an album of snapshots lying on the table. He flung it open.

When Gaviller came in he found them standing at the table, their backs to him. He heard Ambrose ask:

"Who is that comical little guy?"

Colina replied: "Aheunazie, one of the Kakisa Indians in his winter clothes."

Colina turned, presenting a sufficiently composed face to her father. "Oh," she said. "You were gone a long while. What was the matter with the bull?"

She strolled to the sofa and sat down. Ambrose idly closed the book and sat down across the room from her. Gaviller glanced from one to another—perhaps it was a little too well done. But his face instantly resumed its customary affability.

"Nothing serious," he said. "He is quite all right again."

Ambrose was tormented by the desire to laugh. He dared not meet Colina's eye. "It is terrible to lose a valuable animal up here," he said demurely.

After a few desultory polite exchanges Ambrose got up to go. "I was waiting to say good night to you," he explained.

"You are camping down the river, I believe."

"Half a mile below the English mission. I paddled up."

As in nearly all company posts there was a flagpole in the most conspicuous spot on the river-bank. It was halfway between Gaviller's house and the store. At the foot of the pole was a lookout-bench worn smooth by generations of sitters.

Leaving the house after a formal good night to Colina, Ambrose was escorted as far as the bench by John Gaviller. The trader held forth amiably upon the weather and crops. They paused.

"Sit down for a moment," said Gaviller. "I have something particular to say to you."

Ambrose suspected what was coming. But humming with happiness like a top as he was, he could not feel greatly concerned.

Still in the same calm, polite voice Gaviller said: "I confess I was astonished at your assurance in coming to my house."

This was a frank declaration of war. Ambrose, steeling himself, replied warily: "I did not come on business."

"What did you come for?"

Ambrose did not feel obliged to be as frank with father as with daughter. "I am merely looking at the country."

"Well, now that you have seen Fort Enterprise," said Gaviller dryly, "you may go on or go back. I do not care so long as you do not linger."

(To be continued.)

JOHN W. JONES

By Holman F. Day

A sort of double-breasted face had old John W. Jones,
Reddened and roughened by sun and wind, with angular high cheek-bones:
At the fair, one time, of the Social Guild he received unique renown
By being elected unanimously the homeliest man in town.
The maidens giggled, the women smiled, the men laughed loud and long,
While old John W. leaned right back and he-hawed good and strong.
And never was jest too broad for him; for all of the quips and chaff
That assailed his queer old mug thru life he had but a hearty laugh.
"Ho, ho!" he'd snort; "haw, haw!" he'd roar. "That's me, my friends, that's me!
Now hain't that the most skew-angled phiz that ever ye chanced to see?"
And then he would tell us this little tale. "'Twas one dark night," said he,
"I was driving along in a piece of woods and there wasn't a ray to see,
When all to once my cart locked wheels with another old chap's cart;
We gee-ed and backed but we hung there fast, and neither of us could start.
Then the stranger-man, he struck a match to see how he'd get away,
And I vum he had the homeliest face I've seen for many a day.
Well, just for a joke, I grabbed his throat and pulled my pipe-case out,
And the stranger reckoned I had a gun and he wrassled good and stout.
But I got him down on his back at last and straddled acrost his chest
And allowed to him he'd better prepare to go to his last long rest.
He gasped and groaned he was poor and old and hadn't a blessed cent.
And, almost blubbering, asked to know what under the sun I meant.
Said I: 'I've sworn if I meet a man that is homlier'n what I be
I'll kill him. I reckon I've got the man!' Says he: 'Please let me see!'
So I loosened a bit while he struck a match; he held it with trembling hand
While thru the tears in his poor old eyes my cross-piled face he scanned.
Then he dropped the match and he groaned and said: 'If truly you think that I
Am ha'f as homely as what you are—please shoot! I want to die!'"
And the story always would start the laugh, and Jones would drop his jaw,
And lean 'way back and slap his leg and laugh—"Ho, haw-haw-haw!"

That was Jones
—John W. Jones—
Queer, Gothic old structure of cob-piled bones;
His droll red face
Had not a trace
Of comeliness or of special grace.
But I tell you, friends, that candor glowed
In those true old eyes—those deep old eyes;
And love and faith and manhood showed
Without disguise—without disguise.
Tho he certainly won a just renown
As the homeliest man we had in town.

He never had married—that old John Jones; he'd grubbed on his little patch,
Supported his parents until they died, and then had lived "old bach".
We had some suspicions we couldn't prove; for years had an unknown man
Distributed gifts to the poor in town on a sort of a Santa Claus plan:
If a worthy old widow was needing wood, some night would that wood be left;
There was garden truck placed in the barns of those by mishap or drouth bereft;
And once when the night was clear and bright in the glorious month of June,
Poor, broken-legged Johnson's garden was hoed in the light of the great white moon.
And often some farmer by illness weighed, and weary, discouraged and poor,
Would find a wad of worn old bills tucked carefully under his door.
And the tracks in the sod, of this man who trod by night on his secret routes,
Were suspiciously like the other prints that were made by John Jones' boots.
And the wheel-marks wobbled extremely like the trail of Jones' old cart.
But whatever his mercies he hid them all in the depths of his warm old heart.
For whenever the neighbors would pin him down, he'd lift his faded hat—
"Now, say!" he'd laugh, "can a man be good with a physog such as that?"
Then came the days, the black, dread days when the smallpox swept our town.
—With pesthouse crowded from sill to eaves—and the nurses "taken down".
And panic reigned and the best went wild, and even the doctors fled,
And scarce was there one to aid the sick or bury the awful dead.
But there in that pesthouse, day and night, a man with quiet tones
And steady heart kept still at work—and that was old John Jones.
While ever his joke was: "What! Afraid? Why gracious me, I'm fine!
But if I weren't, a few more dents won't harm this face of mine."
Yet those who writhed there in their pain within that loathsome place,
Saw beauty not of man and earth upon that gnarled old face.
And when he eased their pain-racked forms or brought the cooling draft
They wondered if this saint could be the man at whom they'd laughed.
And thus he fought, unwearied, brave, until the Terror passed.
And worn by vigils, toil and fasts, the fate he had defied
Descended on him, stern and fierce; he died my friends—he died.
They held one service at the church for all the village dead.
The pastor when he came to Jones—he choked a bit and said:
"If handsome is as handsome does—and I now say to you,
I verily, I honestly believe that saying true!
If handsome is as handsome does, we had right here in town
A man whose beauty fairly shone—from Heaven itself sent down.
At first, perhaps, we failed to grasp the contour of that face,
But now with God's own light on it we see its perfect grace.
And so I say, our handsomest man"—the pastor hushed his tones,
With streaming eyes looked up and said—"was old John W. Jones."

That was Jones
—John W. Jones—
Queer, Gothic old structure of cob-piled bones:
His quaint red face
Had not a trace
Of comeliness or of special grace.
But I tell you, friends, we drop this shell,
Just over there—just over there!
Good deeds, good thoughts, good hearts will tell
In moulding souls serene and fair.
And Jones will stand with harp and crown
—The handsomest angel from our old town.

—Submitted by Hattie Hall, Livingston Co., N. Y.

Life Insurance as Means of Saving and Investment

By Bruce D. Mudgett

Life Insurance as Saving

The higher-priced contracts offered by the life insurance companies may be considered as a means of saving or as investments. The two are not necessarily identical, for a plan of saving has the distinction of viewing accumulating capital with reference to some ultimate purpose while investment may have no such purpose in view. This distinction may not be in general usage, yet it represents fairly well the attitude of the life insurance companies toward investments. They are quite ready at any time to admit that they are not investment institutions, and they will as stoutly insist that they are the best savings institutions in the world. Their main competitors in the field of saving are savings banks and building and loan associations The former allow small sums of money to be deposited as the investor desires, these amounts being withdrawable only on two or more weeks' notice, and not on demand as is an ordinary bank deposit. Compound interest, at rates varying from 2 to 4 percent, is paid on such deposits.

A successful method of saving and accumulating money for a definite future purpose should take into consideration the amount needed and should make provision for regular periodic payments sufficiently large to create the fund in the required time. Herein lies the defect of the savings bank. No relationship is evident between the deposits and future needs. It is a great gain psychologically if the depositor realizes as he makes each payment that he is some day going to have $1,000, and that his failure to make a deposit may mean failure to receive the $1,000. The savings-bank depositor views his savings piecemeal instead of focusing his attention on the total sum of money that will some day result from them.

The plan of operation of the building and loan associations offers a distinct advantage over this method. On becoming a member of such an association one obligates oneself to make certain payments yearly and any failure to do so will result in a penalty. Upon withdrawal before the maturity of a contract, the money paid in may be returned with interest at 3 percent for instance, whereas the contract may have guaranteed 6 percent if carried to maturity. The possibility of forfeiting thru withdrawal a portion of one's interest earnings tends to force members to carry their contracts to completion.

The objection to building and loan associations lies in the fact that they are not generally as safe as life insurance companies. While some of them have shown an excellent record in many years of operation, a great many have gone into bankruptcy and caused serious losses to their members. Nor have they been subjected to the same stringent governmental regulation as the life insurance companies. For these reasons the latter maintain that they are the greatest savings institutions in the world when absolute safety and a fair investment return are considered.

Life Insurance as an Investment

Despite the emphasis placed on their investment policies as savings contracts, or investments for a definite purpose, these contracts may be viewed as investments independent of any such purpose, and the interest returns on them compared with results accruing from the purchase of stocks, bonds, or mortgages, or from savings bank accounts. But since the great majority of life insurance policies combine investment with protection against premature death, the cost of this protection must be deducted in order to obtain the net investment return.

This statement may be made clear by an example. Suppose that a man aged 35 finds that he needs to be protected by insurance and also desires within the next 20 years to lay up the sum of $1,000. He has one of two choices. He may purchase a 20-year endowment insurance policy. This will pay his heirs $1,000 in case of his death before the 20 years have elapsed, or it will give him a like amount if he survives. Any company can at once quote the annual payment necessary to purchase this contract. On the other hand, he may purchase a 20-year term or whole life policy from an insurance company. This policy will cost less than the endowment and the difference may be put aside annually in a special investment fund. He would have difficulty finding mortgage, stock, or bond investments for so small an amount but he might deposit it in a savings-bank. The question whether this excess sum over his "insurance" costs should be invested in the endowment or in the savings-bank is entirely a question which offers the greater return.

It must not be forgotten, as was pointed out previously, that these two modes of investing are not strictly comparable, since the endowment investment is based in the principle of the "pure endowment," with forfeiture if death occurs before the endowment period is completed. But no comparison of life insurance investment with savings-bank can avoid this difficulty. If the life insurance company can furnish the same interest return as the savings-bank, the total return from the pure endowment should be greater, because of the gain to survivors from the forfeitures of those who die.

The above illustration will become definite by showing the actual return on the investment portion of life insurance premiums. Any insurance policy which accumulates a reserve can be viewed as a combination of protection and investment, for the insured can surrender it at any time for the whole or a large portion of this reserve. It will then have furnished him "protection" for the face amount of the policy to the date of surrender and an "investment" equal to the amount of the surrender value at this time. So a term policy may be compared with a whole life or an endowment and the difference in premiums considered as the yearly deposit which has produced the surrender value of the whole life policy when surrendered, or the face value of the endowment at maturity. Or, a whole life policy may be compared with an endowment and the difference in premiums considered as the annual sum which has produced the amount of the endowment in excess of the surrender value of the whole life policy. The following tables make these comparisons. The premium rates are those used by prominent companies in 1914.

In the first table a comparison is made between a whole life policy and a 20-year endowment. The additional premium of $20.35 on the 20-year endowment will produce a sum of money ($474) in excess of the value of the whole life policy at the end of 20 years if the insured is still living. This is equivalent to $23.35 for every $1 of excess premium paid. To accumulate $23.35 at the end of 20 years from an annual payment of $1, the money must earn 1½ percent compound interest. The investment return on this endowment is therefore 1½ percent.

Age 35—Non-Participating Policies

	Ordinary life Policy	20-year endowment
Annual premium ...	$23.20	$43.55
Cash Value at 20 yrs.	526.00	1,000.00
Investment difference		474.00
Premium difference.		20.35

The second case, from another company writing non-participating business, compares a term policy with an endowment. In this instance a difference of $82.07 in premiums has created a fund of $1,000, or $12.18 per $1 invested, the interest return being approximately 3½ percent.

Age 35—Non-Participating Policies

	Ten-year term policy	Ten-year endowment
Annual Premium ...	$10.30	$92.37
Cash value at end of 10 yrs...		1,000.00
Difference in premiums		82.07
Amount of $1 a yr. at 10 yrs.		12.18

In these two illustrations non-participating policies have been used to avoid the difficulty attending the estimation of future dividends. The premiums quoted represent the exact cost of these policies per year. It is desirable, however, to know the results from participating policies, and this can be done approximately.

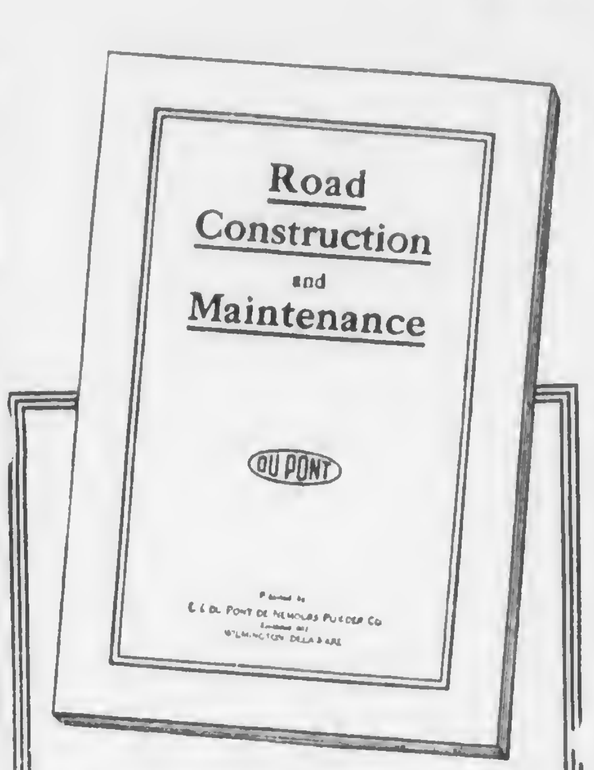
For the two participating policies shown below the average dividends paid for the first 20 years on an ordinary life and a 20-year endowment policy have been estimated by obtaining the total dividends payable for each of the first 20 years on the basis of the dividend scale used by the company in 1915, and dividing this total sum by 20. This comparison shows an investment difference of $673 resulting from a difference of $19.09 in premiums, or $35.25 for every $1 of excess premium. This is a return of approximately 5½ percent compound interest. The table follows:

Age 35—Participating Policies

	Ordinary life Policy	20-year Endowment
Annual Premium	$27.00	$ 50.00
Average dividend 1915 basis	6.65	10.56
Average cost per year	20.35	39.41
Added cost of endowment investment feature		19.09
Cash value at end of 20 years	327.00	1,000.00
Investment difference		673.00
Amount of $1 per year at end of 20 years...		35.25

MARKETING AND FARM CREDITS

A new note is sounded in the book, "Marketing and Farm Credits," for 1915, just off the press. The book contains the addresses given at the third annual sessions of the National Conference on Marketing and Farm Credits in joint program with the National Council of Farmers' Co-operative Associations. It contains 544 pages, is printed on good paper in clear type and is brimful of interesting facts about two great business problems that farmers must solve for themselves, that every person on a farm or interested in farming should know. The price of the book is $1 (postage 15 cents extra). Write Secretary Charles W. Holman, Washington Building, Madison, Wis.



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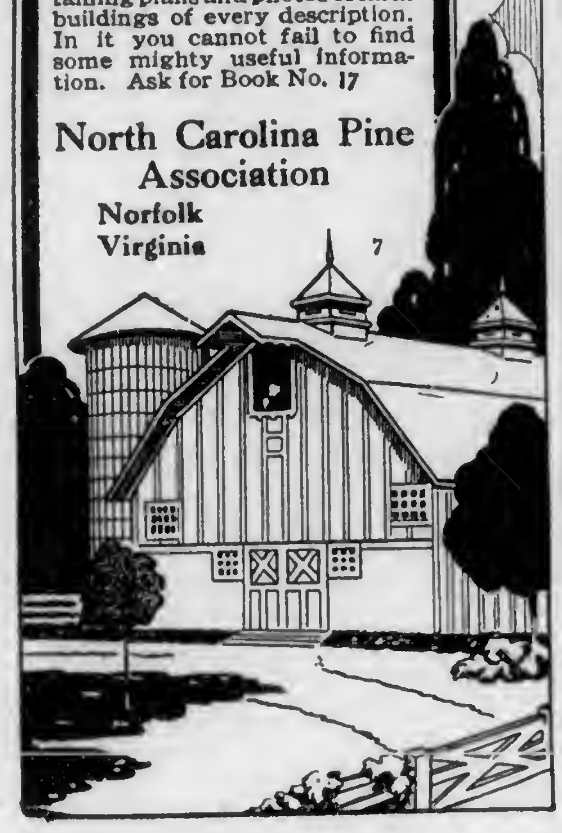

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Veterinary

Conducted by W. O. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the cause in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Contagious Abortion.—I have been solicited to purchase a bull calf to use for breeding purposes, but the herd he comes out of is infected with contagious abortion and as my herd has been always free from this disease I prefer to be cautious. What do you advise? C. D. E., Vernon, Pa.—If this young bull has never served infected cows I do not believe you are running any risk in buying him; however, if you do buy him and have doubts, better wash out sheath with a 1 to 1,000 solution of permanganate of potash and water every 2 or 3 days before using him for breeding purposes.

Quarter Crack.—I would like to know what to do for a horse that has a crack in his hoof. P. W., Bangor, Pa.—First of all you failed to state location of crack. A toe crack, where the separation is in the center of hoof extending all the way, is a much more serious ailment than if the crack is well back on either quarter. It is considered good practice to apply a shoe or a nail or two thru hoof if in center of foot. Or put on copper plate with six small, short screws to prevent crack from opening when weight of horse is on foot. The hoof at coronet should be cut thru with either a knife or hot iron, at right angles to crack, in order that the new hoof may grow down solid. If on the quarter, thin the edges and cut hoof at coronet, as I have suggested. Apply light applications of tincture of iodine every 2 or 3 days to crack and coronet. It is well to keep in mind that shoeing has a whole lot to do with producing quarter crack. In most cases I am called to see I find the heels have been kept too high.

Horse Does Not Shed.—I have 7-year-old driving horse that never sheds his coat until late in the spring. He is driven five miles daily and is very slow and lazy. We never use clippers on any of our horses. C. E. K., Irwin, Pa.—If I owned your horse I would clip him right away. Also give him two dr. Fowler's solution of arsenic at a dose, 3 times a day.

Bald Patch on Shoulder.—We have a mare that has a bald patch on shoulder, caused by a very sore shoulder. Can I hope to see the hair grow on it again? I would also like to know how to toughen tender shoulders like hers. W. J. E., Glen Mills, Pa.—The bald patch will remain hairless. Dissolve ½ lb. acetate of lead, 3 oz. sulphate of zinc, 3 oz. of tannic acid and 8 oz. of glycerine in a gallon of water and wet shoulders with this solution, 2 or 3 times a day. I need not remind you of the importance of a good fitting collar and keeping it clean during the working season.

Chronic Grease Heel.—My 18-year-old mare is trouble with a bad case of scratches, which seems to baffle our local veterinarian. Preceeding her sore heels she had two different attacks of lymphangitis, but she is not lame. E. K. S., Benton, Pa.—Give your mare ½ oz. doses of Fowler's solution in feed, 2 or 3 times a day. Clip hair off and apply 1 part iodine and 7 parts vaseline, or dissolve 1 oz. permanganate of potash in a pint of water and cautiously paint cracks with this solution daily. It is perhaps needless for me to say that if she is not kept in a clean stable and given good care she will not recover.

Suppurating Sores—Lice on Cattle.—I have a young sow whose back and neck are almost covered with scabs. When the scabs drop off there is a sore underneath. She has been in this condition for the past two months. What will kill lice on cattle? R. M. B., Millerstown, Pa.—Give your sow 5-grain doses potassium iodide, 3 times a day, and paint sores with tincture iodine, 3 times a week. One part coal-tar disinfectant and 29 parts water, applied to your cattle and hogs, will kill lice. You should clean and disinfect your cow stable or lice that remain about the premises will find your livestock.

WON HIGHEST AWARD PANAMA-PACIFIC INTERNATIONAL EXPOSITION SAN FRANCISCO 1915

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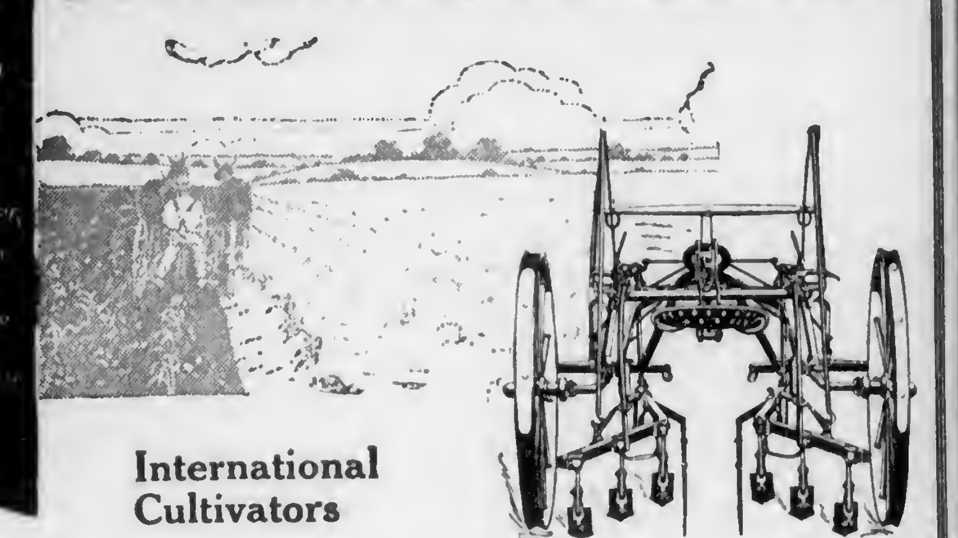

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YOU will put your OK on the **International cultivator** when you have had one at work for a while. When you are used to the parallel movement of the gangs, and see what a thorough job the machine does, you would not be satisfied with any other.

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Farmers Lost $90,000,000 Last Year From Worms and Indigestion

How Much Did YOU Lose? Do you know that the live stock losses in the United States last year were about $100,000,000? The U.S. Department of Agriculture says in one of its bulletins that probably 90% of live stock losses are caused by WORMS AND INDIGESTION—both of which can be prevented.

How Much of This $90,000,000 Loss Did You Suffer?

How much was your feed loss—feeding worms?
How much was your loss in stock which did not thrive well?
How much was your loss in pigs which died from worms and indigestion or the train of ills which follow;—even contagious disease, of which these conditions are often forerunners?
How much was your loss in sheep and lambs, or other stock?
These are the losses which totaled last year $90,000,000. And, remember, the chief causes—Worms and Indigestion—can be prevented.

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I am doing it for thousands of other farmers. I will do it for you. I'll prove it before you pay me a cent. I'll do it with SAL-VET.

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The medicated salt, farm animals take freely and rid themselves of worms. It requires no dosing—no drenching—no starving. Contains no antimony. Costs only 1-12 of a cent a day for each sheep or hog, and only 1-3 of a cent a day for each horse or head of cattle. I prove what it will do before you pay on my 60 days trial offer.

"Have been feeding SAL-VET to our pigs. The other day we butchered six of them and there wasn't a worm in the bunch."
Chas. H. Henninger, Pottsgrove Pa.

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Fill out the coupon and mail to me today. I'll supply you enough SAL-VET to last all your stock 60 days. You pay the freight when it arrives and feed it according to directions. If SAL-VET fails to do what I claim, I'll cancel the charge; you won't owe me a cent.
Address SIDNEY R. FEIL, Pres.
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Prices
Each 40 lb. package - - - $2.50
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Extra discount in larger quantities. No orders filled for less than 40 lbs. on this offer 60 days' trial Shipments are based on 1 lb. of SAL-VET for each sheep or hog and 4 lbs. for each horse or head of cattle. Dealers sell SAL-VET at above prices but in the far West and South the prices are a little higher on account of the extra freight charges.

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Supply me enough SAL-VET to last my stock sixty days. I agree to pay the freight, feed it as directed, and will then pay for it if it does what you claim. If it fails and I so report specifically in 60 days, you are to cancel the charge and I will owe you nothing.

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PENNSYLVANIA FARMER

AGRICULTURE THE KEYSTONE OF NATIONAL PROSPERITY

ESTABLISHED 1880 PUBLISHED WEEKLY

Vol. 39—No. 16. PHILADELPHIA, PA., SATURDAY, APRIL 15, 1916. 2 Years for $1.00

FACTORS OF SUCCESS IN FARMING

A Chester Co, Example

Considerable light on the factors which make for profitable or unprofitable farming has been shed by agricultural surveys conducted by the U. S. Department of Agriculture. These surveys have been taken in a number of states. Their scope is broad and has been made to include the more important types of farming as dairying, grain farming, trucking, fruit growing, etc. But regardless of the type involved there is one point of as seemingly great importance to one as to all, and this is the size or volume of business transacted.

You ask what measures the size of a farmer's business and you are given a copious list of items. Among them are (1) capital invested: (2) acres in crops; (3) number of cows owned; (4) animal units other than cows (an animal unit is considered to be one cow or her equivalent in other livestock as 7 sheep, 5 hogs, etc.); (5) productive units of man labor employed thruout the year and (6) productive units of horse labor for an equivalent period.

Each of these in itself may be considered a fair standard of measure. There is an old saying of "nothing ventured nothing gained", an axiomatic truth which has a direct bearing on our first point, in that if one's investment is small his chances for profit are correspondingly small. On the other hand, by reason of having little at stake he can lose but little. Limitations are sharp in either case.

While the number of cows owned is an index to size this one factor does not express as clearly the relationship to other farm activities as does the number of horses occupied in growing and securing crops and in performing work of an incidental nature. Comparatively idle horses, the number of which is too great on many of our Pennsylvania farms, do not figure in this connection. However, of all the measures of size of business, crop acres is possibly the most significant and represents our best standard as long as we can keep within a single type of farming.

Size of Farm

On this basis it is proper to compare one grain farm with another grain farm but not with a green house or trucking proposition. Without going into close details the large farm or that approaching 150 acres in crop returns to the operator, all other things being equal, a proportionately greater net profit than one of fewer acres. The reasons for this are plain. In the first place there is practically no more machinery needed on a farm of 150 acres than on one of 75 acres, a condition which cuts in two the machinery cost per acre for the big farm. Because of a superior opportunity to keep both men and horses gainfully employed on the large farm, it has been determined that the product of each one's labor here is from one-half as much more to double that of the small places. Another point in favor of the large farm is that proportionally less of the total investment is tied up in unproductive ways, as in the house, barn and other farm buildings.

POULTRY HOUSE ON THE BIRMINGHAM STOCK FARM.

BIRMINGHAM STOCK FARM BARN. 70 x 106 FT WITH 26 x 46 FT. HORSE STABLE.

ALFALFA YIELDED 5 1-2 TONS PER ACRE IN THREE CUTTINGS ON BIRMINGHAM FARM.

Quality

Dismissing size for the present as an essential to profitable farming, we are ready for consideration of the second main factor, or that of "quality". Quality, or quality of business as it pertains to the farm, deals chiefly with crops and livestock. Are these poor, average or better than average?

Taking up first the matter of crops, it has been found time and again that there is a close correlation between crops that are better than average and farming of the more remunerative sort. In other words, to make the second blade of grass grow where only one grew before is a logical goal toward which to strive, in spite of repeated loud warnings against the dangers of such practice sounded by those who, without exception, realizing the advantage of increased production to themselves as individuals, make every effort in this direction and yet who would discourage such practice at the hands of others.

Primarily, gains in farming are made thru crops produced on the farm, whether these be sold for cash or marketed thru the medium of livestock. For this reason it behooves us to grow crops at a maximum profit. Of equal importance to the quality of crops is that of livestock, especially where the dairy cow receives as large share of attention as is true in Pennsylvania.

Good Live Stock

There is no easier way to lose money than to market crops thru poor cows, or those which on account of their low milk production do not give us market prices for feeds consumed in addition to paying for labor, interest on the investment and a reasonable allowance for depreciation. Certainly we should have no respect for the business ability of a merchant who, after paying $18 each for a number of suits of clothing immediately turns around and retails these at $17 each. However, there is an exact comparison to be made between this merchant and hundreds of dairymen who have not the courage to rid themselves of unprofitable cows. It has been suggested that a farmer who is earnest about this matter serve a notice on all the individuals of his herd to the following effect:

"Every cow that enters here
Must give 12,000 lbs. a year."

While this is a most laudable standard, one must admit that it is beyond the reach of average dairymen. If thru personal work or the medium of a cow-testing association an owner is able to maintain an aver-

(Continued on page 14.)

A Difficult Job of Ditching

Farm ditching to drain wet or submerged land is a hard, disagreeable task, as any farmer or farm laborer that has tried it will testify. A good deal of rich farm land remains undrained and useless largely because of this fact.

When dynamite began to be advertised for ditch-blasting, five or six years ago, I was a little doubtful about it. I knew how to use it because I had done a good deal of stump blowing. In 1913 when Mr. C. A. Baldwin, of Charles County, Maryland, wanted a fifteen-acre meadow drained I decided to try the new method. We had to wade thru water ankle deep to locate our lines. That done, we cut the bushes and small growth so that we could stake out the line. It was to be 1,700 feet long. The water came from springs. The meadow was badly cut up by the crooked creek bed that had been washed out by the flow.

I decided to put down my bore holes thirty inches, so marked my pointed steel punch bar to that depth. I then cut a stick, 24 inches long, to measure the space between holes. To make sure this spacing and depth were right for the size of ditch we wanted, we first loaded and shot ten holes. A trial shot we called it. We were to use what is known as the propagated blast. I placed one stick of 1¼ inch by 8 inch 60 percent straight dynamite in each hole. That would be a half a pound per hole. The charges were pushed to the bottom of the bore holes with a tamping stick. These holes immediately filled with water, which made tamping unnecessary, as water is a first-class tamping material.

In the middle hole I put an additional stick of the dynamite. This had been ''primed'' with a No. 6 blasting cap and three feet of water-proof fuse, using a little axle grease where the cap was crimped to the fuse. This ten-hole test shot gave us a nice ditch about 20 feet long, 5 feet wide at the top, 2½ feet wide at the bottom and 3 feet deep. After this successful test shot we knew just how to go about the rest of the job, which was blasted in 100 feet (50-hole) sections.

Where we found large stumps in our line we loaded enough dynamite under them to take them out with the earth in that section. Sometimes we considered it advisable to take the stumps before blasting the ditch. This was the case with only the big ones; the small ones we shot out with the ditch, sometimes without any heavier loading than was used for blasting out the dirt. When we got to the upper end of the meadow where the water did not cover the land, we found it necessary to reduce the spacing between holes to 20 inches and to tamp the charges in the holes with moist earth.

The ditch was finished in five days. Five hundred pounds of straight 60-percent dynamite, 29 caps and 60 feet of fuse were used on the work. Our wages added brought the cost up to $125.86. A week after blasting the ditch, I walked thru the meadow and found the surface dry; this, mind you, where I had to wade two weeks before. In 1915 Manager Smith of the farm planted the field to corn and got a large, uniform stand.—Harry Gough, Charles County, Md.

Sorghum for Syrup

Last spring we planted one-half acre of sorghum for syrup and while we did not keep an exact record of the cost of production and manufacture of the syrup we have a pretty close estimate of the labor cost and the value of the crop.

The following is my estimate as accurately as I can get it:

Preparing soil for planting	$ 3.00
One hundred pounds 16 pct. acid phosphate	1.00
Planting cane	2.00
Cultivation, twice,	4.00
Labor in cutting cane and making syrup	10.50
Labor of team in crushing cane	3.50
Total cost	$24.50
53 gallons of syrup at 50 cents per gallon	$26.50
Seed produced	6.00
17 dozen blades at 20 cents per dozen	3.40
Total credit	$35.90

Only acid phosphate was used and this was put in the hill at the rate of 200 lbs. per acre. The syrup is valued at the price prevailing at the farm: syrup retails in the market at from 60 to 75 cents per gallon and the value of the seed I regard as a very conservative value. The soil was prepared by first turning it, then it was disked and then smoothed by running a smoothing harrow over it. The rows were laid off three and one-half feet apart and seed planted in hills two feet apart in the row with from four to six stalks to the hill. My estimate shows a balance in favor of the value of the product of $11.40 which can be charged to the use of the land or to profit from growing the crop. Four dollars per acre would likely be a fair cash rent for such land here. This would allow the rental to be taken from the balance and still leave a balance of $9.40 to be credited to the profit.—A. J. Legg, W. Va.

Easy Lessons on Ropes—I

By R. A. Andree, Dept. Farm Mechanics, Pennsylvania State College

A great deal of rope is being used on our farms every year, and very often knowledge of how to correctly tie and splice ropes would prove of great value, and in not a few instances a considerable saving of time and money. Then, too, there is cause for a certain pride in being able to handle rope correctly. Realizing the value of rope tying and splicing to the farmer, this series of articles will take up the most common forms. Some of the most useful knots and splices are the wall knot, the down crown, the short splice, the halter tie, and the bow line.

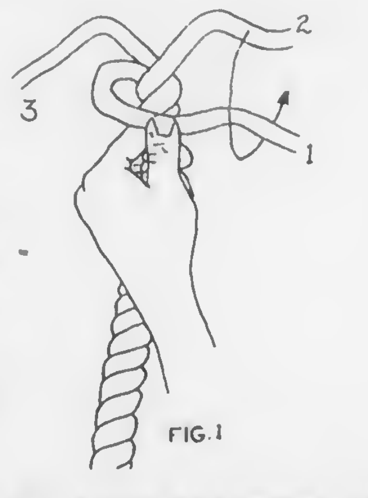


FIG. 1

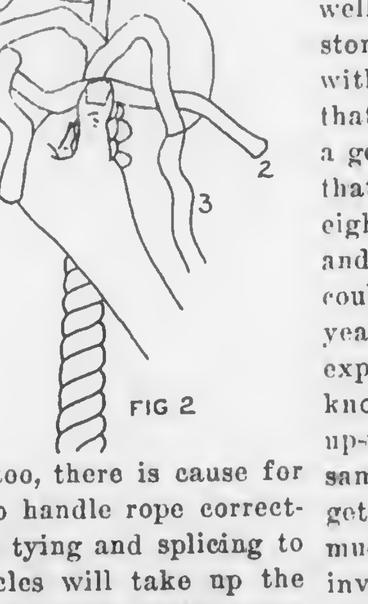


FIG 2

Wall Knot

Very often it is desirable to have a knob or knot in the end of the rope. Sometimes it is only desired to fasten the strands together to prevent them unlaying and sometimes such a knob is desirable to prevent the rope from pulling thru a hole in a board or casting. The wall knot is undoubtedly best suited for this purpose, because it can be rapidly made, is permanent, and looks good.

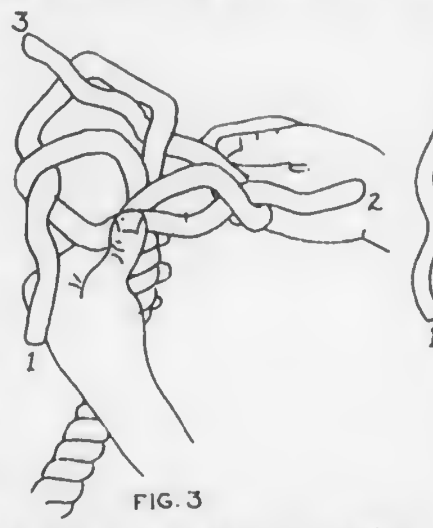


FIG. 3

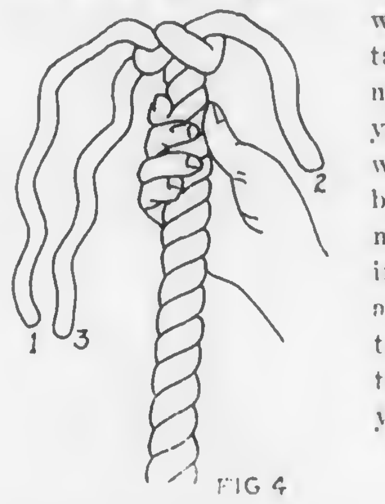


FIG 4

Unlay about six to ten inches of the rope, and while holding it in the left hand throw a loop to the left, as shown in Fig. 1. Hold this strand in place with the thumb and mentally number this strand No. 1. Next take any one of the remaining strands and with the right hand loop it around strand No. 1, as shown by the arrow in Fig. 1. The thumb of the left hand must now hold this strand, No. 2, in position, letting go of strand No. 1. This is shown in Fig. 2. Strand No. 1 is here being held in place by the loop formed by strand No. 2. The thumb must not be removed from strand No. 2 until the knot is drawn up. The next step is to place the remaining strand, or strand No. 3, around strand No. 2, as shown by the arrow in Fig. 2. The end of strand No. 3 is brought from below up thru the open loop which was originally formed by strand No. 1. This is illustrated in Fig. 3.

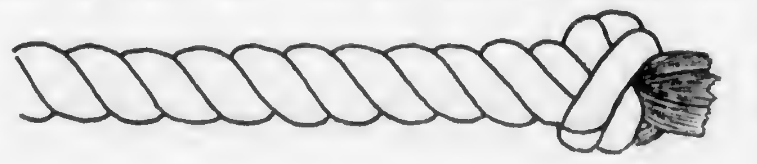


FIG 5.

Three loops have now been made and each loop has an end going thru it from the bottom up. With the right hand, take hold of strand No. 2 and by slightly releasing the pressure on the thumb this loop can be drawn up nearly tight. Still holding strand No. 2 with the thumb of the left hand, the end of strand No. 1 is drawn up, closing its loop. Next strand No. 3 is drawn up, and in doing so the loop closes about strand No. 2, and the first part of the knot is tied. It is now only necessary to take each strand and push it thru the following loop again, as for instance strand No. 1 would go from the bottom up thru the same loop that is holding strand No. 2. This can best be seen by referring to Fig. 4. The three strands are treated in this way and then the knot is well pulled up, taking one strand at a time. Figure 5 shows the knot completed.

Our next article will discuss Down Crowning.

Crops for Largest Profit

I was recently talking to a man who lived on a rather poor soil for the most part but who had a few good acres near the house with here and there an occasional tree. The owner had decided not to cultivate the area longer but prefered to use the soil for growing his hay supply. Naturally since most of his neighbors grew timothy and red top he decided to do the same. I suggested that alfalfa would do well there provided two or three tons of ground limestone per acre were added and the soil inoculated with the proper bacteria at the time of planting. ''No, that is too much trouble,'' he replied. ''I can get a good crop of grass without the extra labor.'' Was that treating the question squarely? If by spending eight or ten dollars extra per acre in actual money and labor a double yield of hay of better quality could have been obtained each year for the next five years or longer, certainly it seems that the added expense would have been justifiable. In general we know that the general farm practice followed in an up-to-date community is not far wrong but at the same time it is true that the average farmer is not getting rich by any means and usually doesn't have much left for his salary after paying interest on his investment. It is the man who keeps in touch with the experiment station methods and is wide awake to every new idea that comes along who is making the most from his investment. The matter of selecting crops for the soil conditions found on your farm and for the purpose for which you want the product is only one of the items to be considered but certainly an important one.

Not all soils which will grow timothy and red hay will grow alfalfa. So it is with other crops, some will not grow while others will not fit into the rotation, and still others which will grow have no market. If as the result of observation and reading you are perfectly satisfied that under the conditions with which you have to deal a certain crop will do better than one that you are now growing, then do not hesitate to grow it. If you are still half way in doubt give the new crop a fair trial on a small acreage. If for some reason failure results the first time from unfavorable weather or soil conditions then do not let the one trial discourage you and keep you from planting the following year.—F. E. Allison.

Buy Advertised Goods

A noted speaker once made the statement that he always looked with suspicion on goods that were not advertised. While this, perhaps, is an extreme statement, it can be truthfully said that the very fact that an article is advertised, is, at least, circumstantial evidence that it possesses merit, since no advertiser would risk money in buying advertising space unless he was reasonably certain that each sale he made would make, or would assist to make, other sales. The advertiser who sells but once to a customer, or but one of his articles or machines in a neighborhood will not be able to advertise very long.

In this day and age one can trade with a dealer or manufacturer in a city a thousand miles away and be assured of receiving as fair treatment as he would from local dealers. Manufacturers of advertised goods know that honesty is the best policy—that a pleased customer is the best advertisement.

Many claim that in the final calculation, the purchaser pays the advertising bills. Perhaps, in a strict sense, this is true, but this does not necessarily mean that the purchaser pays more for advertised goods than he would have to pay for goods that are not advertised. In fact, the reverse of this is usually true. Advertised goods can be, and usually are, sold cheaper than goods of similar qualities that are not advertised. Advertising creates an enormous demand, and this demand calls for the most efficient and economical methods of buying raw products, of manufacturing, distributing and selling. The automobile manufacturer who makes and sells but five hundred

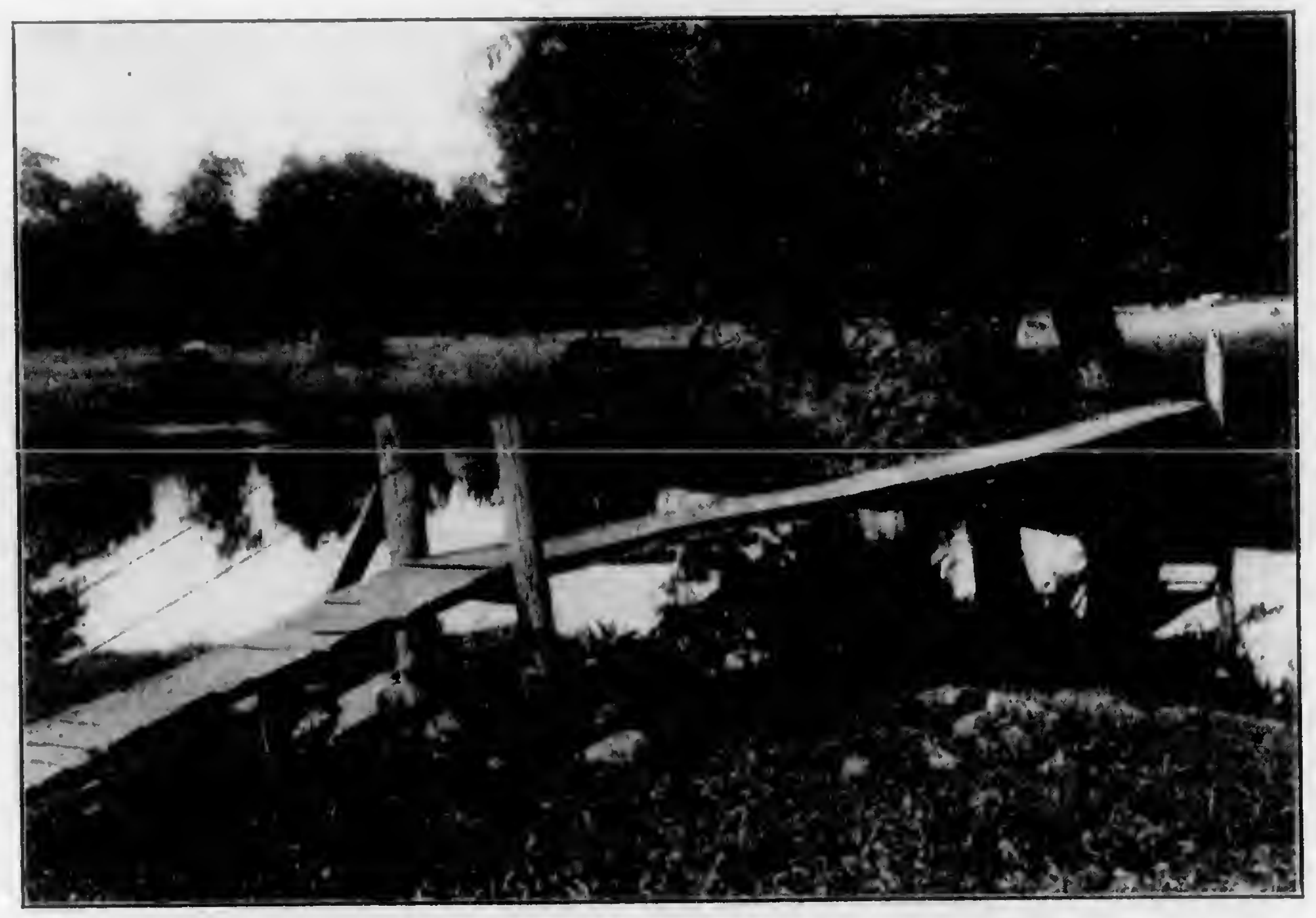
machines a year could not possibly sell as cheaply as the manfacturer who makes and sells one hundred thousand machines. The manufacturer, of course, tacks the cost of his advertising to the price, but the advertising stimulates such a sale that he is able to cut the cost of manufacturing and selling to such a figure that he can still sell cheaper than manufacturers who do not advertise.

We farmers owe a debt of gratitude to advertisers and the papers that carry their advertisements. Had no cream separator been advertised, we farmers would today be skimming milk in the old-fashioned method that our fathers used thirty years ago. Had no mowing machines been advertised, we would still be harvesting our wheat and oat crops with scythes. Had no seed-drills been advertised, we would still plant our fields in the ''chicken-feeding'' manner employed years ago.

And so it is with all the improvements that have benefited farming conditions and lightened the labor of farmers—the advertiser has blazed the trail. Agricultural papers and experiment stations have not been lax in calling attention to, and advocating the use of, these improvements and appliances, but the manufacturer—the man who has the axe to grind—the man who spent hard cash in advertising the article into general use, is entitled to the most credit. —T. Z. Richey.

The Smallest Suspension Bridge In Pennsylvania

Necessity often alters cases. Jacob Moyer, a farmer along Beaver Creek, Berks County, Pa., experienced during 35 years of toil on a 200-acre farm, the great damages a small stream can do, particularly after heavy rains. Time and time again floods that increased the volume of water in Beaver Creek carried away his foot bridges. These usually consisted of logs and planks laid from one shore to another, usually chained to a tree or post. The loss became so frequent that he constructed the little suspension bridge shown in the illustration. On one side of the stream the wires are fastened to a tree and post and then run into the ground, where they are fastened to the axle of an old wagon buried in the ground to a depth of three feet. On top of this are huge stones. On the other side of the stream two posts are used and the wires are continued from these posts to similar underground anchors.


THE SMALLEST SUSPENSION BRIDGE IN PENNSYLVANIA.

From the two stringers. wires are run every three or four feet, to a cross-piece, made of 3x4-inch scantling, to which the ends are bolted. The wires can be drawn taut when necessary. On top of these cross-pieces and on the end pieces between the posts the heavy beams are resting to which the board walk is nailed. Since being erected, floods have come and gone. Some were so high that the water flowed over the top wires, but the bridge remained. The suspension bridge is no more expensive than the old log or plank bridges that spanned the stream, which were often lost, and which had to be hunted on some neighbor's property after the flood was over.—H. W. Fegley, Berks Co., Pa.

Lindenhurst Farm Notes

By R. P. Kester

Make Haste Slowly

Already farmers are beginning to talk about the lateness of the season and are becoming anxious to get to work in the fields. In fact some plowing has already been done at this writing, April 4. While it is a temptation to ''hurry things a bit'' when it seems to be getting late, yet it is poor policy to work soil before it is dry enough in the spring. I have seen clayey soil injured for years by such practice. If you can make a mud ball of the soil it is too wet. Another rule is to look behind you at a freshly turned furrow. If it looks shiny from the pressure of the moldboard, better go fishing, if you have nothing else to do, until it dries out. Sandy soils, and soils containing a great deal of humus may be more safely worked when excessively moist because they do not so readily pack, and bake under the sun.

Not only in plowing is it well to be patient, but the seed for some crops should not be put into the ground until it is warm enough to begin germination and growth at once. This is especially true of corn in farm crops. Oats and field peas will stand a good deal of cool, wet weather—in fact they do best then and for this reason should be planted as soon as the ground is in fit condition to work.

Another instance where it is well to '''bide a wee'' is in turning cattle to the pasture. The young shoots and roots need time to get a start so they will be able to push forth new growth thru the season. If they are tramped and eaten at the start they are inclined to give up and die, thus lessening the amount of pasture later. Anyway, the first growth contains very little nourishment since it is mostly water, the plant cells not yet being fully developed, or ripened.

COVER CROPS

We want information on cover crops. Please tell us in a short letter how, when and what did you sow and with what success. Brief articles will be paid for.

Most Profitable Crops

A dairyman who keeps 40 or more head of cows on less than 90 acres of tilled land wants to know the fewest crops he can raise which will do most to maintain his herd and his four horses.

We have thought over this a great deal and have come to the conclusion from our experience that corn, wheat, clover and alfalfa come more nearly filling the bill than any other combination. Where the number of cows is great enough to make dairying a specialty, the number of acres somewhat limited and the work mostly done by hired labor, we are sure that the greatest possible concentration is most practical. Corn, the foundation of successful stock-keeping, should have the largest acreage. If forty acres is put to corn each year, one-half may be second year crop and the other half planted in sod land. The second-year corn is cut into silos and the stubble is sown to wheat; then to clover and timothy. The sod-land is planted to corn next year. The wheat is raised mainly for the straw, and as a preparation to grass seeding since August seeding is not practical in this rotation. Alfalfa and the clover crop furnish the hay necessary to supplement the silage.

The crops not only furnish the greatest amount of desirable feed, but make the best distribution of labor, and by judicious care and use of the manure it practically solves the fertilizer problem also.

Can you make money raising
Beef,
Sheep,
Wheat, or
Oats
On $100 per acre land?
Send us your experience and figures on any one, or more.

Silage Corn

While the number of farmers who plant corn for silage which is unsuited to their locality is becoming less each year, yet there are many who still cling to the idea that it is economical to plant for tons regardless of immaturity and lack of grain. Protests are made every year, yet there are those who argue for it. Corn that is not mature enough to practically ripen a good ear is not mature enough to make good silage. It is watery and makes too much acid, besides it lacks sufficient grain. The most heavily grained, big corn scarcely furnishes enough corn to make the best ration, so why should we have poor silage and be compelled to buy corn meal? The heaviest yielding variety that may reasonably be expected to get ripe enough to cut for husking should be chosen, and it will make more genuine feed than one making greater quantity and poorer in quality.

Queries and Comments

(This department is open to all of our subscribers. Queries and short comments are invited. Queries will be answered by best available authorities.)

Chicken Manure

''Please give some information in your paper on the following: I have a quantity of hen manure. I wish to use it on potatoes and corn as I do a little farming. What could I use with it to make double the quantity and get best results? Also the best way to apply it.''—J. H., Carlisle, Pa.

Under present fertilizer conditions we would recommend the following: First, pulverize the hen manure and make it as fine as possible. Then add an equal weight of acid phosphate and mix it thoroly by shoveling over several times. Endeavor to get it as dry as possible. The mixture can be either broadcast, or in the row; or, if fine enough, it can be run thru the corn or potato planter. Apply 200 to 500 pounds per acre as the supply will warrant or the soil demands.

Permanent Pasture

''Last fall I sowed a piece of rye. I would like to seed it for permanent pasture this spring. What would be the best way of doing this, and what seed would be best to use?''—F. R. P., Bradford Co., Pa.

It is doubtful if the best success in producing a permanent pasture can be made seeding it in this way, especially if the rye is thick on the ground and makes a big crop. However, we will assume that it is not too thick and also that there is a good supply of lime in the soil. First, harrow the ground well with a small tooth, spike harrow. This will not hurt the rye. Do this as soon as the soil is settled and dry enough. The following is recommended for permanent pastures in New York and northern Pennsylvania: Ten pounds of timothy, 4 pounds Kentucky blue grass, 3 pounds redtop, 3 pounds orchard grass, 6 pounds red clover, 4 pounds alsike clover and 2 pounds white clover, making 32 pounds of seed per acre. To many, this may seem like an excessive amount of seed, but if permanency is desired there must be a heavy, dense sod, and such a mixture is necessary for continued grazing. After the ground is harrowed, sow the seed both ways and harrow again. Remember that the permanency of pastures depends largely on after treatment. It must not be grazed too closely, too early or too late and needs annual fertilization.

Rye and Vetch

''Will you kindly state in your paper whether or not rye and vetch sown at the rate of 12 to 15 pounds of hairy vetch and about 1½ bushels of rye, in the corn just before the last cultivation, is the best crop to plow down for potatoes the next year?'' —E. E. P., Montgomery Co., Pa.

There is nothing better for this locality. The quantity of each is increased by some over the amount suggested. There are implements now on the market for doing this work—sowing and covering the seed—which makes the task of sowing cover crops delightful and easy. The difficulty of scattering the seed by hand has kept many from adopting the practice of sowing such crops. There is probably no one farm practice that should have a more general adoption than the sowing of catch crops.

Get acquainted with
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you might like it!

Spray some Apple Trees with it
Spray some Potatoes with it
You will find that it does two things—kills the leaf-eating insects and stops blight, rot, rust, wilt and similar fungous troubles.

Read what C. H. Hansing, Southport, Ind., says about it: "I used Pyrox on fruit and have 90% sound pears, and practically 100% sound cherries. Last year I was able to spray with it three times, and got 98% sound fruit on my apples. If there is anything better than Pyrox, I would like to know it. If I cannot get Pyrox I will quit spraying" If Pyrox will do as much for you as it did for Mr. Hansing, and it may—wouldn't you like it?

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Horticulture

Timely Fruit Notes

The Fruiting Wood in Various Fruits

"On what year's growth of wood or cane are the different temperate zone fruits produced, as the peach is produced on one year's growth?"—R. G. D., Luzerne Co., Pa.

This is an important question, as all really efficient pruning is closely connected with a correct knowledge of where the fruit is borne. We would say therefore that the bearing portions of the principal fruits in the temperate zone are generally as follows: Apple, pear and quince, usually on spurs borne on two-year-old wood and older; plum, the same, with some fruit occasionally on one-year-old wood; cherry, mostly on one-year-wood, some on two and three-year-old wood; peach, one-year-old wood; grape, raspberries, blackberries and dewberries, on current season's shoots produced on one-year-old vines or canes; currants and gooseberries, on two-year-old wood and older.

Dwarf Apples

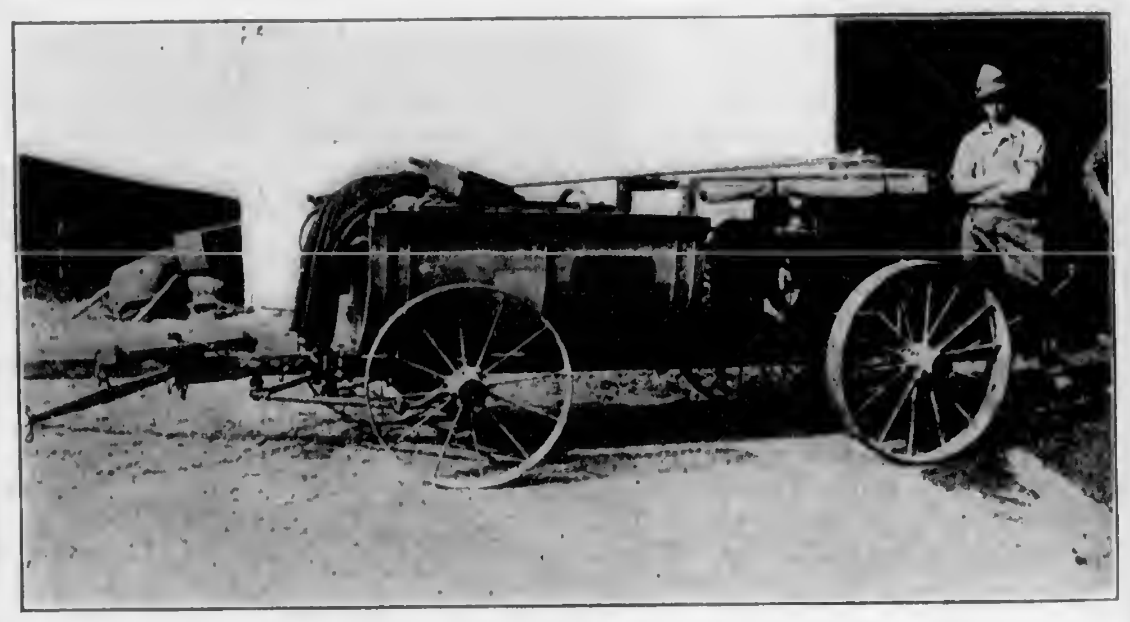
"I have several questions in regard to dwarf apple trees as furnished by ordinary nurserymen. I am expecting to order a few apple and peach trees to fill up a small orchard, and the question comes up in my mind whether dwarf trees are profitable for sale apples. (1) How old are they when they begin to bear? (2) How old when they begin to bear a full crop? (3) How many years are they profitable? (4) How many bushels is a full crop? (5) How many bushels as compared with a full-sized tree? (6) How many bushels per acre compared with an acre of full-sized trees? (7) Distance apart of trees and how high do they grow?"—W. J. I., Juniata Co., Pa.

Two kinds of stocks are used for dwarfing apples—the Doucin and the French Paradise. The former produces only a semi-dwarf tree, while the latter gives one that is fully dwarfed. The former require about half the space of standard trees, and hence should be planted about 18 to 20 feet apart, while the latter need about one-third of the standard distance, or about 11 to 13 feet apart. Their heights differ in about the same general proportions. If the scions are allowed to strike roots, greater distances will be needed and greater heights will be attained.

The full dwarfs come into bearing first, the semi-dwarfs second and the standards last. The differences, however, are usually not of much importance, as indicated by extensive experiments in New York. No important crops should be expected from any of them before the 5th to 7th years, even under the best of conditions. Also from the New York experiments, it appears that both types of dwarfs are considerably less hardy than standard trees, and that the full dwarfs are much worse than the semi-dwarfs in this respect. Poor unions, shallow rooting, and greater susceptibility to winter-injury on the part of the dwarfing stocks, were the chief causes for these differences.

From the data now available, there does not seem to be much difference in the total yields per acre that may be expected from the three types of trees, when the difference in number of trees per acre is considered. For the first ten years of bearing, however, the advantage will probably be slightly in favor of the true dwarfs, followed in order by the semi-dwarfs and standards. At the same time, the present general opinion is that dwarf trees of all kinds are chiefly valuable to the amateur or to those having only a small space available for apple production. In other words, they are not considered to have much value for commercial purposes.

In the present case, however, the semi-dwarfs would probably fit in fairly well with the peaches, as they require about the same planting distances. This is especially true if proper care is exercised in the choice of varieties. On this point, it appears that the McIntosh, Wealthy, Jonathan, Esopus and Grimes are fairly well adapted to dwarfing, while the Twenty-ounce, Baldwin, R. I. Greening, Rome Beauty, Ben Davis and Northern Spy have thus far proved very poor for this purpose.—Dr. J. P. Stewart.



A TYPE OF LOW-DOWN SPRAYER THAT WORKS WELL ON STEEP HILLSIDES.

DISEASE CHECKED BY SEED SELECTION

There are certain well known diseases of cultivated plants which may be controlled in a large measure by seed selection and crop rotation. Of these, bean "bacterial blight" and "anthracnose" are common examples. It is best to select seed from one's own crop in order to secure personal supervision.

The pods should be selected in the field, for the bacterial blight is difficult to detect after they are dried. Only pods which are free from spots or brown streaks should be picked. The clean pods should then be shelled or threshed separately from the remainder of the crop. Any spotted or unhealthy looking beans should be discarded from the selected seed. If it is possible selected seed should be grown in soil which has not grown beans for several years.

The selection of seed from plants which appear immune to these diseases is strongly urged by the Pennsylvania Experiment Station. A resistant strain may thus be developed which is not seriously injured by these diseases.

There is considerable evidence that celery blights may also be controlled to an appreciable extent by these methods.

SWEET POTATO FERTILIZERS

Every sweet potato grower is very much concerned about the question of fertilizers. At most farmers' institutes this winter the question was brought up for discussion. Sweet potatoes must have potash or they positively can not grow. Every ton of sweet potatoes contains around twelve pounds of potash.

This would mean that if we take 250 bushels of sweet potatoes from an acre, we remove from that field about 75 lbs. of actual potash.

Muriate or sulphate of potash and kainit are not to be had. A ton of mixed fertilizers containing as much as 1 percent of potash brings a premium of $5 or $6. No wonder the sweet potato grower is worried! However, the difficulty may be met in several ways, each of which will be a big help toward getting a supply of potash available for the roots of the plants. We grew heavy crops of sweets before we had commercial fertilizers. Why can't we do it again?

Of course, we have more diseases now than we used to have and manure may encourage these, especially the soil stain or scurf. Some of these diseases can be overcome to a very large extent by careful handling. Any decayed sweets from the store-house should be carefully disposed of, so that they will not infect the seed bed, the fields or the barnyard manures. The manure to be used in the sweet potato field should be handled over two or three times to get it as fine as possible. If the same soil is to be used in the plant bed that was there the year before, it should be steam sterilized, or soaked with formalin solution, 1 pint formalin, (40 percent formaldehyde) to 30 gallons of water, at least 10 days before the seed is laid, using 1 gallon to every square foot of surface. Many of the best growers prefer to go to the woods where sweets or morning glories have never grown. The soil just under the rubbish should be free from infection and will not get hard in the plant bed.

Just before the seed is bedded it should be carefully examined. Any specimens showing black rot, stem rot or any other infection should be eliminated. The soil stain or scurf and some of the diseases which cause rot in the seed bed, field and storage may be materially checked by soaking the seed for ten minutes in a solution of one ounce of mercuric chloride and 8 gallons of water in a wooden tub. Wash off in clean water immediately and bed the potatoes.

I have visited many sweet potato store-houses recently in southern Jersey, and find that by talking with the grower a few minutes about the way he handles his seed and plant bed, I can predict the condition of affairs in his sweet potato store-house.

Several years ago, when manure was so commonly used, we did not have some of those diseases which seem to develop more quickly when manure is used in the growing field. When fertilizer was first used it was quickly noticed that some of these diseases were not so destructive. Therefore, during the last decade few growers have ever thought of using anything but commercial fertilizer. However, it is the prevailing opinion in New Jersey, at least, that we can again use well rotted stable manure with success, especially if we do all in our power to keep rotten sweet potatoes away from our compost heap and grow plants that are reasonably free from disease when they go to the field.

This well-rotted manure may be placed in the rows as soon as possible this spring and the rows ridged up. With the manure a light application of a fertilizer low in nitrogen and high in phosphoric acid may be applied. The manure will carry considerable nitrogen and potash, but would be low in phosphoric acid, thus some of this fertilizer would probably help to produce most excellent results.

Another thing being considered by the sweet potato grower is the possibility of liberating the potash already contained in the soil. Chemists say that most soils contain enough potash to produce enormous crops of sweet potatoes for many years to come, if the potash was not tied up so tightly in an insoluble form. Lime is effective in making potash available, therefore many growers have decided to use light applications of this material on their field just after the soil is lightly plowed or deeply disk harrowed. Use one ton of ground lime stone or half a ton of burned limestone (weighed before it is slaked) or three quarters of a ton of hydrated lime per acre.

Many experiments have proved that when available potash is especially deficient in the soil, common salt will supplant some of the potash, thus making the potash available. Also the sodium of the salt is of direct benefit to many crops, taking the place of potassium in the plant growth. The New Jersey Experiment Station is recommending the use of about 200 pounds of common agricultural salt per acre for many crops. For sweet potatoes the application should be broadcasted a couple of weeks before the plants are set, or the salt may be mixed thru the compost heap and applied with the manure in the row.

One thing is sure, we can not afford to buy potash at the present prices. It is selling for over $600 per ton and the price is still going up. There is no prospect at present of the war in Europe coming to an end for some time, and even if the war did stop, it would take many months to pump the water out of the immense potash mines. We have potash deposits in the United States but the material is tied up in the rock in such low percent that it might not pay to put up the necessary machinery to handle the work. The capitalists fear that if they spent many thousands to establish a plant, they might be just ready to operate when the German potash mines would reopen and force them out of business. American potash deposits yet discovered will scarcely be developed until the need of their products is made more permanent.

If a grower gets a good supply of well-rotted manure for his sweet potatoes and applies it in deep rows, so that it will not come in direct contact with his sweet potatoes, he will be furnishing as much or more potash to the field as his crop will take out. Besides this, he may apply a light application of lime to improve the soil and use a little agricultural salt to supplement the potash. By taking more pains to obtain disease-free plants he should get more nearly a perfect stand. With these precautions, he should get nearly as heavy yields as ever.—R. W. DeBaun, New Jersey Experiment Station.

RESULTS FROM BUD SELECTION

Very conflicting statements are being made by investigators of the bud selection theory. One that will be welcomed by opponents has recently been made by Professor J. C. Whitten, of Missouri. After 15 years of continuous bud selection of strawberry plants, Prof. Whitten finds that no gain in the total productiveness of plants originated by highly productive plants has been noted in comparison with plants originated from low productive plants, and selection from bud propagated plants does not seem to have limited the range of variation among individual plants. A similar experiment has been conducted with scions from an exceptionally poor yielding Ben Davis apple tree compared with those from another tree which produced the largest and best Ben Davis apples in the same orchard. Examination of the third year's crop showed no perceptible difference in size, color, grade or quality of the fruit from the two lots of trees. The total product from the trees in each lot averaged slightly higher than those propagated from the high producing parent. There seemed to be as much variation between trees in each plot as between the two.

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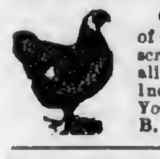

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POOR HATCHES

There is Always a Reason

There is always a cause for a poor hatch and no matter how baffling it may seem at the time a diligent search is bound to reveal it, provided the whole truth is known. Many persons lay the blame on the incubator or some other convenient thing simply because they cannot at once find the real cause and in some cases to hide some mistake that was theirs.

The very first place to look for the trouble is the breeding stock, as it has been the writer's experience that the cause of over fifty percent of the poor hatches can be found in the breeding pen.

To begin with, a great many breeders, particularly the inexperienced, make the mistake of housing the breeders very closely and coddling them in many ways. While close confinement may induce a somewhat larger egg yield, it is bound to produce eggs of poor fertility. In handling the breeders it is the very best plan to provide them with a comfortable clean house and allow them free range or at least the freedom of the yards thruout the year. No matter if there is some snow on the ground or a cold wind blowing, leave the small hen door of the house open so the fowls may go out if they desire. In many cases this is all that is necessary to overcome the trouble.

This is often the reason why persons who keep mongrels find no trouble with their hatches, but upon taking up thorobreds they find the fertility of the eggs poor. The mongrels were left range and were naturally hardy and strong, but when the thorobreds were taken up they were closely housed and the matter of care over done. The trouble was not with the thorobreds but with the owner's methods.

Another frequent cause is inbreeding whether done promiscuously or thru too close line breeding. The first effects of inbreeding will show in gradually decreasing fertility each year, accompanied by greater mortality in the chicks, and if continued, sterility is sure to result. Chicks raised to maturity from badly inbred stock do not always show physical weakness, as has been claimed by some, for there is frequently developed some excellent specimens of apparent vigor, which when bred produce little or nothing in the way of fertile eggs.

It is a fact well known by breeders that many fine show specimens of apparent physical perfection, produced by generations of close breeding, are often very nearly sterile. The breeding of absolutely unrelated stock is one of the best methods of insuring a good hatch. Inbreeding must be avoided and line breeding should not be attempted except with great care and a full understanding of the subject.

Leaving the eggs in the nests until they become chilled and improper storage conditions are also causes of poor hatches. It is the best plan to collect the hatching eggs at least twice a day especially in winter so as to avoid chilling.

The eggs should be stored in a room where the temperature will not rise much above fifty nor fall below forty. A temperature of seventy or eighty for any length of time is very harmful to hatching eggs. It is preferable that the eggs be stored in trays so they can be turned easily. All eggs stored for hatching need turning at least once in two days and more turning will do no harm.

One of the most flagrant causes of poor hatches is keeping the eggs too long. Many persons save the eggs for several weeks so as to have a big lot, thinking they will have one large flock instead of two or three smaller ones, which would be the case were the eggs set when not over one week old. This long saving only defeats the purpose in view, for the older the eggs the poorer will be the hatch. It is a mistake to save eggs for incubation much over one week. Eggs three weeks old will often hatch only half as many chicks as eggs set when one week old.

In the incubation of the egg the heat, turning and cooling are all important. Either too high or too low a temperature will cause unsatisfactory results, but of the two the latter will do the greatest damage. The temperature should average from 103 to 103½ degrees for the hatch. It is well to run the machine at 102½ the first week, 103 the second and from 103½ to 104 the last week. Slight variations from these temperatures will do no harm, but the eggs should be kept as near the temperature as possible.

Too low a temperature will bring the chicks out late and cause them to be stuck fast in the shell, also causing many chicks to die in the shell. Chilling the eggs by exposing them when they are hatching will give the same results. Too high a temperature is harmful because it forces the chicks out prematurely and frequently hardens the yolk which the chick absorbs, making it indigestible and thus causing a heavy death rate. A temperature of 108 or over if maintained for very long will completely ruin the hatch.

The eggs must be turned daily if good results are to be had. Twice a day seems to give the best results. The turning should be done at regular times each day, but when the temperature of the eggs has been low during the past twelve hours it is well to leave the turning until the heat is brought up, as turning while the eggs are low in temperature may chill them especially during the first week.

Turning helps to develop a perfect chick by exercising the germ and preventing it from growing fast to the shell. Eggs left unturned thruout the period of incubation would not develop chicks, as the germ would die after a short period of growth.

Cooling the eggs is helpful in developing strong healthy chicks. Too much cooling will produce the same results as low temperature. Eggs should never be cooled if the temperature has been low and no cooling should be done the first week. Once a day is often enough and the very best method of cooling is to cool until the eggs feel cool, not cold, to the touch.

Moisture placed in non-moisture machines or the lack of moisture in machines made to operate with moisture will often cause poor hatches. There is, however, little danger from this source if the directions of the manufacturer are followed.

Many hatches are impaired by allowing the infertile eggs to remain in the machine. These infertile eggs are several degrees colder than a live egg and consequently tend to chill the good eggs. They are also liable to affect the registration of the thermometer. Testing will overcome this trouble.

Inaccurate thermometers are often a cause of poor hatches, as an inaccuracy of only half a degree will cause the operator to run the heat too low, thus causing poor hatches. Most incubator thermometers deteriorate after a few years' use and some are inaccurate when

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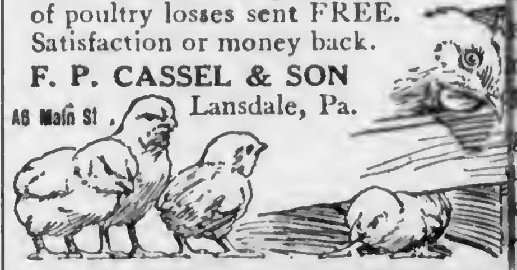

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eived. It is a good plan to test the rmometers at the beginning of each son, using a clinical thermometer for purpose.

To do this, have a basin of warm water dy in which to place the thermometers. Test only one at a time, placing h the clinical and incubator thermometer in the water at the same time. e incubator thermometer should be tched and when the mercury has ceas to rise the temperature noted before falls with the cooling of the water. e clinical thermometer may then be moved and read at leasure, as it will fall until shaken down. Any differ e found in the registration of the o thermometers should be marked on incubator thermometer and the heat n according to the correction.

n placing the thermometer with the gs the bulb should not be allowed to ch an egg, as the temperature of individual eggs vary according to their velopment. It is best to lay or stand e thermometer so the bulb will be on level with the top of the eggs but set the space between three or four eggs. Allowing purchased eggs to lay at the ilroad station in an excessively hot cold room without turning and then ting them over rough roads is frently the cause of poor hatches from reign eggs. Eggs strong in fertility ll stand a great deal and still give a irly good hatch, but improper care is ound to prove detrimental to the rongest of hatching eggs.—J. Raymond essler, Chester Co., Pa.

TAKE OUT THE CORNERS

Corners in brood-houses, coops and ooders are dangerous things for little icks. Whenever chicks become chill d, they rush to the corners, and, in an fort to get warm, pile on top of one other. The chicks in the corner canot get away, and the pressure from l sides and above soon crushes and mothers them.

I have had many losses in past years om this source, but last season I evised a plan that prevents this loss. his plan merely consists in doing way with the corners. A piece of eavy cardboard or galvanized iron bout two feet long and fifteen inches ide is bent in the form of a half rcle and nailed to the two walls. The enter of the strip extends out about x or eight inches from the corner at e bottom. The top of the strip also orms a curved line, but the curve is uch smaller than that at the bottom —so small that a chick cannot get beind the strip. There is a gradual slope om the bottom to the top of the strip. When the chicks crowd, there being no orners to hold them, they are simply orced in the direction where the presure is least. Or, if the pressure comes ard on all sides, they are forced upward on account of the outward slope f the strip.—R.

GAPES

No treatment is entirely effective for gapes. Inserting a looped horsehair in the chick's windpipe and twisting it around several times may dislodge and remove some of the worms. Placing the chicks in a box, covered with a cloth, and sifting air-slaked lime thru the meshes of the cloth will cause the chicks to sneeze and cough, which may dislodge many of the pests. But these treatments are not entirely satisfactory.

Reliance must be placed in prevention, rather than cure. Gapes result from keeping the chicks in infested soil, or in infested houses. If the chicks are kept on soil that has not carried chicks for several years they will not get gapes. Soil infested with the gap-worm should be plowed and sprinkled with lime or a carbolic acid solution. Many believe that the common angle worm will cause the gapes when eaten by chicks. While it is true that the gape worm does find lodgement in the angle-worm, and that such worms when eaten by the chicks will spread the trouble, it is also true that angle-worms found in soil not infested are harmless to chicks.—R.

A CORRECTION

I would like to call attention to an article published in the Pennsylvania Farmer under date of April 1st that is not truthful. It makes mention under head of Bee Lore that Pennsylvania is spending $10,000 a year to eradicate bee diseases. The writer did not know what he was talking about. While there was appropriated in 1913, $1,000, and in 1915 $10,000 appropriated by the legislature, when it went to the Governor for his signature it was cut in half, making $5,000 and that has to last for two years.

I will also state right here that it does not require a bacteriologist to be a bee-inspector. The writer goes on further and says "Bee-uplifters who are imposed upon the public in the interest of private business." I think it unjust to cast reflections on the bee-inspectors as being crooks unless one is personally acquainted with them and knows about what he is talking. From my personal knowledge of the bee-inspectors of the state of Pennsylvania, I can say they are straight-forward, upright and honorable gentlemen.—Subscriber of Pennsylvania Farmer, Delaware Co., Pa.

THINGS I HAVE LEARNED

A drink of warm water on cold mornings puts life into the hens and gives them an appetite for breakfast.

When snow or slush covers the ground, or when cold winds blow, the hens are better off indoors.

When noticed in time, frosted combs and wattles can be saved by rubbing with snow or bathing in ice-water until the frost is cut, and then anointing with vaseline.

When cut clover or alfalfa are included in the mash mixture, one should feed lightly of green food. Clover and alfalfa answer all the purposes of green food, and if much green food is fed in addition, the ration will be too bulky, and will not carry sufficient nutrition to leave any margin for egg production.

Mangels are best fed by cutting into halves and impaling on a nail or spike. Cabbage heads should be suspended with a string, so the hens will have to jump to reach them.

A roosting closet is a death trap. A hen compelled to spend her nights in a tight enclosure will certainly keep warm but the lack of ventilation will surely weaken her constitution. Many mysterious cases of colds, catarrh and roup owe their origin to roosting closets. The hens become warm in the closets, and cool off too rapidly on coming into the open.

A good remedy for colds and slight attacks of roup is a teaspoonful of ground mustard to each twelve hens. The mustard is best administered in the wet mash.

During severe weather should be gathered every two hours. Frozen eggs are not marketable, and if left in the house may be the means of hens contracting the egg-eating habit.—T. Z. Richey.

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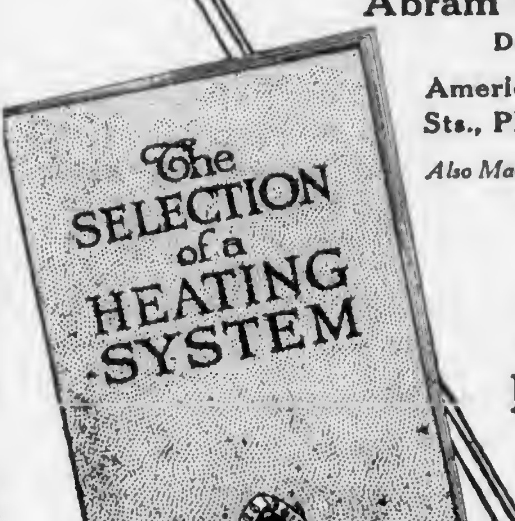
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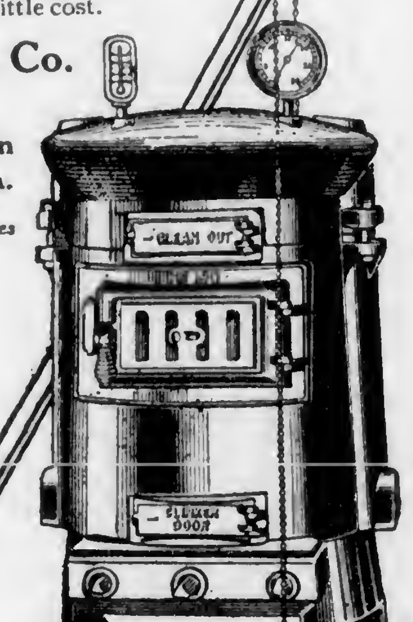
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Philadelphia, Pa., April 15, 1916.

WINTER WHEAT

The government Crop Reports show that the condition of winter wheat in the country as a whole is 9 percent below the 10-year average. This will reduce the crop by several million bushels below last year's production. It will be interesting, however, to the readers of Pennsylvania Farmer to know that the condition in the east is not much below the normal and that about the average yield may be expected, according to present conditions. Investigations have also shown that a larger percentage of last year's crop was made unmerchantable by reason of bad weather at harvest than ever before, running as high as 75 percent in some places. The large export demand made it possible to sell wheat last year that could not be sold under normal conditions. The amount estimated as unfit for milling was 146,120,000 bushels. It is well for the public to know this because the farmer has been credited with a bumper crop at a maximum price. It would seem sensible for those who have a good prospect for a crop this year to use every means, such as top-dressing and possibly harrowing, to increase the yield. There is no reason to expect low prices for wheat within the next year.

GOOD ROADS DAY

Governor Brumbaugh has designated Thursday, May 25, as "State-Wide Good Roads Day," and calls on all citizens to so plan their personal duties as to devote that day to the improvement of the highways. Those who cannot be present are requested to contribute money or material to the proper local authorities. Last year a similar call brought out 78,000 citizens and 11,000 teams and many miles of public roads were improved, many of them made permanently better. In some counties the women entered heartily into the scheme and furnished coffee and lunches at convenient places. The people of the towns turned out and helped as enthusiastically as did farmers. We favor this movement, not only because of the actual work done on the roads, but also because it is a return to the old-time "frolic" method of uniting efforts for a common cause. People who devote a day thus to the cause of better highways have their interest in the work increased, and the exchange of views with neighbors aids in developing a uniform opinion as to needs and methods. We have little sympathy with the disposition some exhibit towards this movement under the plea that "I pay my road tax and that is all I will do." This opportunity gives a chance to contribute something more constructive and lasting in road improvement than mere cash. Better roads are a necessity to better living, and since the ordinary methods are not sufficient to bring us what we demand, the Good-Roads-Day method should be more welcome to most people than an increase in the tax rate.

SHOE PRICES

The public is being warned that the price of shoes is to be advanced this season. These warnings are apparently issued by associations of shoe manufacturers. They point out that scarcity of leather, increased cost of tanning, enormously increased demand for leather and decreasing supply of hides are contributing factors in forcing the higher prices. The increased demand is said to come from heavy orders for shoes for the European armies, knapsacks, saddles, harness and similar army material, belting for busy factories, miscellaneous use of leather in the automobile trade, etc. The supply is decreasing with the decrease of cattle and there is little probability of relief in this respect for some time at best. Aside from these few unfortunate conditions the boot and shoe business is in a flourishing condition, but because of them prices are to advanced about 20 percent. That will mean that the modest $2.50 pair of shoes that we bought last summer will cost us $3.00 to duplicate this summer. There will be nothing to do about it except to come across with the extra price; so we might as well be cheerful about it. But our memory goes back to when hides were put on the free list with the definite promise that shoes would be cheaper as a result. It was admitted that cattle might sell a little lower because of cheaper hides, but we were urged to think of the poor widows and orphans who would profit by the cheaper shoes. If there was a decrease in price of cattle it was so well covered that it raised no serious protest. But cheaper shoes failed to materialize, as well. It proved to be just that much more tariff bunk. We simply recall this in passing, knowing again that there is nothing to be done about it, and trying to be as cheerful as possible. We only ask that they count us among the orphans and treat us as kindly as they may in this 20 percent advance.

FARM LAND VALUES

It is interesting, almost surprising, to note the rise in the value of farm lands during the past 16 years. According to the Crop Reporter estimates, the average value per acre in 1900, without improvements, was $15.57; in 1910, $32.40, and at present it is $45.55, almost three times what it was in 1900. These figures are for the country as a whole and include much land that has been developed within that time. However, with the exception of some of the fruit lands of the northwest, there has been a steady increase in value in all sections—10 percent in the North Atlantic states during the past year. In general it may be stated that farm land has increased in value at the rate of $2 per acre per year. Part of the exceptional increase of the past year may be attributed to the stimulus given by the war, and partly in the south to the improved cotton situation over two years ago. Two very natural questions for the farmer to consider are, first, do farm returns warrant the increase; and second, if so how long may such rate of increase be legitimate? The final arbitor in the valuation of farm lands is the open market. The natural tendency is to reach the maximum figure at which men can make, or think they can make, a profit in farming. As improved methods and the demands of the market increase the possibilities of profit, land will continue to rise. Any valuation beyond this is fictitious and will inevitably bring loss to the speculator. A good farm and farm home has a value to the farmer and his family that cannot be reckoned in the commercial valuation. It may be good business to sell a horse, or a cow, when a man "gets his price," but many a man who took what he asked for his farm learned to his sorrow that his price was too little. This annual rise in farm values will probably attract the attention of speculators, if it be established that the increase amounts to from 5 to 10 percent per year, and some farmers will be inclined to change from farm owners to farm renters. Our advice is don't. A good farm is worth more to a successful farmer than to anybody else.

NEW OLEO BILL

The purpose and provision of the National Dairy Union Oleomargarine Bill, H. R. 13825, are given somewhat in full on page 11 of this issue. Its sole purpose is to cause oleomargarine to be sold for what it is and prevent oleo from masquerading as butter. The bill would remove the 10-cent tax on colored oleo, thus removing the objection that regulating legislation increases the cost to consumers. It makes coloring the primary restriction, in prohibiting the manufacture and sale of the product in a degree of yellow which would enable the product to pass as butter. It simplifies the system of government check on the business and removes the incentive for frauds practiced under the present law. There is nothing in the measure which should interfere with the manufacture or sale of oleo as oleo, but it does prevent its sale as another product. In such prohibition it simply enforces a principle in honest labeling that is enforced by our pure food laws on practically every other food product. The bill should have the support of every dairyman as a just and reasonable protection to his industry against counterfeiting competition. It should be supported by consumers of all classes as enforcing honest labeling of a food product. It should be supported by every legislator who appreciates the value of the dairy industry in the maintenance of soil fertility. Unfortunately, however, there are men in Congress who are more attentive to the large money interests back of the oleo manufacturers than to dairying and to farming. Every dairyman and every citizen who believes in honest labeling should write his representatives in Congress urging them to vote for this measure.

PARIS GREEN PRICES

"War prices" are springing up in many and unexpected places. Prices on practically all raw materials are soaring, and many and varied lines of finished products are affected. Among the products of regular farm consumption which are certain to be high this year is paris green. This product sold at about 12 cents a pound last year and is quoted at 32 cents a pound at the present time. The increase is said to be due entirely to higher cost of raw materials. Four products required in the manufacture of paris green are acetic acid quoted at 6¼ to 6½ cents per pound at the present time as compared with 1¾ to 2 cents per pound a year ago; arsenic 6½ to 7 cents per pound against 4¼ to 4½ cents last year; blue vitriol, 19½ to 20 cents now and only 6 to 6¼ cents last year, and soda ash now quoted at $3.50 per hundred pounds as compared with 75 to 80 cents a year ago. Because of these price advances manufacturers are reported to be planning an output only equal to actual requirements. Paris green is used almost exclusively as an insecticide in farm work, with about two-thirds of the total used on potatoes. Cotton growers are expected to suffer most from any shortage in supply, as their use in combatting the boll weevil comes later in the season, after the potato and tobacco insects and worms are out of the way.

THE GOLDEN FLEECE

The unusual conditions in the wool market this year are boosting prices to new high records. Delaine washed wool is now quoted at 40 cents per pound, with delaine unwashed at 34 cents; New York fine unwashed at 27 to 28; one-half blood unwashed, 34 to 35 cents and three-eighths blood unwashed, 39 cents. The clipping season is just starting and it is freely predicted that prices will advance materially when the buying season is fairly opened. An abnormal foreign demand for wool products and a curtailed supply of foreign wool are two contributing factors to this condition. A third factor which has been felt to a less degree in recent years but which must become pronounced with every disturbance in foreign wool trade, is the steadily decreasing number of sheep in this country. Statistics show that the production of wool has decreased something over 12 percent during the past seven years. We were credited with a production of 328,000,000 pounds in 1909, from which point we have steadily declined to only 288,000,000 pounds in 1915. This decline is in direct proportion to the decline in numbers of sheep kept. Our sheep population in 1909 was reported by the Department of Agriculture as 56,084,000 head with a steady falling off to 49,162,000 on January 1 of 1916. The effect of this decline is shown as strikingly in price of sheep as in price of wool. In 1909 sheep had an average farm value of $3.43 with an aggregate value of $192,632,000, whereas on January 1 of this year, the average farm value per head is placed at $5.17, giving an aggregate value of all sheep of $254,348,000. And of still greater interest to eastern farmers is the greater proportionate decline in the industry in this section. In Pennsylvania alone the production of wool declined from 6,000,000 pounds in 1909 to 4,030,000 pounds in 1915 This means a decline of about 33 percent in the state as compared with a decline of 12 percent in the country in the last seven years. This condition alone should cause every thoughtful farmer to consider the possible profits of adding a few sheep to his supply of farm live stock. Returns in dollars and cents are the strongest possible argument and are more convincing to farmers than miles of statistics. At present prices for wool, every sheep man will make money this year even with very ordinary management; and sheep men with small flocks well cared for have made a fair return for the past several years. The present prices are certain to stimulate the industry, but it is no time to plunge. Two hindrances to sheep growing in any section are dogs and internal parasites. Both of these are met most successfully with the small flock of well-bred and well cared for sheep. We believe the present is a favorable time to make a start with sheep, but it should be a start with small numbers rather than a spurt with a large flock. A few head of a breed that will yield well in either mutton or wool, carefully kept as an important side line in the farm live stock and not left to care for themselves, should prove profitable on many eastern farms.

HARRISBURG NOTES

The State and Live Stock.—It is likely that within a short time some announcement will come from the State Department of Agriculture regarding plans to increase the number of horses, meat and milk cattle and sheep in Pennsylvania, which will call not only for more attention on the part of farmers, stock raisers and land owners, but from the bankers and the business men. Investigation is said to have shown that the fault primarily lies with the people who have the money, however much this may be disputed. Forms of investment more attractive than agriculture have caused money to be placed elsewhere and the result has been that Pennsylvania is not getting the best of its agricultural possibilities and is thus contributing to the high prices. This is the position which it is said the economists and conservationists of the State administration have reached and an earnest effort to call public attention to the necessity for a closer co-operation between the bankers and the agricultural people is to be made. Assurances are said to have been given that if the business interests will take hold of the problems attending stock raising, notably horses, cattle and sheep, whose numbers are either declining or at a standstill or worse, that the next legislature will be urged to be liberal with appropriations for the upbuilding of farming interests which furnish the backbone of the State food supply.

Into the Whirlpool.—Governor Brumbaugh has taken the State administration into the whirlpool of politics and leaving what is being printed or threatened to be printed in the newspapers and the chances of impeachment, reputation-shattering and reprisals out of the question, the fact remains that things are going to be disturbed more than they have been about the Capitol for years. As has been pointed out, playing politics is not unknown in the State government, but a factional fight creates conditions which are far reaching. Just what is to become of the numerous things promised when energies are being bent for control of a state committee is the subject of much talk here. The State Department of Agriculture has been going on an even keel and expanding its work considering the fact that its appropriations were trimmed and it has some well-made plans for advancement which will develop during the year. However, if the next legislature reflects this year's quarrels the most meritorious programs will be apt to be kicked.

Commission to Stick.—According to reports from the State Capitol the membership of the State Commission of Agriculture will remain as it is, and the prospects are that the recent meeting in Philadelphia has cleared the way for closer co-operation between the members of the commission and the executive officers of the Department of Agriculture. No resignations are looked for now, but these are disturbed times in politics and anything may happen. The commission has always been more or less an object of speculation about the Capitol because it never was given any real power and has been little more than an advisory body, sometimes hardly that. But under present conditions at the Capitol nothing surprises anyone.

Settling Rural Cases. — The Public Service commission is now working to clear up the remainder of the complaints about rates in rural districts and it is expected that the decisions in the western milk cases, which dealt with Somerset and Lawrence counties will govern in principle others which are listed There are also pending several cases which involve the question of fares in certain zones of trolley traffic in rural districts and the decisions may be far reaching.

The Fishermen's License.—Announcement of intention of the state authorities to press the next legislature for a fishermen's license, along the same lines as the hunters' license, has caused considerable discussion, and there are going to be some lively times in the coming session. In some localities organizations of sportsmen are taking sides and the early announcement may have the effect of getting the subject thoroly discussed before the legislature meets.

The Township Code.—It is probable that in the next few months the compilation of laws which the State Legislative Reference Bureau is preparing to simplify, the law relative to townships will be ready for the public. The searchers are going clear back to the days of William Penn to get the various enactments listed and the result will be the assembling of provisions into one compact bill, such as was done with the borough code and the school code and the saving of much time and a good many tempers.

Road Repair Work.—According to the men at the State Department of Agriculture the road repair energy and the maintenance funds of the commonwealth are to be distributed where the greatest number will benefit, but the roads which need attention will not be neglected. This policy has been announced after a survey of reports of conditions which have come from every corner of the state and the work is to be carried on with a single object, according to a statement made by Highway Commissioner Cunningham. Judging from remarks at the Capitol the department will be glad to have the co-operation of various road route organizations, but will look for State funds to be matched before they are spent on highways whose condition is as good as others in less favored portions of the commonwealth. The repair work is to be on a general program.

Restrictions at Sales.—The efforts of the State authorities to prevent indiscriminate mixing of hogs and other cattle at country sales without careful investigation as to where they came from have been seconded in a number of counties according to reports coming to the office of the State Live Stock Sanitary Board. Several instances have been known where veterinarians were called in and the men interested in the sales found it to their advantage to make known what the medical men had reported. — Hamilton, Harrisburg, April 10.

NEW YORK LETTER

Potato Growers Meet.—The Onondaga County Potato Growers' Association has decided to specialize on two varieties of potatoes this season, the Irish Cobbler and the Carman No. 9. All members have agreed to devote some land to the cultivation of these varieties and so make the county notable for their production. The members will visit each others' farms during the season and be mutually helpful in the promotion of the culture of these potatoes. The association has voted to affiliate with the State Potato Growers' Association.

Physical Training in Schools.—There has been much discussion on the bill to introduce physical training and military instruction in the public schools of the state. It seems likely that compulsory physical training in schools will be authorized and that summer camps for compulsory training of boys between 16 and 19 years of age will be established. The cost of physical training will be borne in part by the state and in part by the towns or districts. The military training proposition is entirely apart from the schools.

Dried Vegetables for the Allies.—A new industry has been developed in Wayne county in the drying of vegetables for shipment to the allied army. A large number of the apple evaporators have been converted into vegetable dryers, in both Wayne and Monroe counties, and it is said that $50,000 has been paid growers in those counties for stock for the dryers. Cabbage, onions, celery and carrots are used.

Need Not Pay for Wrappers.—Justice Beals, of the Yonkers city court, has just given a decision upholding the opinion of the Attorney-General, that meat packers whose products are sold in wrappers must mark the weight of the meat on the wrappers and that the consumer does not have to pay for the wrapper. Hams and bacon are the commodities mostly sold in this way. The state container law was enacted to meet such cases. It is believed that the case will be appealed to the higher courts.

Commission Men.—According to a bulletin just issued, 300 commission merchants in New York City have registered and complied with the law by giving bond of $3,000 each. If farmers and other shippers send produce to these licensed commission men they will be entitled to protection of the law regulating the business of commission merchants. The law provides that the department can collect amounts due farmers that are unpaid but it states that if produce is sold outright to these commission men for a fixed price then in case of non-payment the shipper is not entitled to the services of the state in making collections, as such sales are not sale on commission. Farmers are requested to inform themselves before shipping to these merchants as to proper methods of shipment, kinds of produce handled, and in what quantities and approximate time when the produce is to be shipped.

Farmers Get Pay.—The distribution of $235,000 among farmers whose cattle were killed by order of the state on account of disease and for glandered horses, will take place soon. All claims submitted and approved by the agricultural department up to March 1 will be paid.

New Stallion Law Proposed.—A proposed bill now before the legislature proposes to stop the breeding from scrubs by requiring that every stallion offered for service after January 1 next must be enrolled with the Department of Agriculture. The enrollment gives description, pedigree and breeding of the animal, and the agricultural department issues certificates of enrollment. Copies of the certificates are to be posted in conspicuous places on the premises of the owner of the stallion and also must be used in any advertising poster announcing the animal for service. Those interested should get a copy of the bill.—D.

COUNTY NOTES

Union Co., Pa.,—(C.) March 27.—Farm sales end this week. There were 60 in the county, ranging in amounts from $1,600 to $6,783.18. The latter was the best sale of farm stock and implements ever held in the county. It was J. E. Boyer's sale on the Green farm of 124 acres, and consisted of 6 horses, 2 mules, 45 head of cattle, 70 shoats and the implements. During the winter most farmers hauled their manure to sod or mowing fields. No spring work has been done, as we have had several snows this month to make sledding. Much wheat is still held by farmers for better prices, altho it is only $1 now; corn, 70c; oats, 40c; pork, 10c; chickens, 16c; eggs, 22c. Not many steers were fed, but many more cows were wintered than usual. The only two licensed hotels in Lewisburg had their licenses refused at the license court held lately, making this a dry county. Many rural schools will close their seven month term this week.—J. N. Glover.

Chester Co., Pa., (S.E.) March 30.—Weather cloudy and windy. Roads very muddy. Cows bring $75 to $120 for good ones; veal, 10 cents; eggs, 22 cents; hay, $18.50; pork, 11 cents; chickens, 16 cents alive; potatoes, $1.10 to $1.25; apples, $1 bushel; corn, 90 cents to $1. Work is being held back by wet weather and no field work yet done. Roads were never worse.—Hayes C. Taylor.

Cumberland Co., N. J., (S. W.) March 12. — Weather rather stormy; not very cold. Eggs are 26c per dozen; dressed fowls, 22c lb; milk sells at creamery for 3½c quart. Many of the farmers have good herds of Holsteins and are getting a good supply of milk. Farmers are beginning to cart fertilizer for potatoes; some are carting marl. —Everett H. Sheppard.

McKean Co., Pa., (N) April 6.—Snow about all gone; warm the past week. Stock in good condition. Fat cows bringing 10c dressed; fresh cows $60 to $100; horses, $150 to $250. Plans for good crops of corn and oats are being made. Corn, 90c; oats, 56c; hay, baled, $21; eggs, fresh, 30c; butter, 40 to 42c, (Bradford Markets). Not much farm work can be done yet. The great body of snow has gone without damaging floods.—R. C. Fuller.

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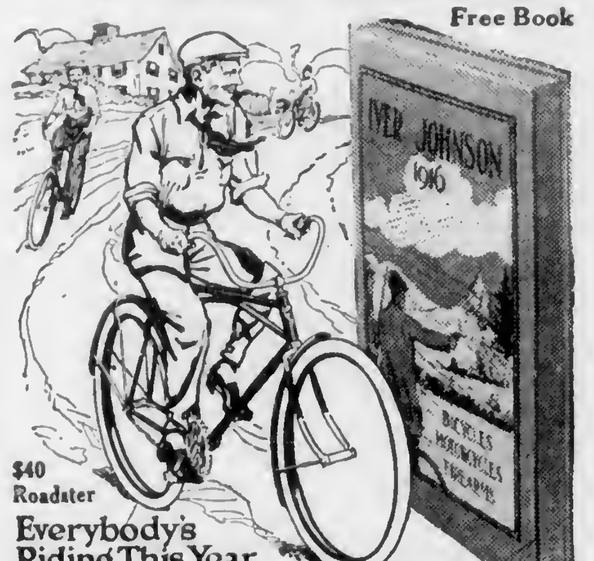

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(6)

SAY you saw the advertisement in Pennsylvania Farmer when you are writing to our advertisers.

The Dairy

SOY BEANS FOR FORAGE OR SEED

In this age of high priced feeds it becomes a question to the farmer, and especially to the dairyman, as to what he can introduce into his rotation that will enable him to feed on less purchased feeds. At the same time he needs something that will fit into his present rotation. To the farmers who are too far south to raise oats profitably, I want to suggest that there is no crop that will take their place quite as well as the soy bean. Soy bean hay analyzes as high in proteins as alfalfa and yields two or three tons or more per acre. It is very nutritious and palatable, and all farm animals do well on it. Even the hogs will relish the hay. Then the grain is exceedingly high in protein, it being the richest grain grown on the farm, and analyzing higher in protein that oil-meal and nearly as high as cotton-seed meal. It is more digestible and much more palatable than either of the two feeds named.

Next consider that it is a great soil renovator, having the power to gather much nitrogen from the air, besides putting the soil in good physical condition and leaving an excellent seed-bed for wheat or grass. Last, but not least, it enables one to grow a catch crop such as vetch or crimson clover in the corn, to be plowed under the following May in good time for seeding to soy beans; thus supplying the much needed humus and giving new life to the soil.

CHOCOLATE PONTIAC ALCARTRA, PURCHASED BY HERSHEY FARMS, PA., FOR $10,300, A SON OF KING SEGIS PONTIAC ALCARTRA, THE $50,000 BULL.

The soy bean can hardly be called the lazy man's crop, but it is very easy to grow. The ground should be prepared as for corn and the beans drilled with a grain drill; care being taken not to get them in the ground too deep. Plant them from one to two inches. Too deep planting has caused many failures. Plant any time after the 10th of May until the first of July. In fact, last year I planted a field July 5th and harvested two and a half tons of fine hay in eleven weeks after planting. I always plant solid for hay; but if the soil is exceedingly full of weed seeds it might be best to plant in rows 30 inches wide to allow for cultivation. They start to grow rather slowly, but after they get a few inches high, they grow like weeds. It is best to plant them in rows for seed. I use an eleven disk grain drill, sowing three rows at a time, stopping up the other holes. Sow from 12 to 20 pounds to the acre of the improved varieties. Use from four to six pecks to the acre when sowing solid for hay.

My experience has been that it is necessary to inoculate if no soy beans have been grown on the soil before. They will grow without it, but will exhaust the soil instead of enriching it and will not do as well. Inoculation can be accomplished by using the artificial cultures, or by spreading dirt from an old soy-bean field. I notice that the second time beans are grown on a field they have many more nodules on the roots, even tho they were inoculated the first time. I have found nodules as large as small cherries on the roots of volunteer plants growing in the wheat the year following harvesting them for seed.

When harvesting for hay, cut when the pods are filled and before the leaves begin to fall. If necessay they may be cut sooner, They are much easier cured than cowpeas. In making soy-bean hay the important things to remember are to rake before the leaves become so brittle that they will fall off, and, after curing a little in the windrow if the weather is favorable, put into small bunches; the latter being an important point if the weather is rainy. If bunched before too dry in small bunches, rain does not seem to hurt them, except that it bleaches them and makes them a little dusty.

In harvesting for seed, wait until many of the leaves have fallen and the pods are reasonably ripe. If standing up well they can be cut with a self binder and set up in small narrow shocks to cure. The horse rake is probably the best way to harvest them for seed, but the mower will do if you have nothing else. Rake them right behind the mower if it is used.

Nowhere is it easier to go wrong than in selecting a variety of soy beans. The improved varieties are so much better than the old that they are not to be compared. For forage or a dual-purpose bean there is none better than the Wilson and Improved Sable. The Sable makes a little the best quality hay and the Wilson probably a little more of it. However, they are both fine stemmed and hold their leaves well. For grain the Roosevelt and Mongul are very heavy yielders.

Soy bean ensilage is coming more into favor every year. They will yield from eight to twelve tons to the acre, containing twice as much protein as corn ensilage. One load of beans to two or three of corn makes good silage. It is usually best to grow them separately. Soy bean seed will be in demand for a good many years as they are getting an oil from them very similar to linseed oil. The remainder of the bean make excellent feed, being higher in protein than cotton-seed meal.—Jas. R. Galbreath, Harford Co., Md.

SOILING CROPS FOR THE DAIRY

Among our best dairymen the use of soiling crops is gaining every year, and this in spite of the fact that summer silos are also increasing. Summer silos are very valuable but the experience of all is that the actual fresh food is superior. I have in mind one successful dairyman who plans to have silage to last until rye is ready to cut green, then wheat, then peas and oats, then sweet corn, then field corn, so carrying him to silage again. At the same time, he has alfalfa constantly which can be cut for perhaps six weeks all told during the summer; that is, about two weeks for each crop. This man tried using alfalfa exclusively but found that while this worked very well the first two years after seeding, after that constant cutting harmed the growth.

This farm is without any considerable pasturage and it is doubtful if the scheme outlined here would be profitable in sections where the pasturage is even fair. Yet in ordinary years our climate does not produce pastures sufficient to last thru the summer and some soiling is necessary during the latter part of the summer to hold up the flow of milk and so enable the cows to produce during the winter.

On farms with pastures, peas and oats and sweet corn are the favorites, coming at the right time and producing quantities of food and succulence. One and one-half bushels of oats and three-fourths of a bushel of peas per acre is the right proportion, with three hundred pounds of acid phosphate as fertilizer. The corn produces best when cultivated instead of being "sown." These things pay not only for the summer, but for the winter and are well worth while.—F. R. Stevens, in Weekly Letter.

THE NEW OLEO BILL

What it Seeks to Do

Mr. Haugen in introducing the National Dairy Union Oleomargarine Bill, H. R. 13825, made the following statement: "Several bills are now pending in Congress which in effect would materially weaken the present oleo law if enacted. One bill goes so far as to provide 'that the artificial coloration of oleomargarine causing it to look like butter is hereby expressly permitted,' which, if enacted into law, would greatly build up the oleo industry at the expense of the dairy industry, making it possible to pawn off the counterfeit article for the genuine article at butter price. Thus, by deceiving the consumer, it would not only deprive the dairy industry of its legitimate market, but it would also enable the oleo manufacturer and dealer to swindle the consumer to the extent of the difference in the cost of the two articles.

"Hitherto, objections have been made to the 10 cent tax, upon the contention that it is a tax upon the consumer. Now that the National Dairy Union and other representatives of the dairy interests have suggested and agreed to its removal, by substituting therefor a nominal tax, and prescribing a color standard beyond which oleo shall not go, the 10 cents tax argument has been abandoned and copies of a resolution introduced in congress and circular letters purporting to quote officials in the Department of Agriculture discrediting butter have been sent broadcast over this country, evidently to prejudice the people against the use of butter.

"The fraudulent sale of oleo at the time the Grout Bill was under consideration in 1899 led to the passage of the present law. Manufacturers of oleo had entered into a conspiracy to break down the state laws and had resorted to dishonorable methods in forcing their counterfeit upon the public by avoiding and disobeying the laws of the land to the extent of [illegible] dealers, selling 62,825,582 pounds of oleo out of a total product of 83,130,474 pounds for the year, contrary to the laws of thirty-one states. The manufacturers went so far as to encourage dealers to violate the laws of the states, and provided for a defense fund for the employment of the best legal counsel obtainable in defending illicit sales whenever prosecution was instituted.

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CALF, born January 30, 1916, more white than black. Average A. R. O. record of dam, sire's dam and sire's granddam, 7 days, 537.3 lb. milk, 26.28 lb. butter; 30 days, 2,354.3 lb. milk, 105.9 lb. butter; semi-official, 1 year, 19,991.9 lb. milk, 953.52 lb. butter; average fat per cent for the year, 3.8 percent. First check for $125 takes him. Catalogue for stamp.

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We have a number of beautiful heifers of the choic breeding, young bulls, bull calves and a few mat cows. This stock is of the finest breeding to be had a we will quote a low price on the same.

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Registered bulls 1 and 2 mos. old, $30 and up. Grade heifer and bull calves from 2 weeks to 1 month old, $10 to $15.

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Bull Calves for sale. Four pure bred, two Holsteins and two Jerseys. Age from two to six months, prices reasonable. For information apply to Dairy Department, NEW JERSEY EXPERIMENT STATION, New Brunswick, N. J.

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Jersey Bulls from Register of Merit dams, at farmers' prices. Old enough for service. S. G. ENGLE, Marietta, Pa.

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"The object of the proponents of the present law was, first, to bring oleo under the jurisdiction of the present government by imposing a nominal tax upon the article, and, second, to remove the incentive to defraud by taxing the coloring of the oleo causing it to look like butter, or the counterfeit, at the rate of 10 cents per pound which was then the difference in the cost of butter and oleo. Hence, not for the purpose of adding to the price of oleo or to the burden of the consumer as alleged by some, but to insure honest dealings in oleo. It was believed that with proper enforcement of the law it would prove effective.

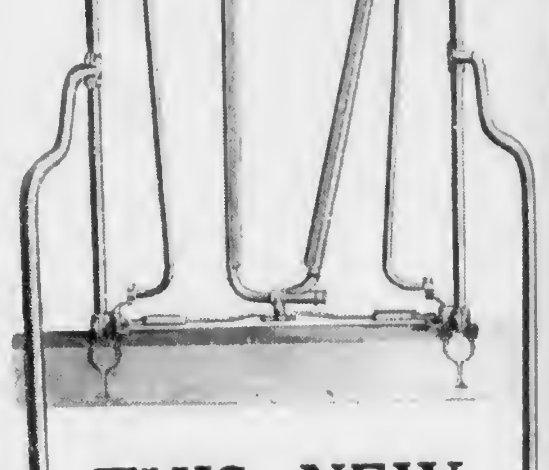
"The Secretary in his report states that the Government had been defrauded thru artificially colored oleo being sold under tax-paid stamps at one-fourth of one cent per pound instead of at the rate of 10 cents due on such product, by four manufacturers, the enormous sum of $17,692,410.47, since the inception of the present law. By another manufacturer, $1,503,205.30 in six years period.

"In view of the alleged difficulty in enforcing the present law and the fraud perpetrated under it, the Secretary recommends amendatory legislation to correct these faults and at the same time afford adequate protection to the revenues and to the public. Mr. Cabell, former Commissioner of Internal Revenue, and others testified and reported to the Agricultural Committee numerous violations and suggested amendments to the present law. Recently 43 persons were sent to the penitentiary for violations. Others are under indictment and, undoubtedly, will also go to the penitentiary.

"For some time it has been evident that the present law is not perfect in all its details but that it should be amended. For a number of years several, especially the officers of the National Dairy Union in consultation with others, have labored industriously and conscientiously to have the present law amended, not to weaken it but to strengthen it; to make it just and fair to the oleo interests, to prevent fraud and to protect the dairy interest and consumer against imposition. In preparing and presenting such a bill, with the prevailing misconception of the purpose of the 10 cent tax, it was decided not to insist upon the 10 cent tax but to prescribe and insist upon a color standard, 70 percent white beyond which oleo cannot go, except when colored for one's own family table, which is in line with the laws of the state of Pennsylvania and of Denmark and made possible by a practical means for scientifically measuring color, recently worked out by the National Bureau of Standards.

"The bill introduced provides that the name of oleomargarine shall be changed to margarine, that it shall be sold in ½-, 1- or 5-pound packages properly marked, wrapped and branded, that books shall be kept in such form as is prescribed and open to inspection; that a strip stamp shall be wrapped around each wrapper instead of the coupon stamp now used, for a flat tax of 1 cent per pound on all margarine, for special taxes on manufacturers, wholesalers and retailers, that the sale of margarine shall be subject to the laws of the state and shall not be exempt therefrom by reason of being introduced in the original packages or otherwise, and for heavy penalties for violations of the law.

"This bill was introduced by me at the request of the National Dairy Union. It was prepared by men of experience and talent, with the aim to make it just and fair to all concerned. It is indorsed by the representatives of dairy interests. It should be passed speedily, without change.



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The Rural School

A Symposium

You ask in your worthy paper for short articles on the rural schools. Our township is long from east to west. They have a high school and the best farms in the west end. The east end has the largest population and of course control the elections. They do not want a high school and fight the town and west end. We have a very poor bunch of teachers; always the cheapest they can hire. They built a poorly arranged 4-room house in the town and installed "patent" stoves instead of putting a heater in the basement. In the grammar school room the mercury stood at 20 degrees above zero at 9 o'clock in the morning and the children had to go to a store to get warm. A couple of the directors made good wages putting the stoves in. The high school teacher never taught before but they hired her cheap.—N. S., Penna.

Consolidation

In the last issue of your valued paper you request the opinions of your readers in regard to the schools and school systems of their communities. The rural school problem is certainly a vital one and directly concerns every farmer.

In my township many improvements could be made in the way of enlarging or repairing obsolete school houses. But why not tear down the old, ramshackle buildings and consolidate? Consolidation would, in my opinion, solve many of our rural school problems.

A most presing need in our county is that of ample playgrounds. Most of our playgrounds are too small. A school two miles from my home has actually a playground of only about twenty square rods. The playground in no case should contain less than one acre and if the schools are consolidated and some of the grounds are used for agricultural experiments five or ten acres would not be too large.

The teachers are all wide-awake and earnest and, while not as progressive and revolutionary as Herbert Quick's hero in "The Brown Mouse," they are fairly satisfactory. The directors also are all that could be desired.

The curriculum is not yet fully adapted to our needs but with the right teachers, directors, superintendents, and that most important asset of all, educational spirit, we will be sure to make great progress in things educational.

But that is where the rub comes in. We haven't our educational spirit fully developed yet. If the farmers would assert and exert themselves they could get what reforms they wanted.—L. F. S., Penna.

Peanut Politics

You wonder why we farmers do not express our thoughts on our own little rural school, its ear marks, good and bad. Should I write the facts as they exist, enemies would come at me like yellow jackets out of a rotten stump.

For instance, there is Tom Timothy director of the school who got his place by promising Jake Smith that if he and his friends would vote for him, he would in turn pull his corner for Smith for tax collector and it was all done and so both men are legally fitted for the duties of their respective offices. Now Smith's daughter is "teachin' the kids" in Timothy's home district as they "had ought to be taught," and Timothy's nephew, Bill is "teachin'" at Hickory Gap, Smith's home school. Bill says he "don't go much on grammar because it is like Sunday clothes, just to be used on special occasions and as demanded by school examinations". But Bill is anxious about "'rithmetic" as the following phone message will show—"Hello, Nellie: Say, if you have your 'rithmetic home try to work out problem 2 and 7 tonight. I can't." "Why can't you?" "Because I ain't got no book." "Well, use Bobbie's book." "Can't do that either, he hasn't his'n at home." "Well, then ask Susan for her'n and get your lesson. I can't learn you everything at school."

At the close of the school year in Shady township the accounts were examined and with one accord the Board pronounced the school year a grand success, since less money was spent than the former year, the crowning virtue of school-board efficiency has been attained.

No thoughts as to work and grades reached by the student body is expressed, no words are spoken as to ways and means to be used to develop a better school system, nor any comparisons drawn between other educational plants and their own.

Surely the school ruts are deep in many localities of our state and many are the county superintendents, who with finger on the pulse of the power that votes them in or out, cater to the whims of fogyism that is dead to progress if not to moral duty. — Farmer John.

A Number of Things

At a meeting of a grange in Clearfield County, Pa., the school question was discussed by short answers to the subject, "One thing I would like to see in the public schools." Each responded in a sentence or two as follows:

E. M. D., "Free textbooks and supplies seem to have a tendency to make children careless of them and wasteful. When parents had to furnish these children were taught more care, and it did them good."

W. D., "Consolidation and free transportation would be better and cheaper than so many and often small schools, each in separate house." Indorsed by S. L. K.

T. L. W., "Better plans for getting money's worth out of teachers and schools by making at least two grades of every school, with two teachers, if consolidation seemed impossible."

W. E. D., "Co-operation between teachers and directors."

J. I. S., "Leave the little red school house stay and thus keep the children near home."

E. F., "Beautify school house and grounds."

C. C., "Better care of books and supplies."

T. L. K., "No increase of expense."

A. N. W., and L. H., "Opposed to consolidation and free transportation."

C. A. W., "Cost $10,000.00 to pay teachers and directors for attending our county institute last year. Can't see the benefit. Schools not quite as good after institute as before."

V. J. T., "Don't hire the poor teacher next time. Teachers don't get much to bring back from institute."

C. W., "Schools should teach the dignity of labor."

J. D. W., "Too much undertaken in schools now. More than can be well done. Beginners should spend most of time outside with nature getting an appetite for learning."

Lecturer, "Control of schools should be back in the hands of the people. A few years ago local tax was 6 mills, now it is 12."

Schools Improving

I have just read the article in Pennsylvania Farmer written by Prof. Welfling on rural schools. His description of school conditions in Potter County would describe the scools in Mifflin County thirty years ago. Conditions are much better now. As a rule our school houses compare favorably with the churches and best dwellings. Environments are inviting. We have many honest, industrious and well qualified teachers in our rural districts.—A subscriber, Mifflin Co., Pa.

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Saving the Little Chicks

While poultry raisers all around her were losing their little chicks by the score, Mrs. C. F. Gardner of Oak Grove, Mich., never lost one last season from White Diarrhoea. Her experience, as given below, will be interesting to those who have not yet found a way to prevent White Diarrhoea:

"I have raised poultry for five years and have lost so many every year with White Diarrhoea, but I am glad at last I have not given up raising poultry, as I have found a sure treatment for White Diarrhoea and other diseases. Last year, I learned of the wonderful results others were obtaining from the use of Chictone, so obtained a box from The Wight Company. After using it I never lost another chick and raised considerably over 300. I would not be without Chictone."

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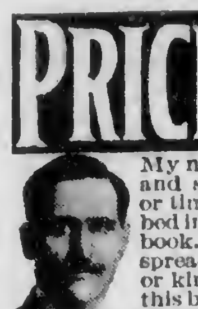

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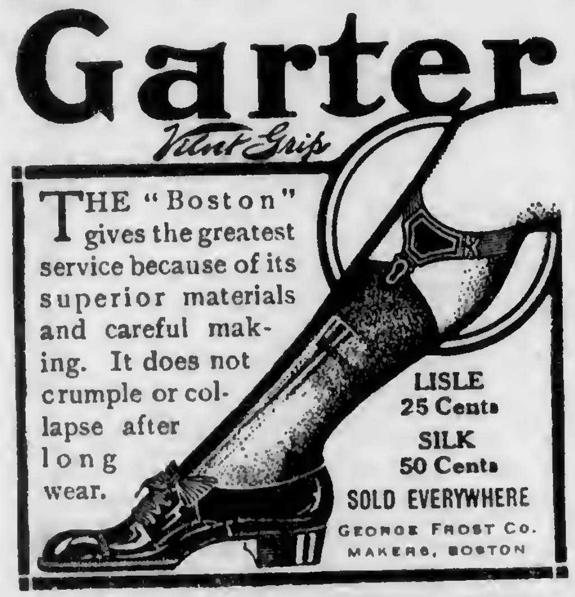

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TANKAGE for HOGS

Every experiment station test shows *Tankage* the cheapest and best feed for hogs and growing pigs. Build big frames to carry fattening. Use Roberts *Tankage* and *buy direct* from manufacturer. Write for prices.
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Berkshires for sale. A young granddaughter of Lord Premier's Successor. Also one of my herd boars, both splendid individuals. Write for price and particulars. B. COOK, Farmingdale, N. J.

Percheron Stallions for sale; 2 registered gray and black, 2 and 5 years old. Prices very low. J. P. WILSON, Newark, Del.

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For Sale Registered Chester Whites and Poland Chinas. All ages. Recording free. J. A. BOAK, Route 4, Newcastle, Pa.

O. I. C. Swine the big smooth kind that are easy feeders. Pigs $10 each; $18.50 pair. Circular free. WILL H. TOPE, R.D.3, Carrollton, O.

Budd's Jersey Reds, best pigs bred, thrive anywhere, develop quickly. **Budd's pigs make big dollars.** write your wants. C. BUDD, R. D. 3, Medford, N. J.

Large Berkshire Swine Registered High Grade. Prices reasonable; write HOME FARM, Center Valley, Pa.

Poland Chinas Registered prize-winning herd for sale during next 60 days. Good bargains. B. F. MOORE, Jr., East Fultonham, O.

POLAND CHINAS pure bred sows and boars for sale. Inquire of M. F. CRUM, Sand Brook, N. J.

Registered Berkshires of quality, the big kind; both sexes, price low. W. J. McCONNELL, Oxford, Pa.

O. I. C. Pigs Silver Strain for April delivery. Pedigrees furnished. Write for prices. A. G. BRUBAKER, R. 2, Mifflintown, Pa.

Large BERKSHIRES at Highwood. Special prices on bred sows and young boars. H. C. & H. B. Harpending, Box 45, Dundee, N. Y

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Durocs Choice Fall Boars, Gilts bred for Aug.& Sept. Spring pigs mated not-akin. Pedigrees furnished. Write. Ira D. Jackson, R. D. 10, Van Wert, O.

Aberdeen-Angus Cattle Choice registered young bulls for sale. A. W. ROOT, R. D. 1, Manheim, Pa.

Lakeside Berkshires Service boars, fall gilts and young pigs for sale. Satisfaction or money refunded. Send for Cat. Prices very reasonable. H. Grimshaw, North East, Pa.

Live Stock

FACTORS OF SUCCESS IN FARMING

(Continued from page 1.)

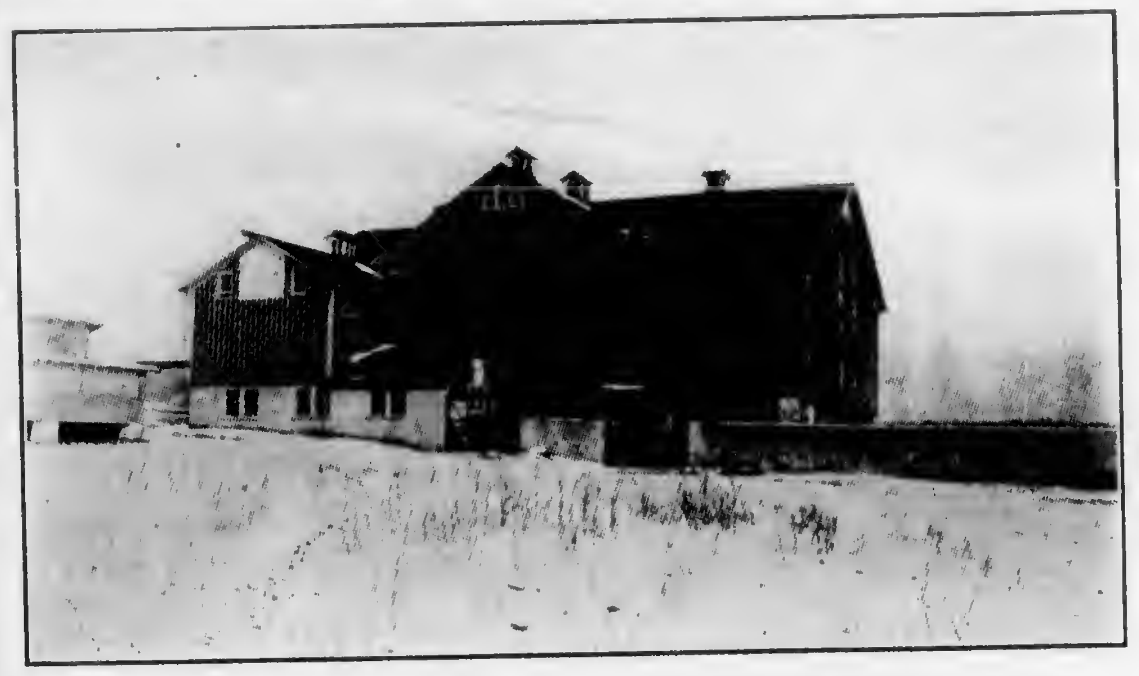
age milk yield of 8,000 pounds, the quality of his dairy may be rated as very good.

Quality as it relates to other livestock demands a good conformation in the steer, hog or sheep, so that each may be expected to make the quickest and most economical gains from feed offered. While quality is important on a farm of any size, it is of first importance and the chief hope on smaller places. The comfortable living and something besides are quite possible on a "little farm well tilled" if the "quality of business" is made sure.

Diversification

Diversity is generally conceded to be a third factor for successful farming, and we are told now more than ever that it is not the man with all his eggs in one basket who succeeds best. While it may be easier for one to concentrate his attention on the growing of crops alone, on the feeding of a dairy or on a long house full of chickens, it is true in any case that his chances for a sweeping loss are much greater than those of the man who wisely selects a combination of these or of kindred farm enterprises. Moreover with a diversified system of farming it is possible to keep labor employed continuously and to better advantage.

How shall one know when, for the sake of diversity, he has struck a proper balance? Where the system followed is one of crop and livestock farming, the suggestion offered by Dr. G. F. Warren may serve as a guide in this connection. It is assumed that for a proper balance between the two we shall always want to sell animal products and crops for cash off the same place, and 20 percent of the gross farm sales is fixed as the lower limit for income from either source.



ANOTHER VIEW OF THE BARN SHOWING COVERED FEEDING YARD.

Birmingham Stock Farm

The success of George L. Jones, on Birmingham Stock Farm, Chester County, Pa., is peculiarly due to his respect for the foregoing points, whether this respect be conscious or unconscious. In all his plans and operations Mr. Jones is broad guage. He simply can not think in terms of anything but dignified proportions.

Four years ago, when the farm Mr. Jones then occupied on a rent basis seemed inadequate for the expansion of his business as a farmer, he cast about and bought the Josiah White farm, over a part of which, on Sept. 11, 1777, had been fought one of the most sanguinary battles of the Revolution—that of Brandywine.

The farm itself is of the rolling topography that characterizes all the land in this section. It is blessed with ample springs of pure cold water and with trees of the hardwood varieties. The total acreage is about 214, of which 190 are at present under cultivation, 7 acres being devoted to summer pasture or rather exercise lots, while 14 acres are in timber.

Using crop acres as a measure of size, Mr. Jones has apparently as much as one man can conveniently manage with a system of dairy farming in this region. Having much faith in the dairy cow, a herd of 72 head is now stabled in the comfortable basement of his fine new barn. Experience in handling and buying cows has insured a high quality of all. When perfectly organized Mr. Jones' plan contemplates a record of butterfat and milk production for each cow. During the life of the Brandywine cow-testing association, this data was supplied by periodical visits of the tester and was found to be invaluable in herd improvement. From his present herd the milk sales will average in excess of $8,000 per year. There is also a good income from the sale of veal calves, chiefly bulls and some females not desirable for raising and so going to the butcher.

Mr. Jones believes in a complete utilization of farm resources. On his lawn and on the open space between house and barn there is a remarkable stand of bluegrass. Fifty ewes, bought in August, had thrived on this and the aftermath of mowing fields without grain or hay until the first snow storm in December. Thru the sale of lambs and wool each ewe may be fairly counted on for a gross return of $8.

A new hog house and a new chicken house, both of modern design, are now occupied by 28 hogs and 500 hens, respectively. After careful selection and breeding of hogs, Mr. Jones is proud to show anyone his results in the way of young animals that are, as the fancier would say, "typy" in their detail. When it was decided that a poultry department should be added to the farm, Mr. Jones quite naturally sought hens of a laying family and purchased from the Sweigart establishment well-known to the readers of Pennsylvania Farmer.

While it may seem that farm activities have centered about livestock there has been no neglect of crops. The common five-year rotation of Chester County is practiced, or that of (1) corn, (2) silage corn and potatoes, (3) wheat, (4) mixed clover and timothy and (5) timothy. There is a high regard for alfalfa on Birmingham Stock Farm, 16 acres being devoted to this crop at present. It is not grown in rotation.

Thru liberal fertilizing and manuring Mr. Jones easily secures crops that are better than average. Conservative estimates per acre are corn, 80 bushels; silages corn, 15 tons; hay, 2 tons; alfalfa, 3½ tons; potatoes, 175 bushels, and wheat, 30 bushels. Of corn there is enough to compose one-third the total grain mixture for the dairy and to feed eight work horses. The past year was an "off" year for crops, yet Mr. Jones sold from the farm 719 bushels of wheat, 410 bushels of potatoes and 78 tons of hay, reserving enough hay in addition to meet the demand of work stock and dairy. There are regularly employed four men, with additional help at such seasons as harvest time, silo filling and corn husking.

In the administration of his farm work Mr. Jones has the ablest of help in the person of his wife, whose council and calm decision are always sought before action is had on any important matter. There is also good team work at the hands of the four children. In fact, the poultry plant will be turned over to the oldest daughter who is at home. Hugh, the sixteen-year-old and only son takes especial interest in the hogs and has been admitted into partnership. When not in high school much of the lad's time is devoted to caring for the swine. He likes equally well, however, to act as chief operator of the milking machine which was installed with other improvements in the new barn and which, to some extent, solves the labor problem.

Two sisters not previously mentioned attend school in West Chester, the older being a student in the high school vocational course. Surrounded by a helpful, efficient family and with the grit necessary to operate a farm of this size, it is small wonder that farmer Jones' ledger indicates at the close of each year such an impressively favorable balance.—C. F. P.

UNIQUE CASE OF UNBROKEN HORSE

A horse is usually thought to have seen its best days when twenty years of age, but there is at least one exception to the rule. In settling the estate of Samuel Miller, a farmer residing near Millersburg, Pa., who died recently, a horse with unique record was sold. This horse, altho lacking but a year of being old enough to vote, had never been broken or known the feel of harness on his back. He was sold to the proprietor of a livery stable who is now using him daily in his business. The horse was a pet of Miller's and for some eccentric reason was never broken during the owner's lifetime, altho a splendid specimen of horseflesh.—J. A. R.

IN THE HORSE MARKET

More than 112 million dollars worth of horses, and over 23 million dollars worth of mules have been exported from the United States in the 16 months ending January 1, 1916. This is a greater total in cash received than we obtained for all horses and mules exported during the preceding 16 years, and our shipments show no signs of lessening. Good draft geldings are in keen demand also, and are bringing from $275 to $325 on the Chicago market, despite the pessimistic comments of country horse buyers who generally seek to give, for selfish reasons, the impression that drafters are not wanted. Farmers who cannot secure satisfactory prices at home should club together and ship their draft geldings direct to the large markets. Country horse buyers are doing all they can to hammer down prices on drafters in the country.

The urgent need — more apparent than ever before—is for men to assemble small but select bands of mares, absolutely sound and right in every way, breed them to really high class sires, and develop and show the colts. From such hand picked studs, stallions can be developed fit to head any band of purebred mares. This is precisely what American breeders are most urgently in need of now, and the opportunity is a great one.

THE BEST LINIMENT
OR PAIN KILLER FOR THE HUMAN BODY
Gombault's
Caustic Balsam
IT HAS NO EQUAL

For the Human Body —It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Exterior Cancers, Boils Corns and Bunions CAUSTIC BALSAM has no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

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Sore Throat
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Sore Lungs
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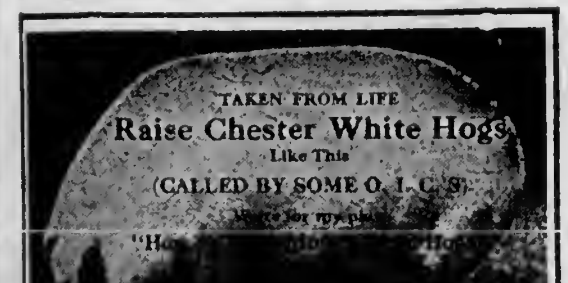

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Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the cause in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

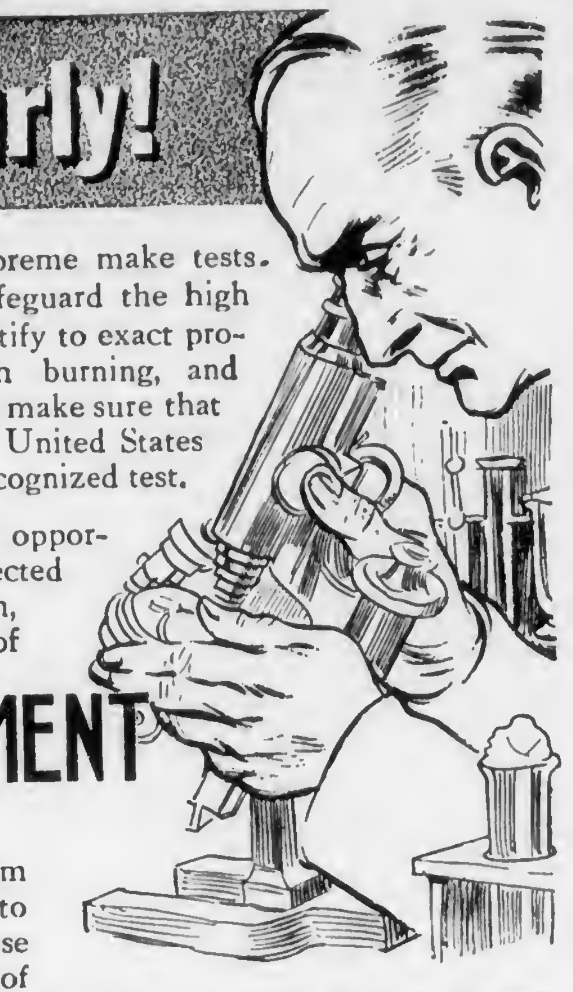
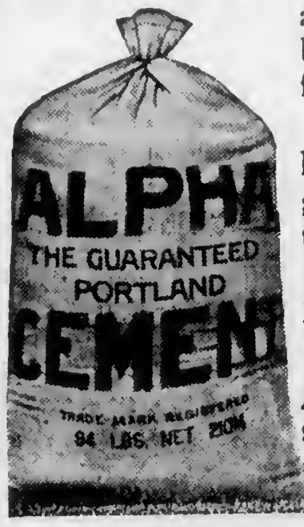
Rheumatism—Cow Holds Up Milk—Garget.—Colt, 11 months old, has large joints and after standing still a few hours or lying down, he travels very stiff. I also have a cow that is a hard milker and inclined to hold up milk. We have another cow carrying her fourth calf that has been troubled with garget. Last year she had an abscess in the bag. W. S., Duncannon, Pa.—Give your colt ½ dr. potassium iodide and ½ dr. powdered nitrate of potash at a dose in feed, night and morning. Apply equal parts tincture iodine and camphorated oil to enlarged joints, once a day. Apply 1 part iodine and 9 parts lard to bunch in cow's udder, 3 times a week. Regarding the cow that refuses to let down milk, I believe this habit can be overcome by kindness, allowing her to feed while she is being carefully milked, each time by the same milker.

Knuckling.—I have a 4-year-old mare that we have been using to haul heavy loads on icy roads and for some time I have noticed when she set down hind foot, the fetlock joint would rock. About a week ago this weak leg commenced to swell and lately a bunch has appeared in hock joint which resembles a thoroughpin. C. S., Curwensville, Pa.—Clip hair off fetlock and hock joint and apply 1 part powdered cantharides and 4 parts lard every two weeks, but of course you will have to rest the horse while this treatment is going on.

Effects of Distemper — Worms — Chronic Indigestion.—About a year ago one of my horses had a severe attack of distemper which seems to have left him with stiff neck. At times he is unable to touch nose on ground without bending his knees. This same horse is also full of worms. I also have a sow which had five beautiful pigs last October. At that time she was fleshy, but later on she changed and was inclined to eat droppings from chickens and lots of rubbish which seemed to have the effect of changing her blood and making her itchy. At present she seems to be fond of corn, more so than any other food. G. H. H., Prices, Md.—You might obtain some results by applying 1 part iodine and 14 parts lard to bunch in horse's throat, if there is any, 3 times a week. Give him a teaspoonful of salt, a teaspoonful powdered sulphate iron and a tablespoonful of ground gentian at a dose in feed, 3 times a day. Give your sow 2 or 3 ounces of castor oil and the same quantity of Epsom salts to clean her out. Then give her a teaspoonful of ground ginger and a teaspoonful ground gentian and ½ teaspoonful of bicarbonate of soda at a dose, 2 or 3 times a day. It occurs to me that you have not been feeding a balanced ration. Give her some oats, oil meal, tankage and roots. Also prevent her eating filth.

Voracious Appetite.—I have a young mare, 8 years old, that does not take on flesh, but is always hungry. I feed her 9 quarts of feed daily, and this is a mixture of ground grain and bran. She is not doing hard work. A. C. S., Waymart, Pa.—Her teeth may require floating. Mix together 1 part powdered sulphate iron, 1 part bicarbonate soda, 1 part ginger and 3 parts ground gentian, and give her a tablespoonful at a dose in feed, 3 times a day. Feed her one-third corn, two-thirds oats; also some roots and plenty of mixed hay.

Chronic Cough.—My herd of dairy cows seem troubled with a tight cough, but appear to be in perfect health and are giving plenty of milk. May it not be an infection of the throat? They all cough more or less and have done so all winter. D. E. N., Somerset, Pa.—I am inclined to believe that your cattle cough the result of dust or an irritation of the throat produced by eating a certain kind of fodder or there may be foul gas which irritates the air passages of your cattle. Dampen their food and if possible shake out all the dust from their fodder before feeding it to them. The same exciting cause affects them all.

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Household

TONIC PROPERTIES OF RHUBARB

I felt like singing gaily when in the garden I found this morning (March 24) tender rhubarb stalks two inches above the ground. Farmers' Bulletin 293 remarks "there are a few vegetable products which are not fruits in any botanical sense, but which by common consent are included in this class of food products since their place in the diet is the same. The most common of these products is rhubarb, and there are few uses of fruit which the acid stalk does not serve". Rhubarb is particularly valuable in the spring not because of its nutritive elements (for it has scarcely any) but because of the mineral salts and tonic properties of these and its acids.

Being believers in rhubarb as a fine appetizer and conditioner, we serve it thru the season in a variety of ways. Stewed, it is served as a breakfast fruit, and has a piquant flavor so unusual and fine that one can hardly fail to relish it.

Rhubarb Meringue Pie.—Cut the rhubarb in pieces, having washed it, add no water, cook until tender. Allow about ½ pint of the stewed "fruit" to one pie. While boiling add 1 heaping teaspoonful of cornstarch (to each ½ pint) mixed with the yolk of 1 egg (2 if eggs are plentiful), 1 cup of sugar and 1 tablespoonful of butter. Have ready some baked pastry shells, and fill with the rhubarb mixture. Beat the whites of the eggs stiff, add 2 tablespoonfuls of sugar and put on the pies. Brown the meringue; serve warm or cold.

Rhubarb Sauce.—Do not pare or strip the pink and green skin from the rhubarb. Cook slowly, sugar to taste and serve cold. If desired, before removing from the stove, add a few slices of lemon and 1 teaspoonful of butter.

Rhubarb Fritters.—Cut rhubarb stalks into pieces 2 to 3 inches long. With 6 large tablespoonfuls of flour, and 1 pint of milk make a batter, add ¼ teaspoonful salt and 2 well beaten eggs; dip each piece of rhubarb in the batter and fry in hot lard until golden brown. Serve hot, sprinkled with powdered sugar.

Baked Rhubarb.—Cut, without peeling, several stalks of rhubarb into inch lengths. Put one layer in baking dish, cover with sugar, and repeat until all is used. Cover dish tightly and bake one hour. Serve cold.

Rhubarb Custard.—Make a custard of 2 eggs, 1 pint of sweet milk and sugar to taste. Line with pastry a pudding dish and put in a layer of inch-length rhubarb, covered with sugar, pour the custard over this, and bake. Beat the whites until stiff, add sugar, put lightly on the pie and brown.

Steamed Rhubarb.—Cut rhubarb into inch-lengths and put in double boiler adding 1 cup of sugar to 1 pint of fruit. Do not stir. When tender remove from boiler. Serve cold.

Rhubarb Pudding.—Butter a pudding dish and fill half full of inch-length rhubarb. With 1 cup sour milk, 1 cup sour cream, 1 egg, a pinch of salt, 1 teaspoonful soda, add sufficient flour to make a stiff batter, pour onto the rhubarb and bake. Serve cold with cream.—Elizabeth Jean, Baltimore Co., Md.

MAKING COTTAGE CHEESE

Because of the large number of hand separators now in use, many farmers find themselves with an excess of skim-milk. For the time required there is no more profitable manner of utilizing this excess than to make it into cottage cheese. The market for cottage cheese is growing steadily. The average return is about 10 cents a pound. For farm conditions the Pennsylvania State College School of Agriculture and Experiment Station recommends the following method for making cottage cheese:

The skim-milk should be kept at a temperature of 70-75 degrees F. until it coagulates. The curdled mass should then be broken into fine particles of uniform size, after which heat should be applied, and the temperature raised to about 94 degrees F. and held there 25 to 40 minutes until whey appears clear and the curd becomes slightly firm. The heating should not be done too rapidly or the texture of the curd will be injured.

When the whey has separated completely from the curd, the whey should be removed and the curd allowed to drain from muslin bags in special draining sacks. After thoro drainage the curd should be salted at the rate of 1 lb. to 100 lb. curd.

Further information concerning the making of cottage cheese on the farm will be furnished upon request to this paper.

CURTAIN ROD FOR PLANT WINDOW

"I declare, at a certain time of day that sunlight streaming into this room is simply annoying! But what am I to do? The plants certainly show their blooming appreciation of its presence but my poor eyes pay a heavy toll which offsets, in a measure, their mass of beauty." And Mrs. S. gazed in perplexity at her window radiant with bloom and fragrance. Presently she exclaimed:

"I know! I'll have the blacksmith curve a piece of iron to fit the window casement at the top. This I will paint white like the woodwork, and from it hang some cheesecloth curtains with wide hems at each end, deep enough to allow of free adjustment. The hems of the same width at each end will enable me to use the curtains either end up, and so will make them wear out evenly. When the glare of the sun is annoying, I'll simply draw the scrim curtains and get a mellow glow that soothes and quiets." — Mrs. Louise White Watson, Bucks County, Pa.

PRESERVING FRUIT IN ALCOHOL FOR EXHIBITION PURPOSES

"Can you furnish me with a formula for preserving fruit whole for exhibition purposes? I know some use alcohol, but can not find any one who knows what percent to use."—Mrs. L. K. P., Newport, Pa.

The following formulae are recommended: (1) Formalin, 3 pints, 10 pints saturated solution of salt (as much as will dissolve), and 87 pints distilled water. (2) To make 6 gallons of solution, take 21 oz. boric acid, 6 pints alcohol, 44 pints water.

We suggest that you write to the U. S. Department of Agriculture, Division of Pomology, Washington, D. C., for further information on this sort of preserving. Dr. L. H. Bailey's "Farm and Garden Rule Book", pages 552-556 gives a number of formulae successfully used by exhibitors.—Harriet Mason.

A New Way to Bake Potatoes.—Scrub clean one large potato for each person to be served. Cut each potato in two the long way. Melt some butter, the amount depends on the number of potatoes, say ¼ cup for 8 large potatoes. Stir about 2 level tablespoonfuls of flour into the butter so as to make a soft batter, spread each piece of potato with the butter and flour, sprinkle with salt and pepper, lay in the oven and bake until the tops are brown. Serve at once.—Mary Kintigh, Westmoreland County, Pa.

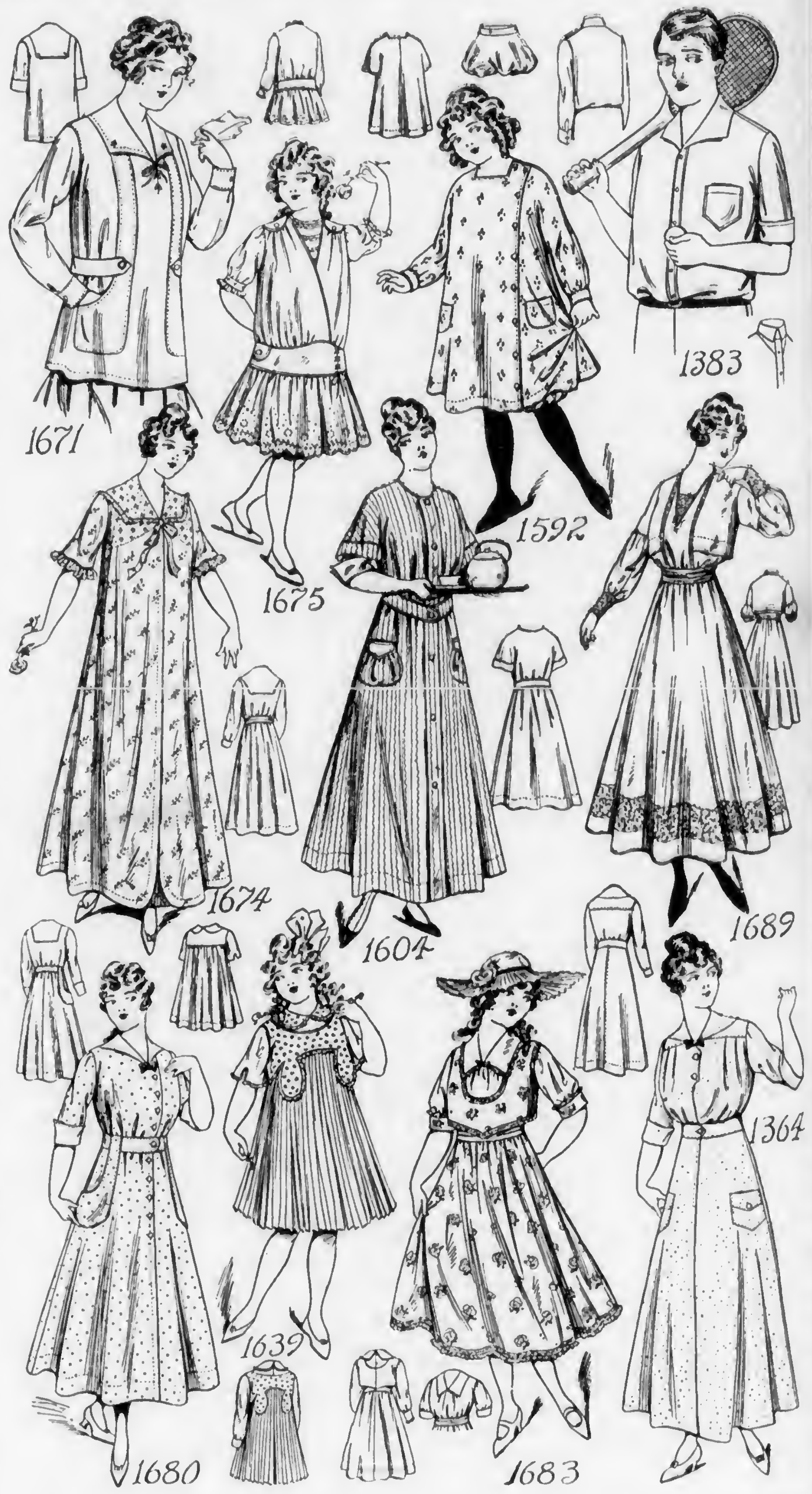
Pennsylvania Farmer Patterns

Be sure to give the figures and letters of each pattern exactly as printed at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-263 So. Third Street, Philadelphia, Pa.

1671.—Ladies' Middy Blouse.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 3 yards of 44-inch material for a 36-inch size. Price of pattern, 10 cents.

1675.—Girls' Dress.—Cut in 4 sizes: 6, 8, 10 and 12 years. It requires 3¼ yards of 44-inch material for an 8-year size. Price, 10 cents.

1592.—Dress or Apron with Bloomers for Girls.—Cut in 5 sizes: 2, 4, 6, 8 and 10 years. It requires for a 6-year size 3¼ yards of 27-inch material, with 2¼ yards for the bloomers. Price, 10 cents.



1383.—Shirt for Boys and Youths.—Cut in 5 sizes: 8, 10, 12, 14 and 16 years. It requires 2¾ yards of 36-inch material for a 10-year size. Price, 10 cents.

1674.—Ladies' House Gown or Negligee.—Cut in 3 sizes: Small, medium and large. It requires 5¾ yards of 44-inch material for a medium size. Price, 10 cents.

1689.—Ladies' Dress.—Cut in 5 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 6 yards of 44-inch material for a 36-inch size. The skirt measures about 3 1-3 yards at the foot. Price, 10 cents.

1604.—Ladies' Apron with or without Belt.—Cut in 3 sizes: Small, medium and large. It requires 4¾ yards of 36-inch material for medium. Price 10 cents.

1680.—Dress for Misses and Small Women. (With or without pockets.)—Cut in 3 sizes: 16, 18 and 20 years. It requires 6¼ yards of 44-inch material for an 18-year size. The skirt measures a little over 3 yards at the foot. Price, 10 cents.

1639.—Girls' Dress.—Cut in 4 sizes: 4, 6, 8 and 10 years. Size 6 requires 3⅛ yards of 44-inch material, with 1⅛ yard of 27-inch material for bolero and collar. Price, 10 cents.

1683.—Juniors' Dress, with or without Bolero.—Cut in 3 sizes: 12, 14 and 16 years. It requires 5½ yards of 44-inch material for a 14-year size. Without bolero, ⅞ yard less. Price, 10 cents.

1364.—Ladies' House Dress.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 7 yards of 36-inch material for a 36-inch size. The skirt measures about 3 yards at the foot. Price, 10 cents.

SPRING AND SUMMER STYLE BOOK

Send 10 cents in silver or stamps for our Up-to-Date 1916 Spring and Summer Catalogue containing over 400 designs of Ladies, Misses' and Children's patterns, as well as the latest embroidery designs, also a concise and comprehensive article on dressmaking, giving valuable hints to the home dressmaker.

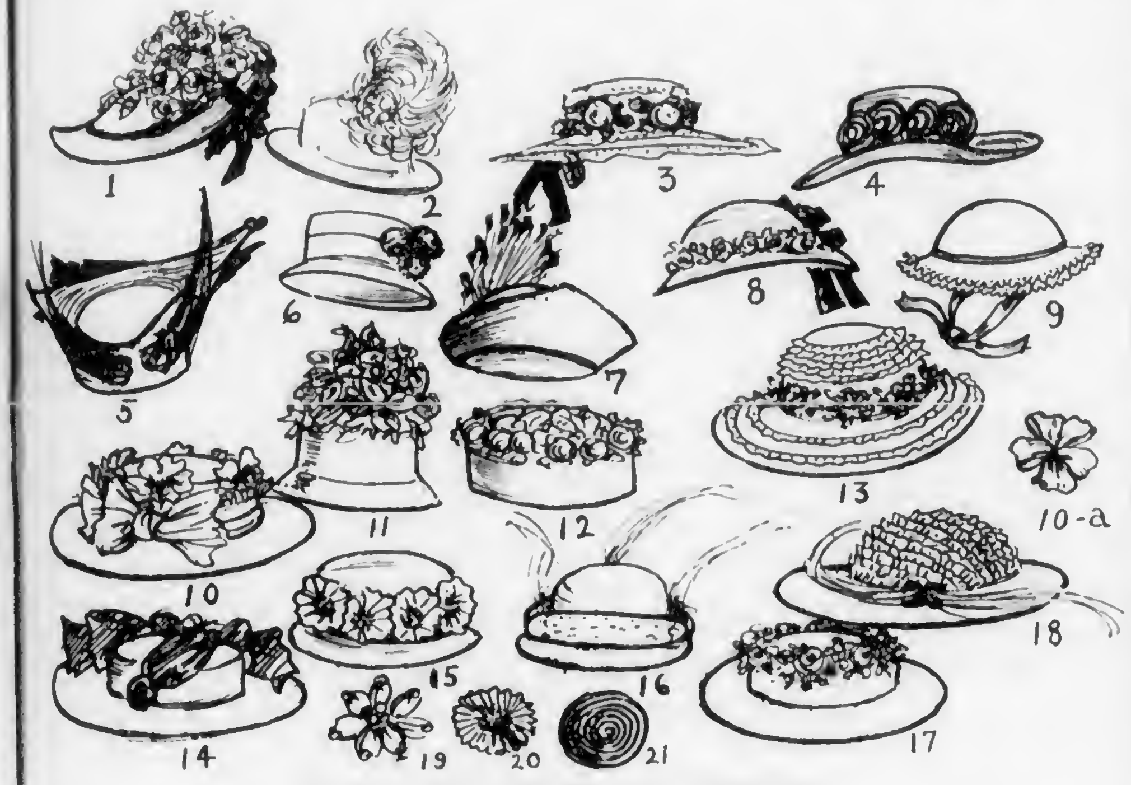
Spring Millinery Suggestions

In Fig. 1 the brim makes a gentle point in front, and turns up flatly in the back, where it is held in place with a large bow of velvet ribbon loops. The back of the crown is covered with roses.

A small ostrich feather may be used on a small hat—either in the front, as shown in Fig. 2, or in the back, as best suits the hat and its wearer. The small spring hats, it must be admitted, are becoming to only about one-tenth of the women who wear them. Lace hats, in sailor shapes, will be quite popular. Usually the lace, or lacy straw, of which they are made is about an inch wide; and not infrequently it is sparsely beaded to add little gleams of light to the otherwise rather plain hat. A slight feather, of the osprey order, or a few clusters of flowers, as in Fig. 3, or silk fruit, are all the trimming used on them. Frequently a flat edge of the lace finishes the brim edge.

Sport hats (Fig. 4) are of flexible straw, or often of fabric of different kinds, and usually they are trimmed with a band of some sort of flat rosettes. The rosettes shown in Fig. 4 were coiled silk-covered cording.

A dressy little tri-cornered hat, for one who can wear such a shape, is shown in Fig. 5. The trimming is usually stiffened ribbon or wings. Sometimes the edge of the rim only is trimmed.



SPRING MILLINERY SUGGESTIONS.

Less extreme modifications of this shape are frequently becoming to middle-aged faces.

Many of the small hats for young girls are trimmed only with a cluster of flowers or fruit exactly at the front of the crown. The one shown in Fig. 6 has a plain ribbon band and three silk pompons.

Another middle-age shape is shown in Fig. 7, with a very popular method of trimming, a fan-like cluster of very fine spraying feathers set against the exposed side of the crown.

Two pretty hats for little girls are Figures 8 and 9. In Fig. 9 the whole shape was covered plainly with white silk, and its only trimming was two half-inch white plaitings or ruchings on the edge. It might be made of linen, with flutings in place of the plaitings.

One of the prettiest hats that I have noticed was Fig. 10 in pale gray, which is the fashionable color for the season. A soft fold of ribbon about the crown was tied in a simple bow at one side. A plaiting of the same ribbon reached from the top of this band to the top of the crown, but was mostly hidden by several flower-like rosettes, perched at intervals about the top of the crown. These rosettes were made of gray silk like the ribbon, scalloped slightly, and folded into five petals that strongly suggested a flower—see (10-a) at extreme right of the cut. Lines of black streaked the three lower petals, very effectively hinting a pansy.

A poplar way of trimming the new small hats is to pile the top of the crown with as many flowers as it will hold (Fig. 11). Occasionally, with a little larger or a toque-shaped hat, the flowers are placed about the edge of the crown, and the top of the crown itself is covered with leaves laid flatly on it. This is a popular trimming for the all-black toque; and in such cases glossy, leather-like leaves are very pleasing.

An extremely pretty and becoming trimming for a sailor shape is shown in Fig. 13. Five rows of very narrow grosgrain ribbon ruffles were placed about the upper part of the crown; and two rows, with a space between them, were used on the brim. Just below the ribbon ruffles, against the crown, little bunches of flowers were sewed close to the hat. The model was a gray straw, with Alice-blue ribbon ruffles, and blue dahlia-like blossoms with green leaves.

Buckles just the color of the ribbon trimming are extremely fashionable. The sailor, Fig. 14, had a band of ribbon across its crown, ending in a buckle and a bold, spreading bow of the same ribbon in the back.

A kind of rosette that is used effectively both on small hats and on large ones is the one shown in Fig. 15. The rosettes are simply circles of two—(or more) inch ribbon, gathered usually but sometimes plaited. The centers may be of the same ribbon fringed, or a silk knot, or fine shirrings. The rosettes are sewed about the crown of the hat so as to overlap slightly, and usually they are of the same color as the straw, altho sometimes the centers are of another color. A gray straw with gray rosettes having yellow centers would make an extremely effective hat. Many people do not know how pleasing these two colors are together.

A pert little straw, trimmed with staight bands of straw and a few soft, floating sprays of feathers, is shown in Fig. 16. A band of flowers about the very top edge of the crown, as in Fig. 17, is a new idea of the season.

And another new idea, as in Fig. 18, especially for dressy hats, seems to be that of fancy crowns; in Fig. 18 you cover the crown with tiny ribbon ruffles running crosswise; the only trimming besides this is a few sprays of fine feathers. Among many different schemes for covering hat crowns I saw woven ribbons, and hand-made silk flowers sewed flat; flower petals, or peacock feather eyes held in place by an almost invisible covering of black messaline.

The rosette shown in Fig. 19 is made of loops of narrow ribbon, knotted loosely at the point of each loop, and in the center. Fig. 20 is a plaiting of ribbon or silk; Fig. 21 is a coil of braid, cord, beads, chenille or straw.—Eva Dean, N. Y.

Moth balls are very effective in keeping rats and mice away. Roll them into holes where the mice run.

When one of the children has slashed a great wound in his hand with a pocket knife, suffering a loss of blood by being unable to stop the flow with usual remedies, apply a little powdered boracic acid—alum will do if boracic acid is not at hand. — Renice Radcliffe, Prince Georges Co., Md.

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FARMERS' ORGANIZATIONS

Among the Granges

Lycoming Co., Pa.—March 16, 1916, was a memorable day for the members of Canusarago Grange located at Hugesville, Lycoming County, the debt having been wiped off, and their Grange Hall dedicated. This grange was organized January 31st, 1874. In the year 1880 the grange was abandoned, but in 1899 it was reorganized, with 18 charter members. In November 1908 the present hall was purchased, and is now free of debt. The dedicatory program was in charge of a committee, and was well rendered.

The Dedicatory address was made by C. H. Dildine, of Orangeville, Pa. At the close of the session, a social hour with refreshments followed.

Butler County, Pa.—Pomona Grange No. 17, held their regular quarterly meeting in the Assembly room of the Court House, Friday, March 3. It was a fine, bracing day with the roads in fine shape for sleighing and the meeting was well attended from all parts of the county.

Brother J. B. Bricker, President of the Butler County Patrons Mutual Fire Insurance Company, addressed the grange and urged the necessity of our mutual fire insurance companies fortifying themselves against the attacks of the old line companies, by becoming affiliated with the state association, as the old line companies have expressed their intentions of putting the mutual companies out of business for the mutual companies are practically securing all the rural insurance. It is to the interest of grangers and stockholders in any mutual insurance companies that they do all in their power to withstand these attacks and in this, as in other similar cases, it can only be done by union, and much of the western part of the state has failed to heed the warning or else are oblivious of their danger, but we look for activity along this line in the near future.

Hon. W. L. Metzenbacher, Deputy and Grange Organizer from Saegertown, Crawford County, installed the officers elected, who were present as follows: Master, W. H. Grabe; Overseer, Edwin Ramsey; Secretary, Frank Clark; Lecturer, F. A. McClung. Those officers who were not present were held over for installation at the June meeting.

Favorable reports were heard from the retiring officers and the rest of the time was taken up in the routine work of the order, appointment of committees, etc.

Brother Metzenbacher was given a little time to exemplify the unwritten work of the order, which he did by reading from the code.

The next regular meeting in June will be held at the home of Forward Grange at which time it is the intention to initiate the candidates in the Fifth Degree which were held over from this meeting.

Jefferson Grange No. 1373 of Butler County was organized February 29, 1908 and in honor of the eighth anniversary of that event a public meeting was held Saturday, March 4, at 8 P. M. which was addressed by Brother Metzenbacher of Crawford County on "The Accomplishments of the Grange." He outlined the work of the order and what it has done not only for the member within the grange, but the outspreading influence and help to all classes and conditions of men; the legislation that had been passed for the benefit of the farmer and rural uplift in general. Brother W. H. Grabe also spoke on some things along the same lines.—F. E. Puff.

Clearfield Co., Pa.—Penn Grange No. 534, P. of H., held a live meeting at Grampian, Pa., March 25, 1916.

After a short active business session, the question of having reports of meetings published, especially in the county papers, was again brought up and the Secretary was instructed to co-operate with the master in having such reports prepared and sent for publication.

The problem of keeping the girls on the farm so that the farm boy may have in the future when he becomes a farmer-man, a farmer-woman for a helpmeet, was considered a grave question, by one veteran farmer.

Memorials from National Grange favoring National Prohibition and against increased armament were approved.

(Note.—Each member was asked to respond to the question, "One thing I would like to see done in the public schools." Readers will find a report of this discussion in the Symposium, "How Do Your Schools Suit You," in this paper.—Editors.)

The subject "How to Have a Garden," was discussed by Clara Wall. First, Selection of seed; second, location not too far from the house; third, everything in rows, making care easier either with horse or wheel hoe; fourth, have a variety of products—everything that is good and that will grow, to use while fresh.

E. M. D. made the suggestion that ground should be prepared the fall before. Some disscussion of the cause of the rotting of onions. Generally ascribed to wet season. Question of sowing clover seed. Those who have soil full of humus and limed favor sowing in March when ground is honeycombed by frost. If not in such good condition, it was thought better to prepare later with harrow and cover with that or weeder. Program for next meeting good and should keep up interest.—W.

CO-OPERATION IN YORK COUNTY

For quite a number of years York County has been the banner institute county in the state and Red Lion, York County, during the past few years has not only had the honor of holding the greatest institute in the county but the entire state as well. This year the Red Lion institute was held on February 18 and 19. The largest attentance at a single session was fifteen hundred people, with a total attendance of over forty-three hundred for the five sessions. Altho this is a wonderful institute and has always been largely attended, its effect upon the community is what I wish to bring out. Because of the great interest taken and as an outgrowth of the institutes, a small farmers' association was formed three years ago. At that time, in order to accommodate the people who wished to attend the institutes it was necessary to rent two halls. Their next step, therefore was to secure a larger hall. A stock company was formed and a twenty-two thousand dollar auditorium was built with a seating capacity of about fifteen hundred. This is the finest hall that I have ever seen in any rural district in Pennsylvania and it will mean much to the people of Red Lion. At our last meeting this hall was crowded to the doors.

They next started a Fair Association and altho there are four other fairs held in York County, they have cleared twelve hundred dollars in two years and the future looks very bright. Last June a charter was taken out by the Farmers' Association and they formed a stock company with a capital of five thousand dollars which is known as the Red Lion Farmers' Co-operative Association. The dues of the association are one dollar a year and at present they have a manager and a board of seven directors and are working on a five percent commission. This five percent is used to pay the running expenses of the association and the interest in their stock. On their first year's earnings they will be able to pay a six percent dividend and still have a surplus of over one thousand dollars. They are buying almost everything that the farmer needs and are saving a great deal of money. Last year on fertilizer alone the association was able to save the farmers of the community seventy-five dollars. They have thirteen shipping points in the county and are now getting ready to take up the selling end of the business and dispose of the potatoes and other crops grown by their members. However, they are not merely paying attention to the increasing of their finances but they are improving the social conditions as well. Meetings are held once or twice a month, a program is rendered, the farmers mingle with each other, become better acquainted and broaden out on every hand. Each month a little paper is printed by the association which keeps the members in touch with conditions. The prices of the different materials in which they are dealing are given, the dates of delivery, together with other very interesting articles pertaining to the farmer and his family.

This is merely one of the many associations in York County. I think this county has more good farmers' organizations than any other county in the state and this is one of the main reasons why it is the leading institute county. First, the Farmers' Institutes started and made possible the organizations and now the organizations are making the institutes.

What is possible in York County is possible in every other county in southeastern Pennsylvania. The extreme northern and southern parts of the county have been settled by the Scotch-Irish but the remainder of the county, like other southeastern counties, is settled by the Pennsylvania Germans. We people of German decent are sometimes hard to get started, but when we do start we usually get what we are after.

We hear very much these days about the forming of Rural Uplift societies in the city, to help the farmer. The farmer of to-day doesn't want help from the city nearly as badly as he wants a chance to help himself. One association like the Red Lion Club does more good for the farmer than all the up-lift societies in the country and we would have more like it to-day if it were not for the fact that as soon as one is started, a great many fellows in that community start out to kill it. The farmers are the most un-organized men in the country and conditions must be changed before we will get what belongs to us. It means a hard fight, but with several good leaders in the community and plenty of stick-to-it-ive-ness, it can be done.—Sheldon W. Funk.

Corn and cowpeas grown together experimentally in Missouri have shown that when between the rows or in the rows of corn the nitrates of the soil are not greatly reduced below the amounts present when these crops are grown separately. Cowpeas grown with corn do not seriously draw on soil moisture, altho more water is used than in the case of corn alone. The average height of corn plants is reduced about a foot when grown with cowpeas, but the number of leaves on the corn is greater at the time of harvest than where corn is grown alone. The yield of grain is slightly decreased when cowpeas are grown with the corn.—K.

The Borrowing Value of Life Insurance Policies

By Bruce D. Mudgett

The statement was made in a previous article of this series that any policy on which a reserve is created combines protection and investment. The reserve represents the investment portion of the policy. Briefly considered, it is that amount of the money received as premiums which is in excess of the cost of protection. To illustrate: If at a particular age men die at the rate of 10 per 1,000; that is, of a thousand alive at the beginning of the year, ten will die by the close, then a policy which promises $1,000 upon death within the year will cost each insured person $10, for at the close of the year the 10 deaths will represent a liability of $10,000, and this will require a payment of $10 from each of the 1,000 insured. To simplify the illustration, interest earnings on the premiums are neglected. If a premium of $10 is charged for this policy the entire amount will be required to pay losses at the end of the year, but, if the insured should make an initial payment of $50, the company will, at the close of the year, have an excess fund of $40 per policyholder after insurance losses have been paid. For this excess the insurance company should be required to give an accounting. By the law of the several states this fund, known as the reserve, is held in trust for the policyholder and the whole, or a large portion of it, must be returned if he desires to cancel his contract.

Since the reserve represents premium accumulations that have not been used to satisfy past claims for insurance payments, its amount will vary with the amount of the premium. It follows, therefore, that reserves on ordinary life policies, 20-premium life policies and 20-year endowments will differ. The following table shows reserves held on these three policies at stated years during their continuance. These figures are based on mortality rates used by all American companies for their premium calculations, and are predicated on the assumption that 30 percent interest will be earned. The table shows, for example that at the end of 20 years the endowment matures for $1,000; the 20-payment life has a reserve of $609.92 while the reserve on the ordinary life is but $327.58.

The amounts shown in this table for any year represent the excess premium accumulations on the several policies up to that time and form the basis of any return made to the policyholder in case he discontinues his insurance.

Two types of investment have been

(Concluded on page 23.)

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Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., April 10, 1916.

High prices which prevailed in the potato market until ten days ago brought large quantities to this city and a reaction resulted. From 150 to 175 cars have been on the tracks daily during the last week, the large proportion of which were from the West. Seed stock has suffered more from the changed condition than the table stock and local growers and dealers are in no haste to secure their seed. It is believed that the surplus stock now on the tracks of all the large eastern markets will clean out at the reduced figures and there will be a slight advance evidenced within another week.

An occasional car of potatoes has been received here from Florida and in about one week the shippers expect carlots to begin from the Hastings sections. Such fact means that within two weeks there should be an ample supply of Florida potatoes received on all of the northern markets. At the present writing this stock is selling at $6.50 to $7.50 per barrel for number one grades and $5 to $6 per barrel for the second grades.

Fancy Pennsylvania potatoes are scarce and sell readily at $1.25 to $1.35 per bushel; York State stock is dull at $1.10 to $1.15 per bushel. Western potatoes are mostly packed 150 pounds to the sack and are moving slowly at $2.85 to $3 per bag. The principal sales in seed stock are from $3.75 to $4.50 per sack.

Sweet potatoes or desirable quality and size are in continued light supply and sell at 50 to 60 cents per ⅝ bushel basket, and 80 and 90 cents per hamper.

Vegetables

Of the 41 cars of onions on the tracks at the beginning of the day only seven were unloaded. Receipts are increasing and the accumulations are one or two additional cars daily. There is a slightly improved demand altho not sufficiently increased to warrant advancing prices. One car from the Connecticut Valley sold at $1.50 @ $2.00 per bag. The Texas stock in cummer crates sold at $1.25 to $1.35 for the best grade of yellows and 85 cents to $1.10 for the No. 2 grade. White stock brought from 15 to 25 cents per crate more than the Yellows. Heavy receipts from Texas have spoiled the expectations of the New York State growers and their stock is selling at the loading stations at $1.50 to $2 per 100-lb. bag, where two weeks ago from 50 cents to $1 above these prices was refused.

Near-by growers in Maryland, Delaware and Pennsylvania have been flooding the market in the last week with bunch onions or scullions. Receipts were so heavy on Thuraday that sales were made at 75 cents to $1 per crate of 400 bunches. On fancy stock as high as $1 per hundred bunches has been received, altho the average sales have been from 60 to 75 cents per hundred.

Holdings of cabbage thru New York State are reported large and the markets are receiving an ample supply. The quality is only fair and sales are ranging from $10 to $15 per ton, with only limited quantities of fancy stock bringing full quotations. Southern cabbage is in heavier receipt, Florida stock selling at 65 to 75 cents per hamper and South Carolina, at $1 to $1.35 per crate.

Fresh vegetables have evidently supplanted root stocks as the demand and prices would indicate. Carrots are draggy at $2.75 per barrel; beet at $2; parsnips, 85 cents; white turnips, $1.50; rutabagas, $2.50 to $2.75.

Southern Vegetables

This stock has been in large percentage poor quality during the past month, due in part to a continued drouth thru the month of March. The quality during this month has shown considerable improvement and has created a greater interest in the market. Lettuce has been in light supply and Florida hampers sold in the past week as high as $7 and Louisanna lettuce at $10 per barrel. Green beans are scarce and sold at $3.50 to $4 per basket last week, today they are going out at $2.50 to $3.50. Rhubarb from California is arriving heavily and selling at 80 cents to $1 per bushel box which contains from 74 to 104 stalks.

Other southern receipts are selling as follows: Florida peas, $4 to $6 per basket; peppers, $2 to $3 per crate; eggplant, $2 to $2.50 per crate; beets, $1 to $1.25 per crate; South Carolina asparagus, choice $2 per crate of one dozen bunches; fancy $2.50 to $2.75; extra fancy $3 to $3.50. California and Georgia asparagus sold at similar figures.

Florida celery is draggy at prices ranging from $1.50 to $2.25 per crate. Tomatoes are finding good demand with supplies ample for the trade. Fancy stock sold today at $1.75 to $2 per carrier, choice, $1.40 to $1.65.

Fruits

The Government report just issued shows that there are 43.9 percent more apples in cold storage on April first this year than were held on April 1, 1915. The barreled apple holdings show an increase of 68.9 percent over those of a year ago and the boxed apple holdings are 6.4 percent below those of last year. In this state there were reported on April first 30.2 percent of the holdings which were in storage December first.

In the last week there was a decline in price and in demand for the first three days with a more steady market at the close. York State Greenings sold at $2.25 to $3; Baldwins, $2.75 to $3.50; Russets, $2.50 to $3.25; Ben Davis, $1.75 to $2.25; Ganos, $2 to $2.75. Western boxed apples showed improvement and sold at $1.50 to $2.

Poultry

The live poultry market has been brisk with fair demands of the Jewish holidays and supplies have been light. Prices on fowl stand about one cent higher than quoted last week with stock finding greater request. Fancy large fowl sold today at 19 to 20 cents; roosters, 12 to 13 cents; spring chickens, soft meated, 19 to 20 cents; ducks, 18 to 20 cents; geese, 17 to 18 cents.

Dressed poultry is in firm demand with offerings light and fowl one-half cent advanced over the prices of last week. Fancy selected, fresh killed dry-picked and dry-packed fowl sold at 18¼ to 21½ cents per pound, smaller sizes sold at 17½ to 18½ cents. Old roosters, dry-picked, sold at 16 cents; fancy Jersey broilers sold at 50 to 55 cents, and stock averaging two to three pounds per pair sold at 40 to 45 cents per pound. Fancy young hens and tom turkeys reached a new record price of the season selling at 32 to 33 cents per pound; fair to choice stock sold at 25 to 30 cents and old toms, 25 cents. Spring ducks are selling at 28 to 30 cents.

Eggs

Receipts are more liberal but with the present demand supplies are well under control. Quotations today are almost identical with those of one week ago. Near-by extras in free cases, 26 cents; near-by firsts, 22½ cents; near-by current receipts, 22 cents; Western extras, 24 to 25 cents; extra firsts, 22½ cents; firsts, 22 cents. Fancy selected candled fresh eggs jobbed at 27 to 29 cents per dozen.

—Selmarad.

NEW YORK PRODUCE

New York City, April 10, 1916.

Slightly better tone in butter market and better trading. A car of California butter is in by freight, another on the way. Cheese market firm on high grades. Eggs are firm. Few as yet put into storage. Exceedingly light receipts of poultry. Old potatoes in liberal supply and prices weak. New ones selling at $6 to $8 per barrel. Apples, Greenings in good demand. Red apples weak.

Butter. — Creamery extra, (92 score) per pound, 36½c; higher score, 37½c; thirds to firsts, 32@36c; state dairy, 30@36c; packing stock, 22@25c.

Cheese. — Whole milk specials, 18½@18¾c; daisies, 18@18½c; skims, 14@17c.

Eggs. — Fresh gathered, extra, 23@24c; dirties, 19c; nearby whites, fine to fancy, 25@26c dozen; ordinary to good, 22@24c; browns, 23@25c.

Dressed Poultry.—Philadelphia and Long Island, fancy, 3 to 4 pounds to pair, 45@50c; Philadelphia fancy roasters, 25@28c. Fowls, 16@19c; old roosters, 15c; squabs, $2.50@5.25 dozen Spring ducks, per pound 28c. Turkeys, dry picked, 33@34c.

Apples.—These prices show the range from "B" to "A". York Imperial, barrel, $2.25@3.50; Winesap, barrel, $2.25@4.50; Greening, barrel, $2@3.25; King, bbl., $2@3.25; Northern Spy, $2@4; Baldwin, bbl., $2@3.25; Hubbardston, bbl., $2@2.50; Ben Davis and Gano, bbl., $1.50@3.

Vegetables. — Beets, per bbl., 75c@$1.25. Carrots, bbl., $1.75@2.25. Cabbage, Danish, ton $6@10. Turnips, bbl., $1@1.25. Onions, yellow, $2@2.75 bag. Squash, Hubbard and Marrow, $1.75@2 bbl. Potatoes, Pennsylvania, $3.50@3.75. Long Island, $4.25 per bag. Sweets, 60c@$1 per basket.

Country Dressed Veals.—

Choice,	14½ @15
Prime	13½ @14
Fair to good	12½ @13
Coarse, heavy	12½ @13
Common	11 @12
Buttermilks,	10¼ @11
Grassers	9½ @10

YORK PRODUCE MARKETS

York, Pa., April 10, 1916.

Altho one of the heaviest snows of the year was falling on Saturday afternoon, the two city markets were crowded for two hours with buyers, giving one of the best markets experienced for this season of the year, which is one of the dullest from the truck-farmer's standpoint. Last year's produce is about exhausted, and this season's has not come yet. Eggs are advancing on account of the Easter holiday; other lines are as usual.

Eggs.—20@22c per dozen.

Butter.—Country, 30@34c lb; separator, 32@35c lb. Milk, 6c quart.

Poultry.—Scarce—Hens, 16@17c; dressed, 50c@$1.25 each.

Vegetables.—Cabbage, 5@10c a head. Potatoes, 12@18c ½-pk.; $1 to $1.25 per bu; new, 60c ½-pk. Lettuce, 5@10c head. Beets 4@5c bunch. Radishes, 4@8c a bunch. Onions, 3@5c bunch; 10@12c ½-pk. Lima beans, 16@18c quart. Soup beans, 10@15c quart. Lard, 13@15c lb. Turnips, 8@10c ½-pk. Sauer kraut, 6@8c quart. Spinach, 15@18c ½-pk.

Fruit.—Apples, 15@30c ½-pk; 75c to $2 per bushel. Pears, 12@15c ½-pk. Strawberries, 35@45c a box.

Retail Grain Market.—Wheat, $1.16; corn, 85c; oats, 60c; rye, 90c; bran, $1.45 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.08; corn, 73c; oats, 50c; rye, 80c; bran, $27 per ton; middlings, $32 per ton.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., April 10, 1916.

Receipts for the week ending Saturday evening, April 8:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	2,842	5,215	6,835
Previous week	3,283	6,555	6,132

Calves. — Total receipts of calves for this week were 1,711 against 1,516 last week.

Beef Cattle.—In touch with outside conditions the market closed quite firm, with a stronger tendency on all satisfactory cattle. Outside of Pennsylvania brands, Ohio and Western offerings, only in moderate supply were in evidence. Trade was normal. Bulls, cows and calves that were desirable realized full prices.

Best steers	$9.00@9.15
Choice	8.75@8.90
Good	8.50@8.75
Medium	8.00@8.25
Common	7.50@7.75
Bulls	5.50@7.50
Fat cows	5.00@7.00
Thin cows	3.00@4.25

Veal Calves.—

Exceptional lots	$11.00@
Good to choice	10.00@10.50
Medium	8.50@ 9.00
Common	7.00@ 8.00
Southerns and barnyards	5.00@ 6.50

Sheep and Lambs.—The market was steady all along the line, under decreased arrivals, which worked a firm feeling on topmost grades. Demand was fairly seasonable.

Wethers, extra,	$9.00@ 9.25
Choice	8.50@ 8.75
Good	7.75@ 8.00
Medium	7.00@ 7.25
Common	5.00@ 6.00
Ewes, heavy, fat,	7.00@ 8.00
Lambs, extras	11.75@12.00
Good to choice	11.25@11.50
Medium	10.00@10.25
Common	8.00@ 9.00
Hothouse, apiece	6.00@ 8.00

Hogs.—There was a shade of additional strength predominating, with shipments under good control. Westerns, $11 gross weight; $13.75 net weight.

City Dressed Stock.—Steers, heifers, cows and hogs were revised a fraction upward, and all high-grade meats commanded full values, with inquiry about normal.

Steers	11 @14½
Heifers	10½ @13½
Cows	8 @12
Veal calves	14 @15
Extra calves	16 @
Southerns and barnyards	10 @13
Country dressed	13 @14
Extras	15 @
Sheep	14 @15
Extra wethers	16 @
Lambs	17 @18
Extra lambs	19 @
Hogs	14 @

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., April 10, 1916.

Cattle.—The supply on sale was 90 loads compared with 75 loads last week. With a little more liberal supply on sale and lower prices. West the week before our market ruled steady to 10c lower. The choice fat cattle with weight sold at steady prices, while the light and medium grades ruled about 10c lower. Fat cows in fair supply and sold a little easier on the medium and best grades, while the common grades ruled steady. Heifers in fair supply and sold about steady. Bulls in liberal supply and sold lower. Best Bulls in liberal supply to strong. Medium grades fresh cows steady to strong. Medium grades and springers slow. Today's cattle supply totaled 80 loads. Demand fair while market was fairly active with general prices steady to strong.

Good to choice	$9.25@9.65
Good, 1300 to 1400 lb.	9.00@9.25
Medium to good, 1200 to 1300 lb.	8.10@8.90
Tidy, 1050 to 1150 lb.	8.15@8.75
Fair to medium, 1000 to 1100 lb.	7.50@8.25
Fair, 900 to 1000 lb.	6.75@7.50
Common, 700 to 900 lb.	5.50@6.25
Rough, half-fat, 1000 to 1300 lb.	6.25@7.25
Common to good fat oxen	4.00@6.75
Common to good fat bulls	4.25@7.75
Common to good fat cows	4.25@7.25
Heifers, 700 to 1100 lb.	4.75@8.25
Bologna cows	3.75@4.40
Fresh cows and springers	$25@85

Calves.—Receipts of calves fair and market closed 75 cents per cwt. above Monday's prices. There were 500 head of calves received today; market active and higher.

Veal calves	$8.50@10.75
Heavy and thin calves	5.00@ 7.00

Hogs.—The supply on sale this week has been fair and with a little better demand the market ruled more active with firmer prices, the better weight grades having the best call; pigs slow. There were 40 double-deck loads of hogs received today; market 10c lower than Saturday.

Prime heavy	$10.10@
Heavy mixed	10.10@
Prime medium weights	10.10@
Best heavy Yorkers	10.10@
Light Yorkers	9.50@
Good pigs	8.90@9.00
Common to good roughs	8.75@9.00
Stags	7.00@7.25

Sheep and Lambs.—The supply of sheep and lambs has been fair during the week. The market has ruled steady on sheep and 25c per cwt. lower on lambs. Spring lambs ruled steady. Six double-deck loads of sheep and lambs were on hand today; market active and higher on sheep, but slow to steady on lambs.

Prime wethers (clipped)	$7.60@ 7.75
Good mixed (clipped)	7.00@ 7.40
Fair mixed ewes and wethers	7.00@ 8.25
Clipped sheep	6.00@ 6.75
Wooled sheep	5.50@ 9.25
Culls and common (clipped)	3.50@ 5.00
Spring lambs	10.00@16.00
Clipped lambs	6.00@ 9.75
Wooled lambs	7.00@11.75
Culls to choice yearlings	6.00@ 9.50

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., April 10, 1916.

Hay and Straw.—Receipts of hay are light and prices have advanced a full dollar above last week's quotations. The market is firm at the new price basis and some sales run even higher. Straw is less active but is steady at quotations.

Grains.—Wheat shows a slight decline under lagging export interest and only fair domestic trade. The price fell off 2 cents per bushel this morning. The corn market is quiet without important changes. Oats hold steady with light offerings and comparatively little trading.

Hay.—No. 1 timothy, medium bales, $22.50@23; No. 2 do., $20@21; no grade, $10@14. Light mixed clover, $20@20.50; No. 1 do., $19.20@20. No 2 do., $16.50@17.50.

Straw.—No. 1 straight rye, $13@13.50; No. 2 do., $12@12.50; No. 1 tangled rye, $11.50@12; do., No. 2 $10.50@11. No. 1 wheat straw, $10@10.50; No. 2 do., $9@9.50. No. 1 oat straw, $10@10.50; No. 2 do., $8.50@9.

Wheat.—No. 2 red, $1.15@1.18; No. 3 red, $1.15@1.18; rejected A, $1.12½@1.15½; rejected B, $1.11@1.14.

Corn.—No. 2 yellow western, 81½@82c; steamer yellow, 79½@80½c; western, No. 3 76½@77½c; No 4 yellow, 81½@82c; ear corn, 79@79½c per 70 pounds.

Oats.—No. 2 white, 51½@52c; No. 3 do., 49@50c; No. 4 do., 47½@48½c; standard white, 50@51c; sample oats, 43½@44½c.

Feed.—Winter bran, 100-lb. sacks, $25.50@26; spring bran, do., $23.50@24.

Flour.—Car lots, winter clear, $5.10@5.35; straight, $5.40@5.70; patent, $5.75@6.00. City mills, choice to fancy patent, $6.60@6.90; do., regular grades, $5.10@5.35. Rye flour, $5@5.50 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., April 10, 1916.

Hay.—Receipts continue extremely light, likewise billings in transit. All arrivals are readily taken up at market prices. Good mixed hay is also much in demand and will bring top prices. No. 1 timothy, $21.75@22.25; No. 2 timothy, $19@20.50; No. 3 timothy, $16@17.50; No. 1 light mixed, $19@19.50; No. 1 clover mixed, $16.50@17.50; No. 2 clover mixed $14@15.50; No. 7 clover $14.25@14.75; No. 2 clover, $9@12; No. 3 prairie, $11.75@12.25; No. 4 prairie, $9.25@9.75.

Straw.—Better feeling on straw, a little more demand and lighter receipts. No. 1 oat, $8.25@8.50; No. 2 oat, $7.25@7.50; No. 1 wheat, $8.25@8.50; No. 2 wheat, $7.50@7.75; No. 1 rye, $9.50@10; No. 2 rye, $8@8.50.

Ear Corn.—Good demand for good, sound, dry, ear corn with very light arrivals. Market strong. New stock. No. 2 yellow, 79½@80½c; No. 3 yellow, 73@76c; No. 2 high mixed, 76@77c; No. 2 mixed, 74@75c.

Oats.—Receipts light, market firm; prices advancing. No. 2 white, 49½@50c; Standard, 48½@49c; No. 3 white, 47@47½c; No. 4 white, 45@46c; Rejected, 40@44c.

NEW YORK HAY AND GRAIN

New York City, April 10, 1916.

Hay and Straw.—The hay market is without important change. At the leading harbor markets top qualities of timothy hay are very scarce and the price holds steady to firm. Lower grades are somewhat easier. Outside quotations are full on lower grades at out-of-the-way stations. Heavy mixed clover is very slow sale and clear clover is not wanted. Rye straw is scarce and higher.

Grains.—The wheat market is influenced primarily by conditions of the growing crop just at this time. Improved crop conditions caused a break of 2½ cents per bushel in price. Wheat appears to have suffered worst from winter injury in the Central West. The eastern states are generally above the average of a year ago. It is expected that area abandoned in the soft wheat states will be considerably above that of last year. The foreign situation does not promise much for the immediate wheat trade. Corn holds about steady with only a moderate demand. Oats hold up well with a fair cash demand.

Hay.—Large bales.—No. 1 timothy, $27@28. No. 2, $25@26; No. 3 $21@22.50; fancy clover, light mixed, $25@26; No. 1, $21@23; No. 1 clover, clear, $19@20.50.

Straw.—Per ton, No. 1 rye, $16@17; do., No. 2, $14@15; oats straw, $10.

Wheat.—No. 1 Northern, $1.41⅝; No. 2 $1.28⅝; No. 2 hard winter, $1.29⅝.

Corn.—No. 2 yellow, 85¼@85¾c; No. 3 yellow, 84¾c.

Oats.—No. 3 white, 50@50½c; No. 4, 49@59½c. Ordinary to fancy, 50@50½c.

Rye.—$1.05.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $22.85. Standard middlings, $24.25; flour, do., $28 to arrive. Red dog, to arrive, 140-pound sacks $31.50@32. Oil meal, $35.50@36. City feed bulk bran, $23. Heavy feed in bulk, $24. Red dog, $33. Flour middlings, $32.50.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., April 10, 1916.

There is a decline of 1 cent per pound on butter from the quotations of last week. Receipts continue rather light and the market rules firm at the decline. There is a fair demand that keeps supplies well cleaned up. Offerings of under grades are not equal to requirements. Ladles are in light supply and firm. Prints are also firm with receipts closely cleaned up. The cheese market is quiet but steady under light offerings.

Butter.—Solid packed creamery, fancy specials, 39c; extras, 37c; extra firsts, 36½c; firsts, 35@36c; seconds, 35@35½c; ladle packed, 26@27c; nearby prints fancy, 40c; average extras, 39c; do., firsts, 37@38c; do., seconds, 35@36c; special fancy brands of prints, 43@46c.

Cheese.—New York, full cream fancy, 18¾@19c; fair to good, held, 18@18½c; do., part skims, 11@16c.

GRASS SEED MARKET

Toledo, O., April 10, 1916.

Cloverseed.—Prime cash, $10.10; April, $9.15; October, $8.70. Alsike.—Prime cash and April, $9.35. Timothy.—Prime cash and April, $3.50.

ELGIN BUTTER MARKET

Elgin, Ill., April 8, 1916.

Butter sales today were made at 35 to 36 cents per pound, a majority at 36 cents. Sixty tubs sold at 36 cents; 50 tubs at 35 cents.

NEW YORK MILK MARKET

New York City April 10, 1916.

The market is dull for the season. Receipts of cream show an increase of nearly 700 cans over those of the previous week. The coming of warmer weather is already having some effect upon the demand. The market value is a shade under 3½ cents a quart for Grade B in the so-called 26-cent zone.

The receipts of milk and cream in 40-quart cans for the week ending April 8, were as follows:

Railroad	Milk	Cream
Erie	45,390	2,291
Susquehanna	8,849	475
West Shore	14,699	795
Lackawanna	60,790	1,910
N. Y. Central (long haul)	93,841	2,479
N. Y. Central (short haul)	22,810	43
Ontario	42,925	3,622
Lehigh Valley	39,775	1,395
Homer Ramsdell Line	3,810	40
New Haven	6,487	14
Pennsylvania	8,190	230
Other sources	1,250	30
Totals	348,816	13,324
Same week last year,	331,464	10,134

CHICAGO HORSE MARKET

Chicago, Ill., April 10, 1916.

Horses were plentiful and active last week at firmer prices, with army horses comprising a large share of the offerings and selling briskly. Light southern chunks were taken at $55@100, farm workers at $75@125, farm mares at $140@190, wagoners at $170@225 and drafters at $230@315.

TOBACCO MARKET

Reports tell of the sale of small holdings in widely separated localities at prices quite satisfactory and perhaps higher than could have been realized at any past time. Especially is this true of the holdings of old crops, some of which is still in the hands of growers. There are growers who have the product of two, three and even four years, and many of those are selling out and for more than would have been possible heretofore. Packers, too, are finding considerable demand for their unfortunately meagre holdings, but with them business will be dull upon the whole as they got so small an amount of last year's product. That buyers are not without their trouble is indicated by the reported prevalence of more than a usual amount of rot which, they say, is not a practical loss in tobacco that cost $10 and 3 per cwt. The increased movement has been especially satisfactory with reference to the inferior and long sunned residue of the crop of 1909, which is now being taken at prices that will come nearer letting holders out than had been expected. This inferior tobacco is being taken mainly by exporters and will be used for the large armies now in the field. Prices have risen from $6 and 7 to $10@10.50 per cwt, and some holders are asking $11@12. In the general market there was more or less stagnation owing to uncertainties attending the existing British embargo. It is a situation characterized by an abnormal demand which is more or less curbed by belligerent conditions. When matters are straightened out the whole industry will experience a period of unusual if not unprecedented prosperity.—H. F. Wood, April 10, 1916.

The Fur Bringers

By Hulbert Footner

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CHAPTER VII (Concluded).

Mr. Gaviller did not mince matters. He did not want Ambrose to prolong or repeat his visit, and he plainly told him so.

Ambrose frowned. "If you were a younger man—" he began.

"You need not consider my age," said Gaviller.

Ambrose measured his man. He had to confess he had good pluck. The idea of a set-to with Colina's father was unthinkable. There was nothing for him to do but swallow the affront. He bethought himself of using a little guile.

"Why shouldn't I come here?" he demanded.

"I don't like the way you and your partner do business," said Gaviller.

There was nothing to be gained by a wordy dispute, but Ambrose was only human. "You are sore because we smashed the company's monopoly at Moultrie," he said.

"Not at all," said Gaviller calmly. "The trade is free to all. What little you have taken from us is not noticeable in the whole volume. But you have deliberately set to work to destroy what it has taken two centuries to build up—the white man's supremacy. You breed trouble among the Indians. You make them insolent and dangerous."

"Company talk," said Ambrose scornfully. "A man can make himself believe what he likes. We treat the Indians like human beings. Around us they're doing well for the first time. Here, where you have your monopoly, they're sick and starving!"

"That is not true," said Gaviller coolly. "And, in any case, I do not mean to discuss my business with you. I deal openly. You had the opportunity to do my daughter a slight service. I have repaid it with my hospitality. We are quits. I now warn you not to show your face here again."

"I shall do as I see fit," said Ambrose doggedly.

"You compel me to speak still more plainly," said Gaviller. "If you are found on the Company's property again, you will be thrown off."

"You cannot frighten me with threats," said Ambrose.

"You are warned!" said Gaviller. He strode off to his house.

CHAPTER VIII

In Ambrose's Camp

Ambrose was awakened in his mosquito-tent by an alarm from Job. The sun was just up, and it was therefore no more than three o'clock. A visitor was approaching in a canoe.

In the North a caller is a caller. Ambrose crept out of his blankets and, swallowing his yawns, stuck his head in the river to clear his brain.

The visitor was a handsome young breed of Ambrose's own age. Ambrose surveyed his broad shoulders, his thin, graceful waist and thighs approvingly. He rejoiced in an animal built for speed and endurance. Moreover, the young man's glance was direct and calm. This was a native who respected himself.

"Tole Grampierre, me," he said, offering his hand.

Ambrose grasped it. "I'm Ambrose Doane," he said.

"I know," said the young breed. "Las' night I go to the store. The boys say Ambrose Doane, the free-trader, is camp' down the river. So I talk wit' my fat'er. I say I go and shake Ambrose Doane by the hand."

"Will you eat?" said Ambrose. "It is early."

"When you are ready," answered Tole politely. "I come early. I go back before they get up at the fort. If old man Gaviller know I come to you it mak' trouble. My fat'er he got trouble enough wit' Gaviller."

Tole squatted on the beach. There is an established ritual of politeness in the North, and he was punctilious.

"You are well?" he asked gravely.

Ambrose set about making his fire. "I am well," he said.

"Your partner, he is well?"

"Peter Minot is well."

"You do good trade at Lake Miwasa?"

"Yes. Marten is plentiful."

"Good fur here, too. Not much marten; plenty link."

"Your father is well?" asked Ambrose in turn.

"My fat'er is well," said Tole. "My four brot'ers well, too."

"I am glad," said Ambrose.

More polite conversation was exchanged while Ambrose waited for his guest to declare the object of his visit. It came at last.

"Often I talk wit' my fat'er," said Tole. "I say there is not'ing for me here. Ole man Gaviller all tam mad at us. We don't get along. I say I t'ink I go east to Lake Miwasa. There is free trade there. Maybe I get work in the summer. When they tell me Ambrose Doane is come, I say this is lucky. I will talk wit' him."

"Good," said Ambrose.

"W'at you t'ink?" asked Tole, masking anxiety under a careless air. "Is there work at Moultrie in the summer?"

Ambrose instinctively liked and trusted his man. "Sure," he said. "There is room for good men."

"Good," said Tole calmly. "I go back wit' you."

Ambrose had a strong curiosity to learn the situation at Fort Enterprise. "What do you mean by saying old man Gaviller is mad at you?" he asked.

"I tell you," said Tole. He filled his pipe and got it going well before he launched on his tale.

"My fat'er, Simon Grampierre, he is educate'," he began. "He read in books, he write, he spik Angleys, he spik Franch, he spik the Cree. We are Cree half-breed. My fat'er's fat'er, my mot'er's fat'er, they white men. We are proud people. We own plenty land. We live in a good house. We are workers.

"All the people on ot'er side of the river call my fat'er head man. When there is trouble all come to our house to talk to my fat'er because he is educate'. He got good sense.

"Before I tell you there is good fur here. It is the truth. But the people are poor. Every year they are more poor as last year. The people say: 'Bam-by old man Gaviller tak' our shirts! He got everyt'ing else.' They ask my fat'er w'at to do."

Tole went on: "Always my fat'er say: 'Wait,' he say. 'We got get white man on our side. We got get white man who knows all outside ways. He bring an outfit in and trade wit' us.' The people don't want to wait. 'We starve!' they say.

"My fat'er say: 'Non! Gaviller not let you starve. For why, because you not bring him any fur if you dead. He will keep you goin' poor. Be patient,' my fat'er say. 'This is rich country. It is known outside. Bam-by some white man come wit' outfit and pay good prices.'

"Always my fat'er try to have no trouble," continued Tole. "But old man Gaviller hear about the meetings at our house. He hear everyt'ing. He write a letter to my fat'er that the men mus' come no more.

"My fat'er write back. My fat'er say: 'This my house. This people my relations, my friends. My door is open to all.' Then old man Gaviller is mad. He call my fat'er mal-content. He tak' away his discount."

"Discount?" interrupted Ambrose.

Tole frowned at the difficulty of explaining this in English. "All goods in store marked by prices," he said slowly. "Too moch prices. Gaviller say for good men and good hunters he tak' part of price away. He tak' a quarter part of price away. He call that discount. If a man mak' him mad he put it back again."

The working out of such a scheme was clear to Ambrose. "Hm!" he commented grimly. "This is how a monopoly gets in its innings."

"Always my fat'er not want any trouble," Tole went on. "Pretty soon, I t'ink, the people not listen to him no more. They are mad. This year there will be trouble about the grain. Gaviller put the price down to dollar-fifty bushel. But he sell flour the same."

"Do you mean to say he buys your grain at his own price, and sells you back the flour at his own price?" demanded Ambrose.

Tole nodded. "My fat'er the first farmer here," he explained. "Long tam ago when I was little boy, Gaviller come to my fat'er. He say: 'You have plenty good land. You grow wheat and I grind it, and both mak' money.'

"My fat'er say: 'I got no plow, no binder, no thresher.' Gaviller say: 'I bring them in for you.' Gaviller say: 'I pay you two-fifty bushel for wheat. I can do it up here. You pay me for the machines a little each year.'

"My fat'er t'ink about it. He is not moch for farm. But he t'ink well, some day there is no more fur. But always there is mouths for bread. If I be farmer and teach my boys, they not starve when fur is no more.

"My fat'er say to Gaviller: 'All right.' Writings are made and signed. The ot'er men with good land on the river, they say they raise wheat, too.

"After that the machines is brought in. Good crops is raised. Ev'rything is fine. Bam-by Gaviller put the price down to two-twenty-five. Bam-by he only pay two dollar. Tams is hard he say. Las' year he pay one-seventy-five. Now he say one-fifty all he pay.

"The farmers say they so poor now, might as well have nothing. They say they not cut the grain this year. Gaviller say it is his grain. He will go on their land and cut it. There will be trouble."

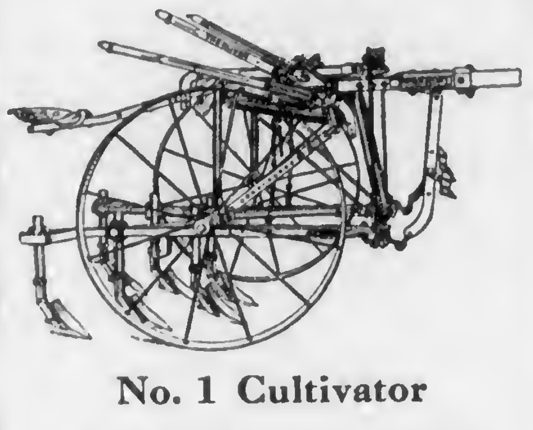
"This is kind of slavery!" cried Ambrose.

"There is more to mak' trouble," Tole went on with his calm air. "Three years ago Gaviller build a fine big steamboat. He say: 'Now, boys, you can go outside when you want.' He says: 'This big boat will bring us ev'rything good and cheap from outside.'

"But when she start it is thirty dollars for a man to go to the Crossing. And fifty cents for every meal. Nobody got so much money as that.

"It is the same to bring t'ings in. Not'ing is cheaper. Jean Bateese Gagnon, he get a big book from outside. In that book there is all t'ings to buy and pictures to show them. The people outside will send you the t'ings. You send money in a letter."

Oliver



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“Mail order catalogue,” suggested Ambrose.

“That is the name of the book,” said Tole. In describing its wonders he lost, for the first time, some of his imperturbable air. “Wa! Wa! All is so cheap inside that book. It is wonderful. Three suits of clothes cost no more as one at the Company store.

“Everyt'ing is in that book. A man can get shirts of silk. A man can get a machine to milk a cow. All the people want to send money for t'ings. Gaviller say no. Gaviller say steamboat only carry Company freight. Gaviller say: ‘Come to me for what you want and I get it—at regular prices.’ ”

“And this is supposed to be a free country,” said Ambrose.

“The men are mad,” continued Tole. “They do not'ing. Only Jean Bateese Gagnon. He is the mos' mad. He say he don' care. He send the money for a plow las' summer. All wait to see w'at Gaviller will do.

“Gaviller let the steamboat bring it down. He say the freight is fifteen dollars. Jean Bateese say: ‘Tak' it back again. I won't pay.’ Gaviller say: ‘You got to pay.’ He put it on the book against Gagnon.”

Tole related other incidents of a like character. Ambrose listened with ever mounting indignation. There could be no mistaking the truthful ring of the simple details.

Not only was Ambrose's sense of humanity up in arms, but the trader in him was angered that a competitor should profit by such unfair means. With a list of grievances on one side and unqualified sympathy on the other, the two progressed in friendship.

They breakfasted together, Job making a third. Ambrose found himself more and more strongly drawn to the young fellow. He was reminded that he had no friend of his own age in the country. Tole, he said to himself, was whiter than many a white man he had known.

Job, who as a rule drew the color-line sharply, was polite to Tole. Job was pleased because Tole ignored him. Uninvited overtures from strangers made Job self-conscious.

Tole and Ambrose, being young, drifted away from serious business after a while. They discussed sport. Tole lost some of his gravity in talking about hunting the moose.

Not until Tole was on the point of embarking did the real object of his visit transpire. “My fat'er say he want you come to his house,” he said diffidently.

“Sure I will,” said Ambrose.

Tole lingered by his dugout, affecting to test the elasticity of his paddle on the stones. He glanced at Ambrose with a speculative eye.

“Maybe you and Peter Minot open a store across the river and trade with us,” he suggested with a casual air.

Ambrose was staggered by the possibilities it opened up. He knew the idea was already in Peter's mind. What if he, Ambrose, should be chosen to carry it out? He sparred for wind.

“I don't know,” he said warily. “There is much to be considered. I will talk with your father.”

Tole nodded and pushed off.

CHAPTER IX

Lovers

Ambrose and Colina had had no opportunity the night before to arrange for another meeting. Ambrose stuck close to his camp, feeling somehow that the next move should come from her.

It was not that he had been unduly alarmed by her father's threat, tho he had a young man's healthy horror of being humiliated in the beloved one's presence.

But the real reason that kept him inactive was an instinctive compunction against embroiling Colina with her father. She had only known him, Ambrose, a day; she should have a chance to make sure of her own mind, he felt.

As to what he would do if Colina made no move, Ambrose could not make up his mind. He considered a night expedition to the fort; he considered sending a message by Tole. Either plan had serious disadvantages. It was a hard nut to crack.

Then he heard hoofs on the prairie overhead. His heart leaped up and his problems were forgotten. He sprang to the bank. Job heard the hoofs, too, and recognized the horse. Job hopped into the empty dugout, and lay down in the bow out of sight, like a child in disgrace.

At the sight of her racing toward him a dizzying joy swept over Ambrose; but something was wrong. She stopped short of him, and his heart seemed to stop, too.

She was pale; her eyes had a dark look. An inward voice whispered to him that it was no more than to be expected; his happiness had been too swift, too bright to be real.

He went toward her. “Colina!” he cried apprehensively.

“Don't touch me!” she said sharply.

He stopped. “What is the matter?” he faltered.

She made no move to dismount. She did not look at him. “I—I have had a bad night,” she murmured. “I came to throw myself on your generosity.”

“Generosity?” he echoed.

“To—to ask you to forget what happened last night. I was mad!”

Ambrose had become as pale as she. He had nothing to say. She stole a glance at his face. At the sight of his blank, sick dismay she quickly turned her head. A little color came back to her cheeks.

There was a silence.

At last he said huskily: “What has happened to change you?”

“Nothing,” she murmured. “I have come to my senses.” His stony face and his silence terrified her. “Aren't you a little relieved?” she faltered. “It must have been a kind of madness in you, too.”

He raised a sudden, penetrating glance to her face. She could not meet it. It came to him that he was being put to a test. The revulsion of feeling made him brutal. Striding forward, he seized her horse by the rein.

“Get off!” he harshly commanded.

Colina had no thought but to obey.

He tied the rein to a limb and, turning back, seized her roughly by the wrists.

“What kind of a game is this?” he demanded.

Colina, breathless, terrified, delighted, laughed shakily.

He dropped her as suddenly as he had seized her, and walked away to the edge of the bank and sat down, staring sightlessly across the river and striving to still the tumult of his blood. He was frightened by his own passion. He had wished to hurt her.

Colina went to him and humbly touched his arm.

“I'm sorry,” she whispered.

He looked at her grimly.

“You should not try such tricks,” he said. “A man's endurance has its limits.”

There was something delicious to Colina in abasing herself before him. She caught up his hand and pressed it to her cheek.

“How was I to know?” she murmured. “Other men are not like you.”

“I might have surprised you,” he said grimly.

“You did!” whispered Colina. The suspicion of a dimple showed in either cheek.

He rose. “Let me alone for a minute,” he said. “I'll be all right.” He went to the horse and loosened the saddle girths.

Colina could have crawled thru the grass to his feet. She lay where he had left her until he came back. He sat down again, but not touching her. He was still pale, but he had got a grip on himself.

“Tell me,” he said quietly, “did you do it just for fun, or had you a reason?”

“I had a reason.”

“What was it?” he asked in cold surprise.

“I——I can't tell you while you are angry with me,” she faltered.

“I can't get over it right away,” he said simply. “Give me time.”

Colina hid her face in her arm and her shoulders shook a little. It is doubtful if any real tears flowed, but the move was just as successful. He leaned over and laid a tender hand on her shoulder.

“Ah, don't!” he said. “What need you care if I am angry. You know I love you. You know I—I am mad with loving you! Why—it would have been more merciful for you to shoot me down than come at me the way you did!”

“I'm sorry,” she whispered. “I never dreamed it would hurt so much! I had to do it—Ambrose!”

It was the first time she had spoken his name. He paused for a moment to consider the wonder of it.

“Why?” he asked dreamily.

Colina sat up.

“I worried all night about whether you would be sorry to-day,” she said, averting her head from him. “I thought that nothing so swift could possibly be lasting. And then this morning father and I had a frightful row.

“I was starting out to come to you, and he caught me. He all but disowned me. I came right on—I told him I was coming. And on the way here I thought—I knew I would have to tell you what had happened.

“And I thought if you were secretly sorry—for last night—when you heard about father and I—you would feel that you had to stand by me anyway! And then I would never know if you really — So I had to find out first.”

This confused explanation was perfectly clear to Ambrose.

“Will you always be doubting me?” he asked wistfully. “Can't you believe what you see?”

She crept under his arm. “It was so sudden!” she murmured. “When I am not with you my heart fails me. How can I be sure?”

He undertook to assure her with what eloquence his heart lent his tongue. The feeling was rarer than the words.

“How wonderful,” said Ambrose dreamily, “for two to feel the same toward each other! I always thought that women, well, just allowed men to love them.”

“You dear innocent!” she whispered. “If you knew! Women are not supposed to give anything away! It makes men draw back. It makes them insufferable.”

“It makes me humble,” said Ambrose.

“You boy!” she breathed.

“I'm years older than you,” he said.

“Women's hearts are born old,” said Colina; “men's never grow out of babyhood.”

Her head was lying back on the thick of his arm.

“Your throat is as lovely—as lovely as pearl!” he whispered, brooding over her.

The exquisite throat trembled with laughter.

“You're coming out!” she said.

“I don't care!” said Ambrose. “You're as beautiful as—what is the most beautiful thing I know?—as beautiful as a morning in June up North.”

“I don't know which I like better,” she murmured.

“Of what?” he asked.

“To have you praise me or abuse m Both are so sweet!”

“Do you know,” he said, “I am wo dering this minute if I am dreamin Im afraid to breathe hard for fear waking up.”

She smiled enchantingly.

“Kiss me!” she whispered. “The are real lips.”

“Sit up,” he said presently, with sigh. “We must talk hard sense each other. What the deuce are we g ing to do?”

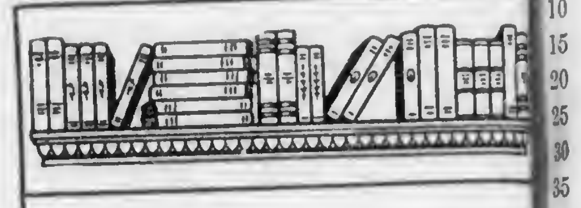
She leaned against his shoulder.

“Whatever you decide,” she sa mistily.

“What did your father say to you” asked Ambrose.

She shuddered. “Hideous quarr ling!” she said. “I have the tem of a devil, Ambrose!”

(To be continued.)



PIECES to SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

THE CHILDREN'S HOUR

By Henry W. Longfellow

Between the dark and the daylight,
When the night is beginning to low
Comes a pause in the day's occupati
That is known as the Children's ho

I hear in the chamber above me
The patter of little feet,
The sound of a door that is opened,
And voices soft and sweet.

From my study I see in the lamplight
Descending the broad hall stair,
Grave Alice and laughing Allegra,
And Edith with golden hair.

A whisper, and then a silence;
Yet I know by their merry eyes
They are plotting and planning togeth
To take me by surprise.

A sudden rush from the stairway,
A sudden raid from the hall!
By three doors left unguarded
They enter my castle wall!

They climb up into my turret
O'er the arms and back of my cha
If I try to escape, they surround me
They seem to be everywhere.

They almost devour me with kisses,
Their arms about me entwine,
'Til I think of the Bishop of Bingen
In his Mouse-tower on the Rhine.

Do you think, O blue-eyed banditti
Because you have scaled the wall
Such an old mustache as I am
Is not a match for you all?

I have you fast in my fortress,
And will not let you depart,
But put you down into the dungeons
In the round tower of my heart.

And there will I keep you forever,
Yes, forever and a day,
'Til the walls shall crumble to ruin,
And molder in dust away.

—Submitted by a number of readers.

THE BORROWING VALUE OF LIFE INSURANCE POLICIES

(Continued from page 19.)

distinguished in this series of articles. Investments may be made to provide for some definite future need, for instance, to care for one's self during old age or to create a fund to educate children. On the other hand, many men desire to save money with no definite purpose in mind, but to enable them to take advantage of unusual business opportunities that arise from time to time.

Reserves on Policies Issued at Age 35

Basis: American Experience Table, 3 percent

Years Elapsed since Issue of Policy.	Ordinary Life Policy.	Twenty Payment Life Policy.	Twenty year endowment Policy.
1	12.88	22.00	34.59
3	39.76	68.20	107.50
5	68.16	117.52	185.71
10	146.01	255.78	407.45
15	233.28	418.33	674.00
20	327.58	609.92	1000.00*
25	425.49	666.72	
30	522.92	723.24	
35	615.14	776.73	
40	698.21	824.93	
45	774.29	869.06	
50	844.01	909.51	
55	905.59	945.23	
60	949.79	970.87	
61	1000.00*	1000.00*	

*Policy matures at this time; i.e. reserve equals amount insured.

A necessary factor with the first type of investment is that money once set aside for such purposes should be put beyond the control of the investor. He should not allow himself the opportunity of withdrawing this money whenever he is in need of extra cash, for it might be lost or squandered and then the future need for which it had originally been set aside might never be provided for. Many persons, today, realizing the tempting opportunities for speculation which frequently arise, set aside certain amounts from their monthly income for the education of children or other like purposes, and put this money entirely beyond their control so there will be no possibility of using it in any way except for the purpose originally intended. It would be well if, when life insurance policies are used for investments of this kind, they could be put completely beyond the control of the purchaser so that under no circumstances could money so accumulated be withdrawn temporarily to be reinvested in a place where it might possibly be lost.

On the other hand, many men accumulate money at various times which they desire to have available at any time, to help a business thru a financial crisis, or to take advantage of unusual investment opportunities that frequently arise. Such accumulations may be held in stocks, bonds, or mortgages. They may be deposited in a bank, or invested in life insurance policies. If they are to be used to satisfy sudden demands, a necessary characteristic of the form in which they are invested must be ability to turn them quickly into cash. They must be what is known as a liquid asset.

The two types of investment in life insurance here referred to are to be distinguished by this characteristic. The one should not be liquid in any sense of the term while the other should be readily convertible into cash. This distinction is not recognized by life insurance companies in the investment contracts offered for sale, since practically every policy on which a reserve is created contains a loan clause which permits the insured to borrow the whole, or a large portion, of the reserve at any time. The beneficiary, if some one other than the insured, receives consideration to this extent, that his or her consent is usually necessary in order to make any loan on the policy.

The loan clause allows the reserve to be drawn upon for borrowing purposes usually after two or three premiums have been paid. Five or six percent interest is charged for the use of the money. The experience of the insurance companies in the panic of 1907 has led some of them to fear that the loan privilege might be used so generously in times of depression as to exhaust the cash assets of a company and compel it to convert securities into cash at a sacrifice in order to satisfy loan demands. In several loan clauses, therefore, the company reserves the right to withhold a loan for 30 or 60 days or even six months.

Every investment life insurance policy with its loan clause can thus be looked upon as a quick asset. The reserve is held in trust by the company, the loan value is stated in the policy, and the insured can get the full amount in most cases immediately. This is true of no other investment. To realize on stocks or bonds in times of financial panic may mean a great sacrifice, mortgage loans or real estate investments can usually not be disposed of at all at such times, and the possibility of obtaining large bank deposits may be highly questionable. The life insurance policy remains the one asset which can be quickly converted into cash by borrowing the loan value. For this reason more than any other, large investors choose life insurance in preference to other investments. In the panic of 1907 some companies loaned as much as $50,000 to a single policyholder.

The tables which follow show reserves and the loan values given by three different companies on each of three policies for $1,000 issued at age 35, on an ordinary life policy, a 20-payment life and a 20-year endowment. The companies chosen typify the two extremes and the average of liberality in loan values granted. The arguments for or against liberal values cannot be considered here. These values are shown for the 3rd, 5th, 10th, 15th and 19th years after the date of issue.

Loan Values—Ordinary Life

Age 35—$1,000 policy

Age of policy (in years)	Reserve Am. Exp. 3 percent	1st Company	2nd Company	3rd Company
3	$ 39.76	$ 39.76	$ 27.51	$ 12.00
5	68.16	68.16	59.41	38.00
10	146.01	146.01	146.01	111.00
15	233.28	233.28	233.28	195.00
19	308.32	308.32	308.32	267.00

Loan Values—Twenty Payment Life

Age 35—$1,000 policy

Age of policy (in years)	Reserve Am. Exp. 3 percent	1st Company	2nd Company	3rd Company
3	$ 68.20	$ 68.20	$ 55.95	$ 36.00
5	117.52	117.52	108.77	81.00
10	255.78	255.78	255.78	208.00
15	418.33	418.33	418.33	360.00
19	568.89	568.89	568.89	502.00

Loan Values—Twenty-Year Endowment

Age 35—$1,000 policy

Age of policy (in years)	Reserve Am. Exp. 3 percent	1st Company	2nd Company	3rd Company
3	$107.50	$107.50	$ 95.25	$ 78.00
5	185.71	185.71	176.96	154.00
10	407.45	407.45	407.45	371.00
15	674.00	674.00	674.00	640.00
19	928.91	928.91	928.91	902.00

See These 1916 International Harvester Hay Tools

New and Better Side Delivery Rakes

BY all means see the 1916 International, Osborne and Keystone side delivery rakes and hay loaders before your haying season starts.

All Left-Hand Side Delivery Rakes

These new side delivery rakes are all left-hand rakes. Taking the stems as the mower drops them, they pick them up broadside on and slide the hay into light, airy windrows without threshing off leaves and blossoms. They form the windrow on the raked stubble, where the hay lies untouched until the loader comes along to pick it up.

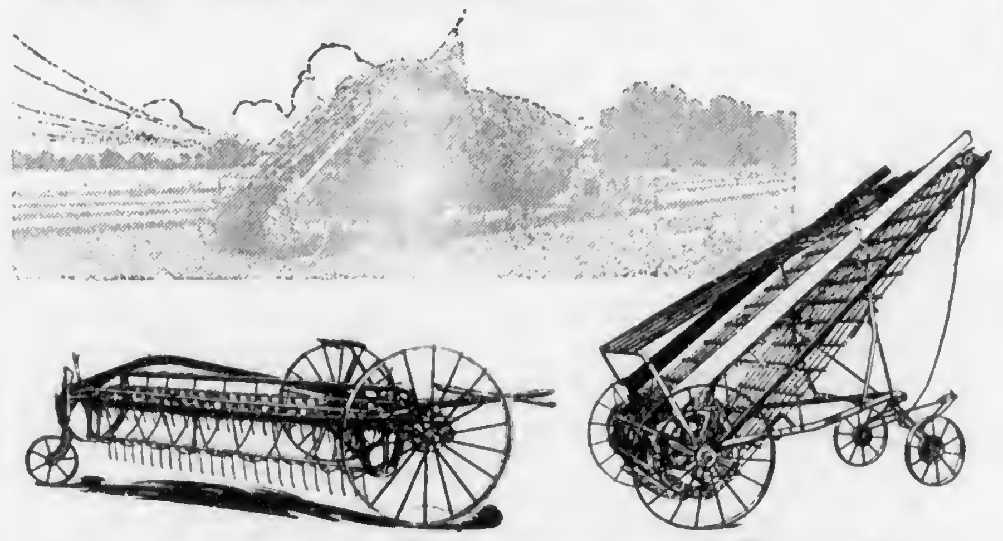
All Steel

International Harvester side delivery rakes are all steel, strong and durable.

Adjustments at Both Ends

The cylinder can be raised or lowered at both ends, giving perfect adjustment under all conditions.

Made in two widths—7 foot 3 inches and 8 foot (bean special). Sold by I H C local dealers.



International, Osborne, and Keystone Hay Loaders

The Windrow Loaders

If you use a side delivery rake to throw the hay up into windrows, you will need an **International, Osborne, or Keystone windrow loader.** These good loaders are 6 feet wide and elevate the hay to a height of 10 feet 3 inches. They gather the hay with a gentle hand-pitching movement that does not thresh or break leaves, so are especially good for loading alfalfa and clover. These loaders are easily hitched to the hay rack and are unhitched by the man on the load, who simply pulls a rope and drives off. A forecarriage (regular equipment) holds the loaders upright when unhitched, ready to be hitched at once behind another rack. Two horses can pull them easily.

The Rake Loader

If you ted your hay after mowing and do not throw it up in windrows, use a rake loader which takes in 8 feet of swath, elevates the hay to a height of 9 feet, and is handled by one man on the load. It gets in close to the fences; it handles the hay as gently as any good farmer could wish, and it rakes clean.

International, Osborne, and Keystone side delivery rakes, tedders, rake loaders, windrow loaders, sweep rakes and stackers, are sold by I H C dealers wherever farmers use these machines. If you want to get your hay in with the least trouble and expense, in the least time, and in the best condition, buy International Harvester hay tools. Write us for catalogues.

International Harvester Company of America
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CHICAGO USA
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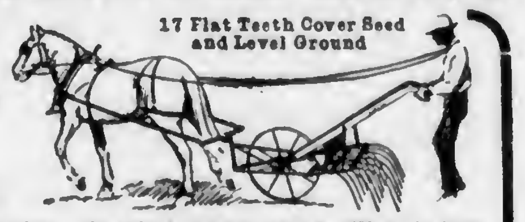
Seed Cover Crops Between Rows

When corn is “laid by,” that's the time to sow cover crops between the rows. The

Eureka New Seeder
3 Feet Wide


17 Flat Teeth Cover Seed and Level Ground

Sows clover, alfalfa, turnip, rape, timothy, rye, wheat, oats, buckwheat, etc., between all rowed crops. Covers seed to right depth. Adjusts for quantity. No wind interference. Field is left level, covered with dust mulch and weeds are killed. Also an ideal cultivator for farm or garden. Works close to small plants. Strong and light weight. In stock near you. Send for catalog.

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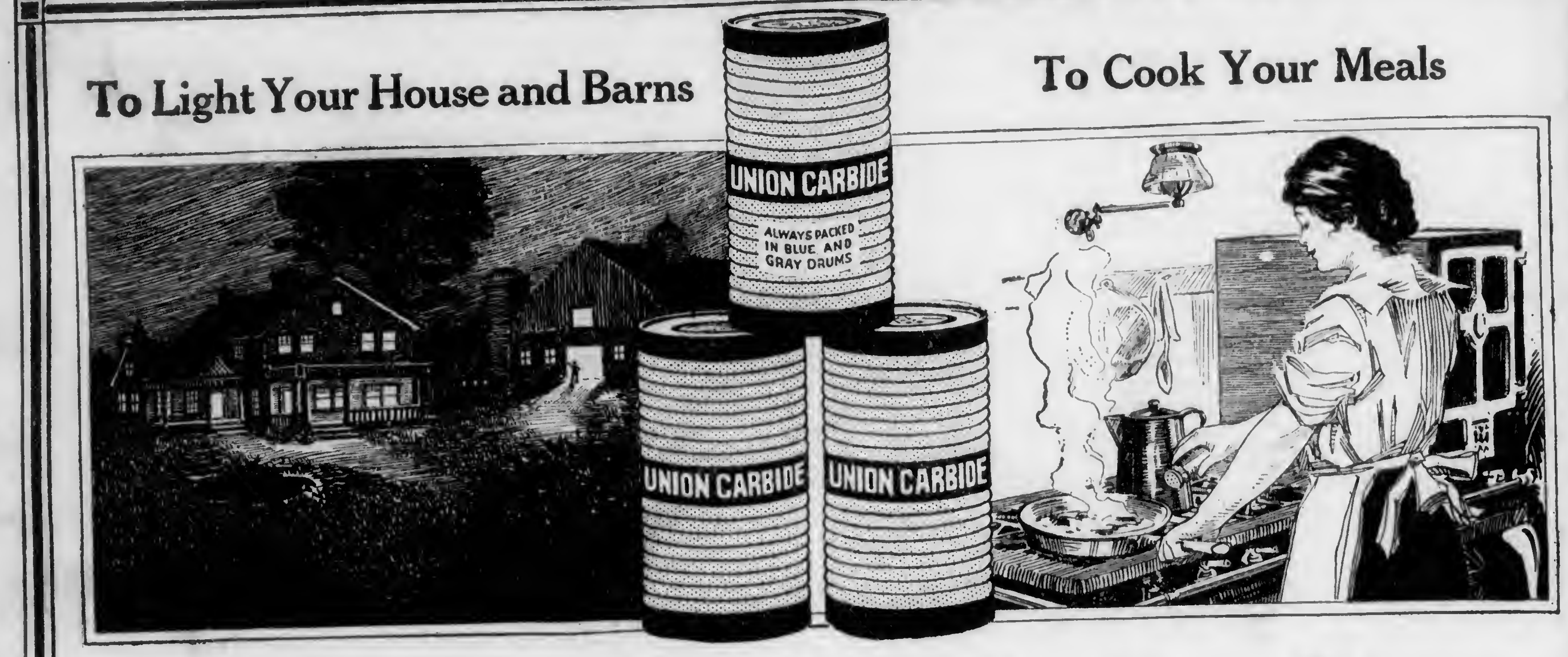

To Light Your House and Barns

To Cook Your Meals

Carbide Lighting and Cooking Plants Now Out-Sell All Others

You Will Now Find Carbide Lights in houses, barns and out-buildings on over a quarter of a million farms—and

Carbide Gas Cooking Ranges and Hot Plates in most of the kitchens of these same farm homes.

This means—that in the struggle for the "survival of the fittest," Carbide-Light-and-Cooking Plants have won first place.

The Reason is Plain

For fifteen years, country home families have been testing lighting plants of many types. Literally hundreds of different kinds have been given thorough trials on thousands of farms.

The competition has been strenuous — many have fallen by the wayside—a few of the best have survived—and one "The Carbide Plant" has grown to out-sell all the others.

Carbide Light and Fuel Plants are comparatively inexpensive—they are built to last a life time. Their parts are simple and heavy—they don't wear out and they call for few or no repairs.

Carbide Light Plants, the modern kind, are automatic—they work only when the lights and stove are "going"—they start and stop themselves—they merely require occasional filling and cleaning, and they operate without care for weeks, and even months at a time.

Filled with UNION CARBIDE these plants supply brilliant light to every room in the house, and gas for the cooking range in the kitchen. The lights can, too, be equipped to turn on without matches—and are specially adapted for use in barns and out-buildings.

In short, Carbide Light Plants give you not only ideal light for country home requirements, but gas for cooking as well—both conveniences equal to the best used by the cities millions.

Consider then all these advantages—the double value of *light and fuel,* as against light alone—the advantage of weekly or monthly attention as against *daily attention*—the advantage of simple heavy parts as against delicate complex parts—the advantage of parts which last a life time as against short-lived parts which call for constant repairs and renewals, and last but not least, the advantage of lower cost—not only low first cost, but inexpensive maintenance and inexpensive operation.

All told, there are some twenty reliable manufacturers of efficient Carbide Light and Fuel Plants in the United States. The plants made by these manufacturers include—those installed in cellars, those made to set in holes under ground, and those which set on top of the ground.

Our own business is confined to the sale of UNION CARBIDE which all of these plants are built to use. For the country home trade we carry immense stocks of UNION CARBIDE in our own distributing warehouses, located in every section of the United States. From these warehouses we ship the Carbide in hundred pound "drums" direct to most 300,000 country home customers. Kept in these drums the Carbide lasts indefinitely.

While we do not sell the Carbide Plants themselves, we are of course, vitally interested in helping our future customers get plants that will give the greatest possible satisfaction. To this end we are always glad to furnish confidential advice, and mail free of charge authoritative printed matter telling just how Carbide Light and Cooking Plants work, and how easily one can be set up on any country place. Address your letter to—

Union Carbide Sales Co.—Country Home Dept. 2

42nd Street Bldg., New York City, N. Y.

Peoples Gas Bldg., Chicago, Ill.

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PENNSYLVANIA FARMER

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EASTER ON THE FARM

By H. Winslow Fegley

Easter for the boys and girls on the farm is one of the few special gala festivities of the year and it is celebrated with a zest rarely found on any other Holiday. Especially is this true on the farms that are settled by the Pennsylvania Germans in eastern Pennsylvania. Among these people the custom of presenting and eating gaily colored, hard-boiled eggs on Easter is so ancient that its origin is as little known as is "Easter Island". The colored egg and the Easter rabbit both originated with the Germans, and the pioneer German settlers brought the custom with them from the Palatinate. Its real ancient lore has been lost with many other things which pertain to the Saxon race in its primal purity. Like many of the most beautiful symbols of the world, it is not Christian in origin, but dates back to ages far earlier in human history.

The thrifty Pennsylvania Germans who settled the eastern part of Pennsylvania two centuries ago left behind many characteristics, which mark their descendants today. Their customs for pleasing their children on festive days have attracted great attention, even beyond the borders of their settlements. Nowhere has the Easter egg become more popular and its use more a part of family and social life than among these people. In the Pennsylvania German dialect, Easter is known as Ostern Tag, and the predominant question in the child's mind, is, how many Oster Oyer, (Easter Eggs) kind-hearted Oster haas (Easter rabbit) will lay in the old-fashioned bock kerbe (bake basket), or, in the old hat which papa wore last summer.

The kind-hearted Pennsylvania German wife or aunt, or perhaps an elder sister of the expectant little crowd of tots, has to be the mythical Easter rabbit. Fairy books tell us about the German Easter rabbit, how he discovered, along a shady woodland road, a nest of eggs where the mother hen had been killed by a fox. How the rabbit took its place, hatched the eggs and when he awoke, after a Rip Van Winkle sleep, found himself surrounded by a flock of little chicks.

PREPARING TO SAMPLE THE EGGS.

Coloring Eggs

In many homes the coloring of the eggs is still done by quaint old methods. Not because they believe in quaintness, but because they believe that such dyeing is sanitary and healthy. A basket of onions is obtained from the farm-house garret. All the outer skins of the onions are removed very carefully and placed in a large earthen crock. When there is a good supply the crock is filled with water and put on the old fashioned cooking stove, which stands in the still older kitchen. This mixture is left on the stove until it boils.

By this time one of the older boys comes from the poultry house with a basket of fresh-laid eggs. His mother selects the clean and perfectly shaped ones and washes them to free them from all dirt. She then heats a piece of beeswax and waxes the eggs, making small spots on them. Some eggs are not thus spotted, but are put directly into the dye-pot. The color derived from the onion skin does not adhere to the waxed spots. This gives the eggs a variegated color. The spots have a color of light yellow, while the unwaxed parts are of a yellowish brown. This tint is often varied by the length of time the eggs are left in the boiling mixture. A great many German housewives cook the eggs before coloring, which shortens the process. There are few of these women who use the new kind of chip, tablet or paper dyes that are found on the market today. They maintain that eggs dyed by the onion skin method are harmless.

If the Pennsylvania German housewife wishes a variety in style, she buys a yard or two of different patterns of the cheapest kind of calico, such as will fade when washed. The calico must have pretty designs. It is cut into strips a little wider than the size of an egg, and the strips are wound tightly around the white egg and put into a kettle of boiling water. After being left for ten minutes the fancy designs have disappeared from the calico and are transferred upon the shell of the egg. This method, while not as old as the onion dyeing one, is known to have been in existence among these people for more than seventy years.

Other dyes have been used without number. Many leaves and roots impart fine and delicate tints to water, if boiled in it. What grandmother used to call redwood and blue chips, were cooked for hours and dyed the eggs a beautiful cardinal and a fine blue. Some of these woods are still used and the rural merchants keep a good stock on hand. Some of the women still use them to dye fabrics.

The Children's Part

The children's part—the part of merrymaking—is now at hand. There is no drowsiness on Easter eve. The children first search the house, from cellar to garret, to obtain all the old hats and baskets they can find and bring them to the old kitchen. The baby sets papa's hat under the old cherry-colored corner-cupboard. Johnny snugly puts his old straw hat behind the old stove, outlining it with a half-worn out shawl of his aunt's. The rest of the children put their would-be

AFTER THE HUNT.

WHO HAS THE PRETTIEST?

rabbit's nests in a place where they think they will surely attract the attention of the Easter bunny when he comes crawling thru the window. They take great care to leave the window partly open.

If Easter Day promises to be nice and warm, the nests are sometimes set out-of-doors, in the farmhouse garden, snugly in a corner alongside of the old pale fence which by this time has its coat of whitewash for the summer season. Others place the nests in the woodshed, in the feed entry of the barn or under an old wood pile or heap of fence rails; any place likely to attract the rabbit when he comes close to the farm house. All this nicely done, the little folks go to their beds, hardly able to sleep, so nervous are they with anxiety for the morrow.

Long before the sun peeps over the horizon on Eastern morn there is a noise on the staircase. One after another, two or three steps at a time, the children drop down that flight of stairs, all bound for the nests. Each is anxious to find what the rabbit has left. Their anticipations realized, it does not take them long to count their stock of eggs. They soon find who has the prettiest ones and this comparison is likely to prove so interesting that they do not hear mother when she calls: "Now kum, buva un made, wer wolle esse" (now come boys and girls we wish to eat).

Before sitting down to the usual morning meal, which on this special morn has the bill of fare of "eggs, eggs, eggs," they first hunt mamma's own nest to see that "Oster haas" did not forget her. Needless to say, it doesn't take long to change mamma's stock of eggs to their own nests, and by the time they gather around the festive board they are all glad to partake of the nice clean eggs which were specially prepared for this Easter meal. In many Pennsylvania German homes, on Easter Day, the breakfast, dinner and supper are nearly alike. What is deemed good for one meal is considered sufficient for all. This, you know, is Easter Day and eggs reign supreme! They may be served morning, noon and night, either in a cooked, baked, poached or fried style, and the omelet is not forgotten. Among the juvenile folks it is the days of days of the spring season.

The colored eggs are reserved to be put in their lunch boxes and baskets, and used for luncheon during the dinner and recess hours at school. Here is another delight, when several score of school children mingle together, each one showing what bunny rabbit did for them, and each claiming to have the prettiest eggs. The joy lasts until the last bite of bunny's egg has been eaten by the always hungry boys and girls.

Easter Exercises

But Easter on the farm is not alone for the boys and girls. All the members of the family devote the evening to worship in the near-by rural church, where Easter exercises are conducted with as great solemnity and reverence as at Christmas time. The children recite and sing special exercises and the pastor of the church, the superintendent of the Sunday school and some prominent visitor deliver addresses.

Perhaps the most impressive among the Easter services are those conducted by the Pennsylvania Germans who belong to the Moravian Church. Wherever there is a large congregation, these services begin at two o'clock in the morning, when singers parade on the street near the church, announcing the coming of the day of the resurrection. Then at the break of day, the members all go to the church to hear the choir from the church belfry, pealing forth the joyful anthems heralding the dawn of Easter morning. This is followed by a song service in the church and as the sun peeps over the eastern horizon, men, women and children gather in the burial grounds nearby, where the day before all burial lots had been cleaned and the graves bedecked with flowers. Here they continue the singing of anthems. Later in the day, the little children have special exercises and the old folks attend a special service where the pastor preaches an Easter sermon. In practically all of these churches the Holy Communion is celebrated on this day.

Festivals of a more secular nature are celebrated on the following day, known as Easter Monday, which is deemed a general holiday. The help get a day off and outside of the feeding of the cattle, nothing of importance takes place on the farm. But at the rural school-house, the village social center, they may have a special feature which all will attend. Its the real holiday on the eve of the rush season of out-door farm work.

Rape as a forage crop is highly recommended for hogs whenever it can be grown successfully. It should be sown in April or May.

Easy Lessons on Ropes—II

By R. A. Andree, Dept. Farm Mechanics, Pennsylvania State College

Down Crowning

There is probably nothing that gives more service and makes the end of the rope look more "business like" than a good down crown. It is used where a large knob, as formed by the wall knot, is objectionable. Its slightly tapering enlargement provides a good grip and is therefore used at the end of halter ropes. To make the down crown, unlay about eight to twelve inches of the rope and, holding it in the left hand, lay any strand between the other two strands, in the manner shown in Figure 6. Here strand No. 1 makes the loop and is placed between strands No. 2 and No. 3. Next, strand No. 2 is brought down between No. 3 and the loop made by No. 1, as shown by the arrow in Fig. 6. Fig. 7 shows this part of the knot complete. Strand No. 3 is now placed thru the loop which was first made by strand No. 1. From the top down, as shown by the arrow in Fig. 7 and shown completed in Fig. 8. Now the strands are pulled up so that the end of the rope presents a uniform appearance.

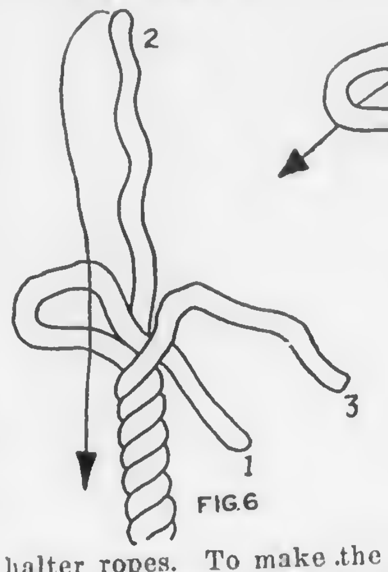


FIG.6

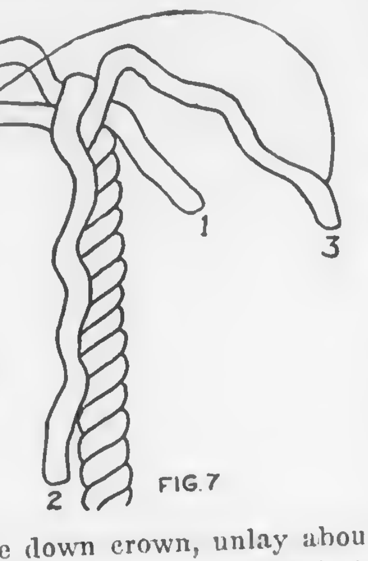


FIG.7

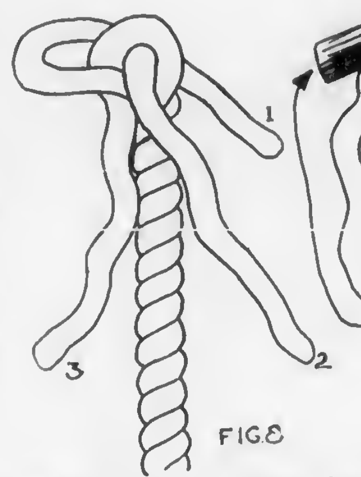


FIG.8

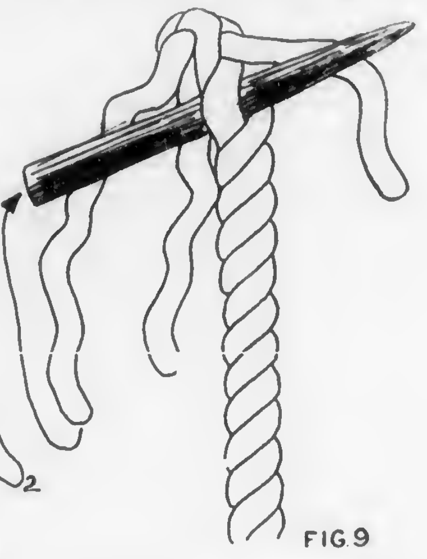


FIG.9

It will be noticed that each strand tends to go over one strand and under the next. All three strands should have a tendency to point backward toward the center of the rope. Next take any one of the strands and lift it either by twisting the rope or by inserting a wooden pin as shown in Fig. 9. Then trace the strand you have just lifted until you find its end. This end must now be placed under the strand and pulled thru as indicated by the arrow in Fig. 9. Fig. 10 shows this step completed. Lift the strand directly to the right of the one you have just gone under and place its own end thru the loop thus formed, just as was done in the first case.

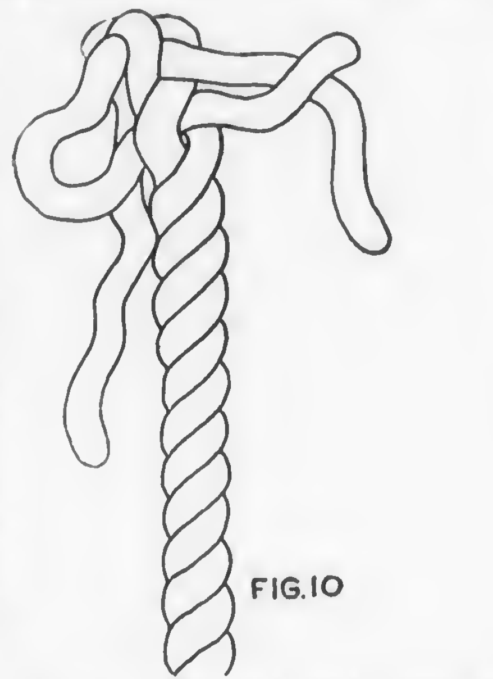


FIG.10

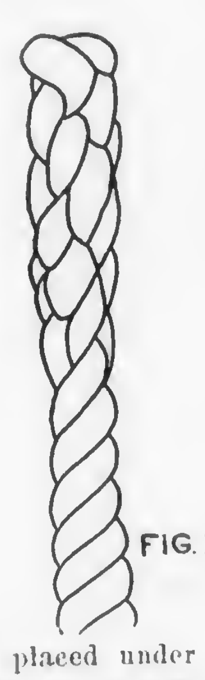


FIG.11

In the next step care must be taken to lift the correct strand. It is the one directly to the right of the last strand lifted. There are chances of missing this one because it is somewhat hidden. Thru the loop thus formed the remaining end is placed, being careful to push it thru in the same direction that the other two ends have taken. Now the knot is drawn up uniformly and tightly by pulling the ends of the strands one at a time, down toward the center of the rope with the right hand, while holding the knob firmly in the left hand; and then by pulling them in the opposite direction while holding the rope in the left hand about five or six inches below the knot. This method of drawing up the knot makes it firm and gives it a neat appearance.

If you examine the knot at this stage you will notice that the ends have passed over one strand and under the next. They are now all three ready to go over the following strand and under the next. After this process has been repeated three or four times, cut the loose ends, allowing about one-fourth inch of the stub to remain. Finish the knot by rolling it lightly on the floor under your foot. Fig. 11 shows the knot completed.

Our next article takes up a description of the Short Splice.

Treating Potatoes for Rhizoctonia

Have you as a grower ever noticed the small black spots or specks on the skin of potatoes, raised up slightly from the general skin and have you ever tried to rub the spots from the skin? If so, you have found that the spots are held fast and are not easily removed. These spots are undoubtedly the winter stage of the rhizoctonia disease.

In the spring of the year, when the potatoes are planted, they will develop and attack the young shoots or leaves, resulting often in the killing of these shoots. It is fortunate that its eradication can be accomplished. The remedy is to soak the seed, before cutting, in a solution made up as follows: 4 ounces of corrosive sublimate, 30 gallons of water, soaking the tubers for one and one-half hours, removing the tubers and drying. The same treatment is effective for scab of potatoes.—A. E. Wilkinson.

Queries and Comments

(This department is open to all of our subscribers. Queries and short comments are invited. Queries will be answered by best available authorities.)

English Walnuts

"Will you answer in your query department the question as to the best place to plant English walnuts; whether high, low, wet or dry location?"—G. O. W., Northampton Co., Pa.

In the first place, we would not advise extensive planting of the English walnut in this locality as it is a tree that requires a very temperate climate. A few are more hardy than others, as the Mayette, the Chaberte, the Franquette. They are sometimes grafted upon the black walnut stock. When dormant, the walnut will stand considerable freezing, but is very tender when growing. For this reason it should not be planted in a location where early warm weather would start growth, and then be frozen by late spring frosts. It is also sensitive to dry, hot weather which scorches the nuts and leaves. A protected, northern exposure is best. The root system demands a well-drained alluvial soil, and as it is a gross feeder there must be plenty of plant food. Heavy clay soils are not adapted to walnuts.

Clover for Soil Improvement

"I would like to submit the following to criticism: Would it be good policy to clip clover growing on poor land, we will say in May, and again in July, leaving the clippings stay on the ground and leaving the last growth stand to plow under the following spring? This is proposed in order to build up the land. My reason is this: If I plow the first crop down it would necessitate reseeding, and seed is high. If I find I am short of hay, I could fall back on this piece to help out at second cutting. If the grass season is good I will not need it. Would this plan increase the root system?"—J. F. H., Gloucester Co., N. J.

Where the main object is to improve the soil, the plan outlined by our friend is an excellent one. Do the clipping each time about when the clover is near full bloom. There is just one item in the proposition we would change, and that is we would clip the last growth also. This we would do to prevent the formation and ripening of seed which is the operation that takes fertility out of the soil. Some farmers say that they cannot afford to use a clover crop in this way, and we agree that on good or even average soil it may be questionable, but where soil lacks fertility and humus, it is the best and cheapest way of getting them. We consider this a helpful, suggestive query.

Canadian Thistle Again

"Some one asks how to get rid of Canada thistles.

Up in New York we used to give them nearly a death blow by plowing up a sod that was full of them as late in June as possible, when they were in blossom, and sowing buckwheat. That seemed to get them best."—T. A. Gardner, New Jersey.

Reseeding Alfalfa

"I would like to ask what would be the best method to reseed part of an alfalfa field which was sown last fall. There are some bare spots I would like to fix up."—F. K., Monmouth Junction, N. J.

We would advise first harrowing the bare spots with a spike tooth harrow as soon as it is dry enough this spring, then sow the seed and harrow lightly to cover the seed. It is presumed that lime and fertility requirements were met last fall at time of seeding. It would be wise to inoculate again for the new seeding, either with soil, or with commercial culture.

Making Dry Batteries

"Kindly tell what to mix and how to make dry batteries for gasoline engines."—F. W., Honey Grove, Pa.

The following formula is said to yield a serviceable filling for dry batteries: Charcoal, 3 ounces; graphite, 1 ounce; manganese dioxide, 3 ounces; calcium hydrate, 1 ounce; arsenic acid, 1 ounce; glucose mixed with dextrine or starch, 1 ounce. Mix the ingredients intimately and then work into a paste of proper consistency with a saturated solution of sodium and ammonium chlorides containing one-tenth of its volume of a mercury-bichloride solution and an equal volume of hydrochloric acid. Add the fluid gradually and work up the mass thoroly.

This is given by authorities as a serviceable battery, but its compounding is the work of a chemist or a person accustomed to working with chemicals. We doubt the advisability of a farmer attempting to make his own batteries, allowing for liability to error in mixing, short lived service after being made, and difficulty of securing the required ingredients, we think it probable that commercial batteries will prove cheaper as well as more efficient and much more convenient. There are certain classes of articles that are more economically purchased even tho they may be made at home, and batteries would seem to be such an article. If you attempt to make up the above compound, remember that there are at least two powerful poisons among them, and they should be handled carefully.

Landscaping the Farm Entrance

Perhaps you have given the farm a name. What better place can you have to display it to the view of the passerby than over or on some portion of an artistic entranceway to your grounds, where the lane or driveway from the house connects with the main road? What better material can you use to make this entranceway than concrete in some one of its many possible adaptations?

Take the monolithic concrete gate posts, for instance, shown in Fig. 1. Here is something which suggests strength, permanence, and massive simplicity—construction which is well within the range of any home concrete worker. Forms built out of lumber lying around the farm serving no other purpose will answer. Simply make certain that the forms are tight so that the quaky 1-2-4 concrete mixture will not leak thru when placing, and cause a waste of cement resulting from water carrying it away when leaking from the concrete.

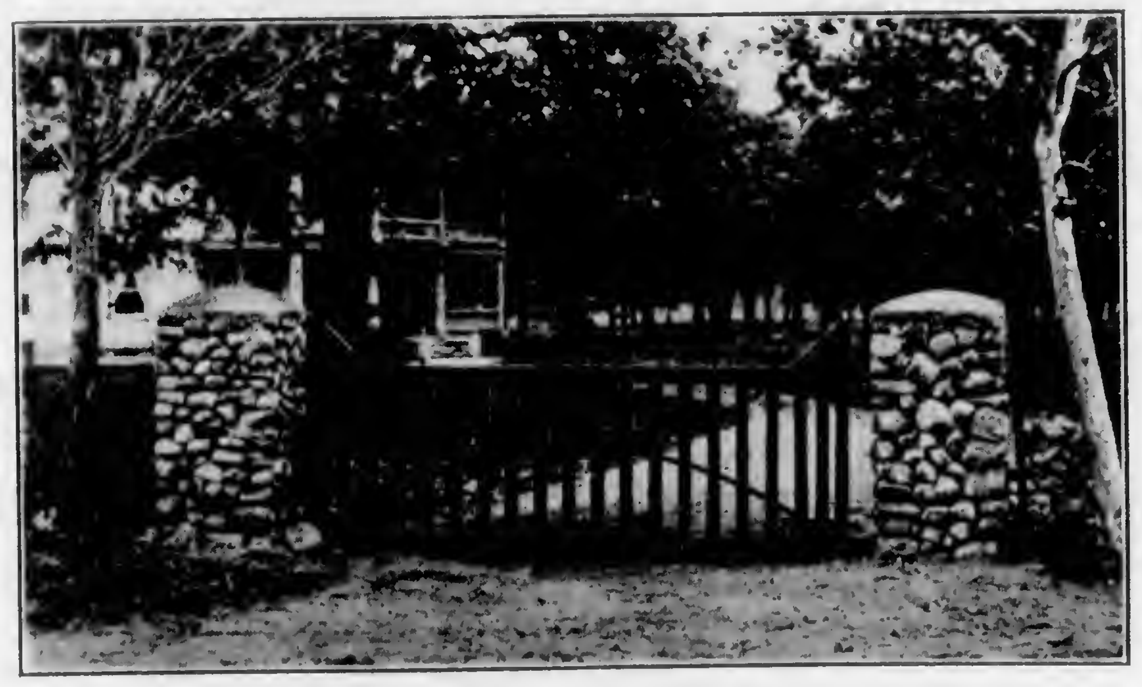
If sufficiently massive, posts of this type need no reinforcement, but to withstand the shocks and strains from the load of heavy gates, reinforcing is advisable. The size of rods to use will be determined by the size of posts and the weight of the gates. One rod should be placed in each corner. After the forms are removed, which under favorable conditions is possibly within 24 hours, the posts can be given a slap-dash, pebble-dash or stucco finish, as choice may dictate, by wetting the surface and at once applying the finishing mixture of 1-2 cement-sand mortar. It requires some skill to get the slap-dash finish shown in the illustration referred to. Plastering the surface after the manner of applying stucco is simpler. Pebble-dash finish is secured by throwing screened washed pebbles against the soft mortar coat, and being thus partly embedded in the mortar and caused to adhere. A little experience will enable one to do a nice job.

MONOLITHIC CONCRETE GATE POSTS WITH SLAP-DASH FINISH.

Many farms, especially in Pennsylvania, Maryland, parts of New Jersey, and New York are littered with field stones, sometimes spoken of as "niggerheads" or "rubble stones." Very pleasing construction results from using such stones to give effect of masonry. Clean field stones of uniform size are selected so that they will form a pleasing arrangement on the exposed surface of the work when forms are removed, and are laid around against the inside of the forms as shown. Then a quaky 1-2-4 concrete mixture is used to fill in the center. The work should be done so that concrete is placed in layers no greater than 6 inches thick at a time, yet the work should be continuous so as to make certain that the concrete will be free from construction seams. Rubble stones must be wet when the concrete is placed so that the concrete will "bond" to the stones.

ATTRACTIVE CONCRETE BLOCK GATE POSTS.

A cap can be cast separately and placed on the rubble construction later if desired, or the forms can be so built that this cap will be monolithic with the remainder of the work. Provision must be made, of course, in all work of this kind, to embed eye bolts in the posts to receive gate hinges if it is intended to equip the entrance with gates. After forms have been removed the joints in the rubble work may be picked back slightly when necessary and the stones washed off by scrubbing with a stiff bristle brush to remove any objectionable particles of mortar on the surface.



RUBBLE-CONCRETE GATE POSTS.

An entranceway built of concrete block is also shown. This requires no explanation, since once the blocks have been made the work consists of laying them up in mortar just as bricklaying would be performed. A 1-2 cement mortar should be used and for ease of work a small quantity of hydrated lime may be added to the mortar, a quantity not greater than 10 percent by weight of the cement used.

Block should be thoroly wet before laying them up so that they will not absorb all of the water from the mortar and prevent the latter from bonding with the block surfaces.

A little ingenuity will suggest how letters may be fashioned and attached to the inner form face, when monolithic concrete construction is adopted, so that when the forms are removed the farm name will be permanently molded in the face of the posts. Bronze, cast iron and similar name plates or separate letters can be obtained and attached by any one of several different methods.

Why not make the entranceway to the home grounds attractive, and place the farm name where those who ride may read?—H. C. Campbell.

Potato Growing

The chief consideration in potato growing is to have the soil in the right physical condition. It should be such that the soil particles may be readily displaced by the growing tuber. At the same time it should be retentive of moisture since water is a very important factor in the composition of the tuber, and every precaution should be taken to provide a soil that will be of a character that will retain the necessary moisture between rains. An abundance of organic matter mixed well with the soil will help to make an undesirable soil quite satisfactory. Whenever possible this can best be accomplished by a growing crop because of the effect of the root systems, the decay of which aids materially in making the unavailable plant food of the soil available. In many respects a clover sod is preferable for the growing of potatoes because of the fact that it readily decomposes, thus quickly improving the physical condition of the soil, as well as adding available plant food. Grass sods will give satisfactory results if they are plowed sufficiently in advance of the time of planting so as to permit them to decompose. The importance of using good seed is a factor which should not be overlooked, and when planting on a heavy soil the planting should not be made too deep, or the tubers will not develop properly. He recommended the planting of at least fifteen bushels per acre of well grown and properly stored seed if the most satisfactory results are to be expected. The planting for the seed crop is made about the first of July so as to permit the period of tuber formation to take place during relatively cool weather. The harvesting is done before the tubers are quite mature, and when properly stored it has been found that this seed gives practically the same results as northern grown seed and the probability of introducing new diseases is thereby lessened.

Potatoes respond to heavy feeding in a way that

(Continued on page 5.)

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Strawberry Culture---I

Harris T. Kille, N. J. Experiment Station

Location and Soil

The same factors apply to the selection of a location for strawberries as apply to other perishable crops. The markets, transportation facilities, distance to shipping points and opportunities to co-operate with neighbors or ship in car lots should be considered. One who is buying a farm with the idea of making strawberries one of the chief money crops should try to locate where these factors will be as nearly ideal as posible. If one is already located, has soil adapted to the growing of strawberries and desires to grow them, a study of the cost of marketing them compared with the cost where soil and market conditions are both nearly ideal will help one to decide upon the advisability of growing them on a large scale.

Strawberries grow upon a wide range of soils. The dark sandy loams, however, are the best. Strawberries require lots of water. Unless artificial irrigation can be given, the soil should be slow to dry out, especially in early summer.

The site or lay of the land should be considered as well as the location and soil type. The writer has known fields or portions of fields of strawberries to be as barren of fruit as if the plants had never bloomed. A field surrounded by woods; the bottom of a slope, or pocket from which the cold air cannot drain, are subject to late spring frosts and should be avoided.

Varieties

Success in the growing of strawberries depends largely upon the wise choice of varieties. Strawberry varieties are so variable, they behave so differently upon different soil types and in different localities that it is most unwise to designate certain varieties as being the best. General directions only can be safely given for the choice of a variety. Community experience is usually a safe guide. It should be supplemented by individual testing of new and locally unknown varieties. For the small and local markets a larger number of varieties are desirable than where the fruit is shipped to the large well-known markets. For these one or two of the varieties producing large, firm, attractive berries should be selected. Early varieties unless of exceptional quality may not pay because they have to compete with berries of better quality grown farther south. The varieties having imperfect blossoms are not generally grown by commercial growers. The ever-bearers are deservedly becoming quite popular. For farmers catering to local markets they are proving extremely profitable. As a general guide in the selection of varieties a list is appended showing those varieties which are recommended by the state experiment stations in those states where are located most of Pennsylvania Farmer's readers.

Plants

Plants for setting should be less than a year old. Old plants have hard woody crowns and black roots. Young plants have yellow or straw-colored roots. The root system should be large and fibrous, the crowns well developed.

Whenever practical, each grower should raise his own plants. In buying plants more attention should be paid to getting clean, healthy, well-rooted, true-to-name plants than to any statements about "pedigree," "line-bred," "select," "tested," registered, etc. The strawberry plant dealer who grows his own plants, digs and ships them so that the purchaser can set them within two or three days from the time they are dug is the one to patronize.

The far-sighted grower will purchase a few plants of the varieties he desires a year before he wants to set his field. From 1,000 to 4,000 plants can be grown from 100 plants set in the spring and given good attention thruout the summer. The farmer who grows his plants in this way for the setting of his large fields is not only sure of having fresh vigorous plants at a slight cost but he has had an opportunity to determine whether or not they are true to name. In strawberry growing districts there is opportunity for a few growers who are wide awake and willing to test out the new varieties to build up quite a profitable business selling plants to neighbors. The strawberry plant business, however, is a highly specialized one and to be successful in it one must have considerable business ability, being able to advertise wisely and handle a large amount of correspondence.

Plants can be dug and the soil removed from the roots with a six-tine dung fork. Before setting the plants all the dead leaves and runners should be removed and the roots straightened out.

Varieties of strawberries recommended by the Experiment Stations of four states:

Pennsylvania. — Excelsior, Climax, Mitchell, Dunlap, Early Ozark, Bederwood, Haverland*, Wm. Belt, Chesapeake, Marshall, Prolific. Amanda, Bubach*, Sample*, Aroma, Klondike, Columbia*, Stevens' Late and Gandy.

New York.—Wm. Belt, Senator Dunlap, Stevens' Late, Glenn Mary, Bederwood, Williams, Sample*.

New Jersey.—Excelsior, Success, Wm. Belt, Sample*, Stevens' Late, Chesapeake, Gandy, Doris, Superb (Everbearing), Barrymore, Fairfield.

Delaware. — Superior, Klondyke, Roadhouse, Chipman, Gandy, Chesapeake, Parsons' Beauty, Stevens' Late.

*—Produce imperfect blossoms.

(Note.—A second article will treat of systems of planting, cultivation, harvesting, etc.)

Timely Fruit Notes

By Dr. J. P. Stewart

Lime-Sulphur Spray Followed by Rain

"Yesterday I sprayed my trees with lime-sulphur, and today it is raining hard. Do you think it advisable to re-spray, particularly those sprayed during the latter part of yesterday afternoon, or is the action of lime-sulphur so quick it will not be necessary?"—H. M. C., Montgomery County, Pa.

If the lime-sulphur had a chance to get thoroly dry before the rain came there should be no necessity of repeating the spraying. In other words, if the spray had a chance to dry over night I do not consider it necessary to repeat the spray on account of rain the following day. You should examine the trees carefully, however, and if you find evidence of any considerable number of scale that are still alive, the spray should naturally be repeated in that case.

Treatment for Winter-Injured Pear Trees

"I have some 4-year-old Kieffer pear trees that were mounded about 5 inches at the butts for the winter. I notice at the top of the mound the outer layer of bark has been frozen and it peels off clear around the tree; the inside bark does not seem to be hurt. How should I take care of these trees to save them?"—B. S. D., Blair County, Pa.

In this case, if the cambium layers are uninjured, it will be unnecessary to do anything with the trees. If these layers are injured to any considerable extent, however, there are only two possibilities for saving the trees.

The first of these is to bind the bark tightly around the tree before the living cells have dried out to any important extent, in the hope that enough of them will still be alive to reunite the bark with the wood. The other is to bridge-graft the trees. The method of doing this is well described in Farmers' Bulletin 710, a copy of which may be obtained on request from the U. S. Department of Agriculture.

The whole matter, however, hinges on the present condition of the cambium cells, which as you doubtless know, are the layers of living cells at the junction of the bark and wood.

Scale and Anthracnose on Raspberries

"I have anthracnose and scurfy bark scale on my raspberries. Is there any spray combination that will be a remedy for both at this time? I have used bordeaux on young canes but think some spray on dormant canes might prevent spread."—E. S., Chester County, Pa.

It is probably the Rose scale and not the scurfy that is involved here, as the latter scale seldom or never attacks the raspberry. At any rate it is probable that lime-sulphur at winter strength will come nearest answering your requirements. It should largely control the scale and may also assist somewhat in preventing further spread of the anthracnose fungus.

There is no spray, however, that will have any important effect on the canes that are already diseased with the anthracnose. The only valuable treatment for them is to prune out and destroy all diseased canes as soon as possible after the disease appears. In addition, several thoro spray applications, preferably with bordeaux mixture (4-4-50), should be made during the early part of the season. If lime-sulphur is used in place of bordeaux in the latter applications it should be diluted to a density of not more than 1.008. This is obtained by using one part of the commercial concentrated solutions with about thirty-eight parts of water.

All these measures, however, are sometimes insufficient to eradicate this disease, and in such cases, it is advisable to change the plantation, and use only plants that are thoroly healthy in starting the new planting.

Tillage in a Sod-bound Orchard

"I have come into possession of an old orchard which has been kept in sod about 15 years or perhaps 20 years without plowing. Which would be best to do, put manure or lime on top and then plow, or plow first and put fertilizer on them? Should manure or lime go on or both? On another patch in which I want to put corn would it be best to put lime on sod or plow and then lime?"—H. A. S., Schuylkill Co., Pa.

In general it is better to do the plowing first and then put on the applications of either lime or manure and work them into the soil with the later tillage. The lime is not likely to be especially valuable in the orchard, except as an aid in getting leguminous cover-crops or permanent covers started. The manure however should be useful. In the orchard described, I would advise as shallow plowing as possible—not over 4 inches deep if it can be plowed as shallow as this. Several thoro diskings early in the season are often preferable to plowing, in cases of this kind, unless the sod is very tough and thick.

POTATO GROWING

(Concluded from page 3.)

some other crops do not and the most successful growers generally fertilize heavily. It is probably true that in the past we have over emphasized the importance of potash to the neglect of phosphoric acid which is really the dominant element in the fertilization of potatoes. In a demonstration of thirty tests in a leading potato growing section of New Jersey it was found that a fertilizer that contained five per cent of potash gave a slightly higher yield than did one which contained twice the amount. When the ten per cent goods were used in the row it was found that there was considerable fertilizer injury, while where the less concentrated goods were used the injury was considerably less. It was found that the use of the more concentrated fertilizer retarded the growth for several weeks. In most instances if the straw, stubble and liquid manure are conserved there will be comparatively little need for the purchase of commercial potash in most instances. In the opinion of the speaker, yields thruout Pennsylvania are retarded because of lack of phosphorous, and acid phosphate should be used freely to remedy this deficiency. The presence of phosphorus stimulates root growth. The use of the acid phosphate is preferable to rock phosphate because of the fact that it is much more readily available and potatoes need fertilizers of this kind.

He said that some growers are making the mistake of adding an increased amount of nitrogen with the thought that it will replace potash. This is a mistake, and he recommended the use of an additional amount of phosphoric acid. For the present an application of 1400 pounds of a fertilizer which contains three percent of nitrogen and ten percent of phosphoric acid should give good results. One half of this amount should be applied broadcast previous to planting and the remainder should be applied in the row. When lime is used in a rotation which contains potatoes it should be applied as far in advance of the potato crop as is possible. Ridging when cultivation is advised for the early crop because of the fact that it stimulated the period of ripening, but for the late crop level cultivation is advised. The planting should be made very early or rather late, depending on the purpose for which grown, but the important point to remember that the potato grows best during cool weather. Spraying pays as a general proposition, and especially so when the fertilization is relatively light, because of the stimulating effect on the plants, and this effect is secured even tho no disease is present. In a test conducted at the New Jersey Experiment Station with Bordeaux mixture to control fleabeetle it was found that it was effective for the first twenty-four hours, but after that time the beetles returned. — Report of address by Alva Agee, delivered at Reading, Pa.

The farm home lawn and its adornment of shrubbery should be formed upon a comprehensive plan. An open expanse of lawn with shrubbery massed about the borders and a few especially attractive trees or shrubs elsewhere in well arranged groups, is the ideal design. Trees and shrubbery should be located about the edges of the lawn, not scattered thru its center. Shrubbery massed against the foundation of buildings softens hard lines, and joins lawn and buildings in a harmonious whole.

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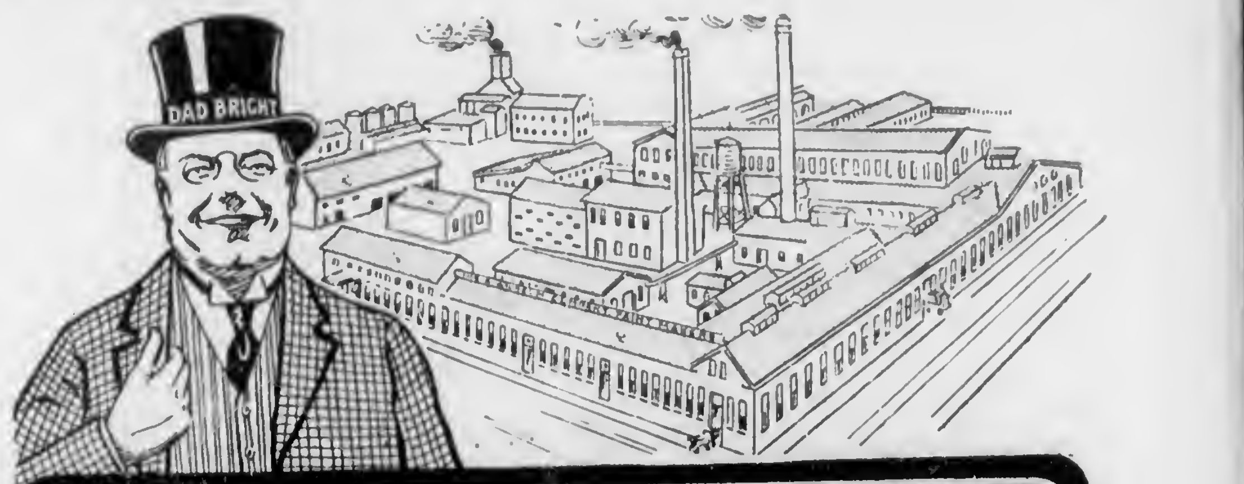

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Philadelphia, Pa., April 22, 1916.

NEW WOOL CLIP

Sheep shearing is now in progress in all of the wool states and buyers and sellers are jockeying for advantage in price. With the demand as urgent as at present and as it is likely to be thruout the season, wool growers should have little difficulty in securing a good price. Ohio fleeces are reported as moving in small lots, with three-eighths and quarter bloods combing held at 40 cents per pound. Ranch wool is starting to move from 24 to 27 cents per pound. Mill buyers are not taking large lots at these prices and are not likely to until the season is further advanced, but they need wool and they are not able to get it from foreign sources usually open to them. Every grower will make money on wool this year, but it will require skill in handling the sale to get as good a price as possible and not overshoot the mark in your demands.

WHAT MACHINERY HAS DONE

It is sometimes spoken of as a regretable fact that the proportion of farmers, or those who produce the materials for food and clothing, is gradually becoming less when compared with the number engaged in other occupations. Speaking economically, we cannot say that this is either unnatural or undesirable. Increasing knowledge and inventive genius have made it possible for a much smaller number of people to supply these needs. If we go back far enough in the history of the human race (and we need go back only a couple of centuries) we come to a period when the individual's efficiency was little more than sufficient to supply himself with food, shelter and clothing. Since these things are primarily essential, every one was engaged in producing them. Imagine the time when the soil was dug by a rude hoe, or stirred with a crooked stick; when fruits and cereals yielded only the meagre crops of the natural plant, and we can readily understand why practically all men were engaged in some form of agriculture—because the producing power of men was so limited as to require the entire out-put to meet the needs of their own household. Three things have aided in bringing about a changed and better condition, viz: greater general intelligence, improved food-producing plants, and the invention of farm machinery. We may safely say that the latter made development in all other lines of civilization possible. The invention and adoption of machinery made it possible for one man to do as much work as many could do before, and has left the many free to do other work. Suddenly wipe out of existence all the improvements and inventions of the past 100 years, and every city will be depopulated in 12 months; the inhabitants would have to go out and dig in the earth or starve. The invention of farm machinery may be said to be the beginning of the past century's progress and development in every other line, because it set a large part of the race free to follow the quest for other things.

FOOD INSPECTION

Federal, state and municipal inspection of food products has made remarkable strides in the last few years. Inspection has become a fad for which consumers are paying in higher prices for food products. The returns for those higher prices may well be questioned with some products, and should be well considered in contemplating any new lines of inspection work. If inspection is worth anything it ought to increase the wholesomeness, cleanliness and purity of the product, which should be reflected in less disease and greater vigor in the consuming public. Commenting on a proposed line of federal inspection work, the Peekskill (N. Y.) Evening News directs attention to the ultimate purpose in part as follows:

"The remarkable demand for protection of the health of the people of the United States in these latter days is astounding. If we were to believe half we are told by faddists, the race is in dire danger of rapid extinction thru the very simple but very necessary habit of eating. Notwithstanding the fact that the human race has survived thru several hundreds of thousands of years without any health supervision whatever, notwithstanding that despite wars and pestilence, and the wrath of God, the race has increased and multiplied until every corner of the earth is populated, it becomes apparent at this late day that we must all be coddled and our diet be most carefully watched by an army of inspectors lest we might catch something. The matter of fact is that the one great curse of this generation is the curse of inspection. We are inspected for something every time we turn around. The politicians have discovered a rich field for exploitation of the people. Each new law requires a new army of inspectors. Each inspector gets a salary and each person inspected helps to pay him. Then we look each other in the face and say "Is it not awful the way prices of food are going up?" Yes it is simply awful, but they keep going up and we keep on electing officials that help to boost them higher and higher by all kinds of fool laws. And the pity of it all is that after all the inspecting is done we go right on dying just as we always did. The law that "the fittest will survive" never ceases to operate for one instant. The efforts of some Congressman to save and improve the human race must amuse the Almighty at odd intervals."

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THE COST OF FOOD

There is probably no human necessity on which there is less profit to the producer than on the food that people eat. Yet, a slight rise on the farm price, or even an intimation of such a rise, calls forth a loud and mighty howl. While there is some complaint against the doubled and possible tripled cost of gasoline, it is nothing to the protest that goes up when farmers demand two cents a gallon increase in the price of milk. Why should people be specially set against paying such a price for food as would give a fair return to producers, and, with only slight grumbling, often pay extortionate prices for luxuries and fineries? Food is the first and basal necessity, and the institution that produces it is fundamental in the social economy and should for these reasons be cheerfully accorded a fair return. It is probably not due to any unjust purpose on the part of the consuming public that the parsimonious spirit is exhibited, but rather to an ignorance of true conditions. Thru a certain kind of publicity the city consumer has come to believe that the business of farming is extremely profitable, or would be if farmers were sufficiently enterprising. The present propaganda of agricultural education is probably wise and good, but it will fail of its purpose until city people have become familiar with true conditions and can helpfully co-operate in the business of buying, selling and distributing in the most economical manner. As long as city civic leagues, housewives' clubs, and similar organizations can be hoodwinked into lending their aid in pushing such ridiculous movements as the recent resolution in Congress for a federal investigation of the dairy industry—the effect of which is to discredit and harrass the dairy business and increase the sale of butter substitutes—their activities will hurt rather than help even their own cause. If city consumers really want to help themselves and others, let them go out and meet with rural people, not with some fool up-lift notions, but with a desire to develop a mutual understanding and become better acquainted with the entire business of food production, and with the people engaged in it. This would result in the development of more sympathetic relations between the two classes and make possible the adoption of methods which this lack of understanding now makes impossible.

PUBLIC FORUMS

Every locality should have its open forum. If it possesses no publically owned hall for the purpose of public discussion of public questions, then the school house should be open for such use. Every individual needs such opportunity, and also needs the broadening influence of his neighbor's opinion. Questions pertaining to national, state and neighborhood matters must receive the attention and discussion of the masses if they are to be intelligently handled. A true democratic-republic can continue only so long as its citizens take an active and intelligent interest in all public questions. Such interest can not be developed and maintained unless the individuals are informed upon and discuss the important questions. Time was, in the early settlement, when the public forum in the shape of town-meetings was common and was the chief means of expressing and developing opinion. Of late the tendency has been to lessen public debate and depend upon the press for expression. An unbiased examination will show that this is unwise. Not only must we have a free press but free speech as well, and the latter is possible only when an opportunity is afforded. The school houses are public property, designed to advance intelligence, so why should they not be used continually, for grown-ups as well as for children, and thus aid in developing a more alert and intelligent citizenry? One great work they would do, would be to educate men to hear and respect the opinions of others, something that is absolutely necessary before any great things in co-operation may be expected. When school houses are used for this purpose, the directors, or those in charge, usually stipulate that political questions be avoided. This may be right so far as partisan meetings are concerned, but public questions touching public welfare, political tho they be, should be allowed. Rural people should consider them from their standpoint. Of course, reactionary men and newspapers usually throw a fit when the common people handle "sacred" subjects openly and impartially. This is but another evidence that the public forum is needed.

DAIRY INSPECTION

Congressman J. Charles Linthicum, of Maryland, is greatly agitated over the discovery that Congress has never "investigated" the dairy industry. In fact he is, or was, all het up over it. He made a speech in Congress the other day calling attention to the gross oversight and demanding an immediate investigation. He admitted that state and municipal authorities may be keeping an official eye on the dairy business, but "so far as the federal government is concerned, dairies, creameries, centralizing plants and butter factories may be said to 'run wide open'". Taking his own word for it that it might be said, J. Charles proceeded to say it. He modestly admitted that he had no personal knowledge of the conditions in the dairy business, but he was willing to be shown and he opined that it was an imperative duty of Congress to do the showing. We understand that he was shown by less expensive methods in committee hearing on his resolution, but if he is not convinced we would suggest that he make a modest investment in a dairy furnishing milk or cream to a city market. By the time the municipal inspectors are thru with him and he has rebuilt and remodeled his equipment to meet their specifications he will have a little personal knowledge of the business. But if he will sit tight for a little while, a state inspector is likely to come along and add to his fund of knowledge and put a proportionate crimp in his pocketbook. If he needs further information he need only wait a few months until a new city regulation is enacted and he is called upon to make further changes. There will be enough inspection to prevent monotony in his course of observation, and when the course is completed he is likely to conclude that Congress may go on with its lesser duties and permit the dairy business to continue to run wide open "so far as the federal government is concerned." We have always supposed that a little "personal knowledge" was necessary to wise legislation, but perhaps we have been mistaken in assuming that wise legislation is the chief aim and purpose. If Mr. Linthicum really wants to discover the source of claims of dangers in butter and cream as handled, let him go to the oleo manufacturers. Let him thoroly investigate their claims and their personal and business interests in promoting those claims. Such investigation will largely answer his questions and allay his fear of uninspected dairy products.

HARRISBURG NOTES

Taking up Lost Motion.—During the past week the Pennsylvania Conservation association, interested in agricultural advancement and improvement of rural life; the Wild Life League and the United Sportsmen, which are committed to maintenance of wild life, natural beauties, forests and streams, and other organizations having forestry, purity of water and similar matters have decided to merge. The plan would bring probably 65,000 persons together. They have similar legislative programs and united effort would make them a great force. This conservation of effort in behalf of conservation will not be lost at the Capitol. Some similar taking up of the lost motion in the State Capitol would prove an absorbing topic for the next legislature, provided it does not become too much imbued with the spirit of factionalism which is rampant in both of the old political parties and which bids fair to occupy so much time and attention this year.

Employers' Liability.—It is probable that in a short time the State Compensation Board will make a ruling in regard to agriculture and its allied branches which will settle the questions which have arisen in employers' liability and put the whole matter on a basis which will be readily understood. The disposition at present is to regard actual farming as the only line, outside of domestic service, which does not come under the act. The various specialized lines are held to be within its scope.

Sheep Raising.—The proposition of the State Commission of Agriculture to take up the difficulties attending raising of sheep is attracting much notice. Many farmers are giving their views and pointing out that with some clarification of the laws and a better understanding among county authorities, sheep can be better protected. This could be obtained by county commissioners at their annual conventions by agreeing on the manner of enforcing the law. As a matter of fact, many of the problems which are distressing farmers could be solved if local authorities were brought into closer relationship. The disposition seems to be to look to the state for everything instead of having the man at home give it attention and to use the laws and authorities at hand.

Butter and Eggs in Storage.—Report of the State Dairy and Food authorities on foods in storage on April 1 shows a decline in the number of eggs. Only 21 of the 72 cold storage plants under state supervision had any eggs in storage on April 1. On January 1 all had eggs and the total was 2,613,541 dozens and 338,225 pounds out of the shells. The latter product was in the cities and is used in various lines. On April 1 the reports showed only 319,122 doz. and 166,650 lbs. of eggs out of shell. On April 1 last year there were about 1,677,000 dozens of eggs in storage. The butter in storage also shows the demands made upon stored food during this late spring. On Jan. 1 there were 3,452,796 pounds in storage and on April 1 only 445,465 pounds. On April 1 of last year about 900,000 pounds were in storage. Even with the southern eggs coming in it would appear that the demand for eggs this year is something remarkable.

Inquiries for Small Farms. — The State's latest bulletin on farms for sale has not only demonstrated that there are not as many on the bargain counter as believed, but that there is a desire for small farms. Many of the inquiries have come from men who want to buy farms suitable for truck farming or market gardening. They want small tracts which can be intensively farmed and whence the products may be shipped with a minimum of haul to trolley or railroad line. Some study of routes would doubtless enable the state department to supplement its proposed work for conservation and marketing betterment.

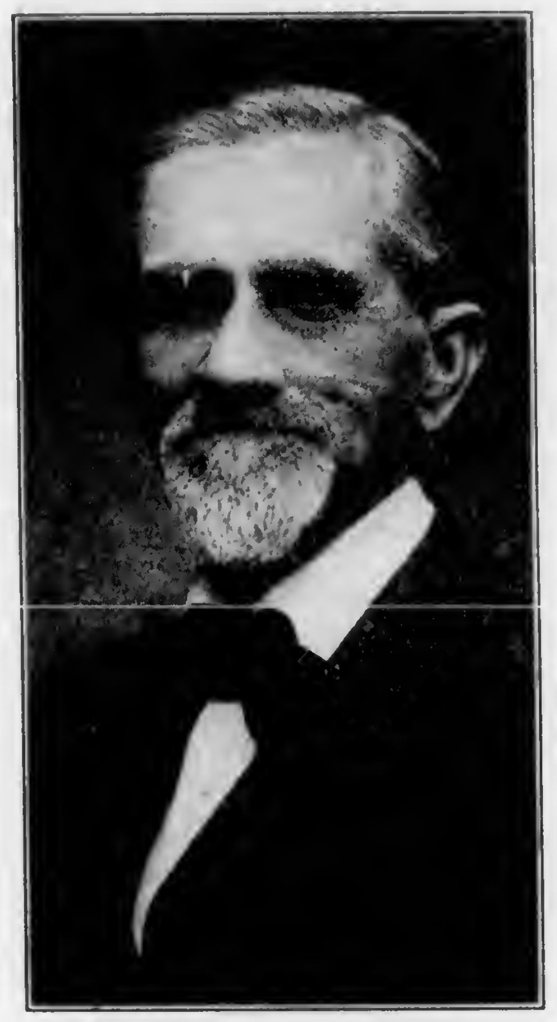
Fire Marshal's Warning.—The State Fire Marshal's department is conducting some pretty vigorous work in running down arson suspects and also giving warnings. Acting Fire Marshal Wolfe says that farmers should take care that brush and rubbish is burned where it can do no harm and that accumulations from winter be cleaned up early and thoroly. The department's data contains reports of many fires in the country and it is the idea to use it in "preparedness."

The Road Situation.—In the last week opinions have been given to the State Highway Department that state-aid money, or appropriations voted by the last legislature for the construction or maintenance of roads in co-operation with counties, boroughs and townships, can not be used on construction or maintenance of what are classed as state main highways in such municipal divisions. While this is practically a matter of legal bookkeeping it will prevent a number of projects from being carried out. The plain English of it is that the legislature was so busy taking care of hospitals and charities which should be supported at home and in voting money for state government that it did not provide enough for the highways. The money for main highways is either used up or taken up and the state-aid money must be used for what it was specified.

The Escheat Tangle.—The school code intended that money or estates escheated to the commonwealth should go into the permanent school fund. Escheated means the legal process whereby unclaimed property or property owned by persons without known heirs becomes vested in the state. The last legislature so tangled up the escheat law which was intended to get at unclaimed bank deposits and the like that it is doubtful if it can be efficiently administered. At least that is the present view.—Hamilton, Harrisburg, April 17.

AN "OLD SCHOOL" FARMER

W. H. Stout, of Schuylkill County, is one of the oldest and most loyal members of the Pennsylvania State Board of Agriculture. A well merited distinction was accorded him by his associate members and institute speakers at the last meeting of the Board, when he was presented with a beautiful basket of flowers as a mark of esteem and in recognition of his long and faithful service. It was a graceful acknowledgement of the services rendered by this staunch representative of the "old school" in farming.



W. H. STOUT, SCHUYLKILL COUNTY, PA.

Mr. Stout is a rare type of farmer student. He is widely read and has made a specialty of geology, particularly as it touches upon soil formation and farming. He is an authority on geological formations common to this state and is an intensely interesting talker on his favorite subject. He has applied scientific practice to his farm work, but has little patience with so-called farm scientists. His ready wit and effective use of keen sarcasm insures him an attentive and expectant audience wherever he is known. The mere mention of a "county agent" once drew out his best efforts in this form of argument, but as president of the recently formed Schuylkill County Farm Bureau, he may be trusted to become acquainted with the varied possibilities of Farm Bureau work and give his earnest effort to constructive up-building of his county's agricultural interests.

NEW YORK LETTER

Canneries Win.—The Assembly voted on April 13 to permit the working of women in canneries 12 hours a day and as late as 12 o'clock at night. This to apply for any 20 days between June 15 and October 15. At present women may be employed 12 hours a day between June 25 and August 5 but not more than six days or 66 hours a week. The wages paid women in canneries are said to be not more than 10 cents an hour.

Good Money for Milk.—Farmer patrons of the creamery at Canastota, N. Y., received $146,556.67 for their milk last year and nearly $10,000 more was disbursed by the company for other purposes in that community. Labor for running the creamery was paid $9,675.46. About 180 farmers are patrons of this creamery. Six milk routes are covered daily.

State Labor Bureau Discontinued.—The commissioner of agriculture announces that the state Labor Bureau has been discontinued. It was found that the work of the bureau was overlapping that of the state industrial commission and the federal bureau and it was thought that in the interest of economy the state bureau should be abolished. Commissioner Wilson says that those who want farm laborers should apply to the nearest state employment bureau. Since its organization in 1905 the state labor bureau furnished employment for 50,000 persons.

Important Agricultural Bulletins. — Farmers should not overlook the opportunity for information which they have in the bulletins issued by the state department of agriculture. The latest issues, which may be had for the asking, are "The Potato Industry of New York" which is a reprint, with much new matter added, of a bulletin issued two years ago. The new material consists of an article on "The Powdery Scab Disease" by Dr. George G. Atwood and several articles on the "Standardization of Potatoes." Another recent Bulletin is part 2 of the Farm Institute Director's report which contains considerable valuable information. "What Shall the Farmer Read?" is the title of another bulletin, No. 75, which gives a list of books on all phases of agriculture, rural economy, domestic science, rural hygiene, etc.

Compulsory Physical Training.—The bill requiring compulsory physical training in the public schools passed the Assembly this week almost unanimously. This bill is almost certain to become a law. The bill which proposes to require boys between 16 and 19 years of age to have military training in camp during the summer, meets with considerable favor and may become a law.

Pensioning the Farmers. — Senator Wilson is not to be outdone by the teacher "pensionists" and others. This week he introduced a bill to pay every farmer who has followed the plow for 30 years $10 a month, the money to be paid by the state charities department. On reaching 50 years of age he would get a pension of $20 a month and at 70 the pension would be $30 a month. Looks as if the senator was trying to get on the right side of the farmers.—D.

NEW JERSEY FARM NOTES

Ignored By Bills. — The Florence Township committee, of Burlington County, has passed a resolution requesting that the county representatives meet with them and explain why Florence was ignored in maping out the routes for the highway under the Egan Road Bill. It is stated that these representatives made campaign promises that Florence Township, which has been clamoring for an improved road for a number of years, would be looked after.

Abandon Road Work.—Work has been temporarily abandoned on the Elmer-Malaga Road, an important link in the cross-state auto route, and the 44 convicts which have been working on the highway will be shifted to other places. Failure to complete the road is attributed to cutting down of the appropriation for prison camps by the Legislature. The rather extensive prison camp, the first to be established in South Jersey, will be closed. Part of the road building equipment and 22 convicts will be transferred to Norma, where they will start on a stretch of road near Parvin's Mills, and a connecting link in the improved highway between Vineland and Bridgeton.

Agriculturists to Meet.—For the organization of the new State Department of Agriculture, the Executive Committee of the board have decided to call a convention, May 17, at the State House in Trenton. Delegates will be selected by the different county boards, commissions, etc., carrying on work of interest to the farmers, for the May meeting. These representatives will elect a new State Board of Agriculture of eight members. This board in turn will choose a Secretary, at a salary of $5,000 a year, and heads for the three bureaus that will be established.

Temperature Concerns Farmers. — Farm work is two to three weeks behind the season. Unprecedented low temperatures has retarded crops and farmers thruout the state are much concerned as to the outcome. The temperature of the past week has averaged about four degrees below normal, and the heavy fall of snow in some parts, some of which is still lying in protected spots, has further interfered with farming operations. The temperature in March was lower than ever before. From the central portion of the state southward, there has been much plowing done and in some sections potatoes have been planted, all of which have suffered from the cold. Winter grain and fruit buds thruout the state have suffered slightly, but reports vary as to extent.

Award Road Contracts. — Contracts were given out during the past week for practically all of the early road repair work to be done in Passaic County, at a committee meeting of the Board of Freeholders. It is believed that the work will be started in many cases by next Monday under the supervision of Road Supervisor Isaac Wollenberg.

Farm Association Moves.—Owing to the constantly increasing business, the Farmers' Co-operative Association of Mercer County has moved into spacious quarters in the Broad Street Bank Building, Trenton. Its former offices in the Chamber of Commerce rooms have been inadequate for some time.

Kick on Roads.—Residents in and about Pennsgrove are registering complaints because of the poor condition of the roads in this section. It is claimed that because of the recent heavy rains the roads are now practically impassable. The road repairs have been long neglected, it is said, and the best the residents get are promises from the road officials, who say that new highways are to be built this summer.

Bonds for Roads.—The Burlington County Board of Freeholders during the past week determined upon a bond issue of $10,000 for a short term, to pay the expense of improving the highway from Port Elizabeth to Tuckahoe. The road to be improved is a little more than five miles in length.—L.

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Ayrshire Bull calf from third generation of A. R. dams. Fashionable color, Price reasonable. R. TEMPLETON & SONS, Ulster, Pa.

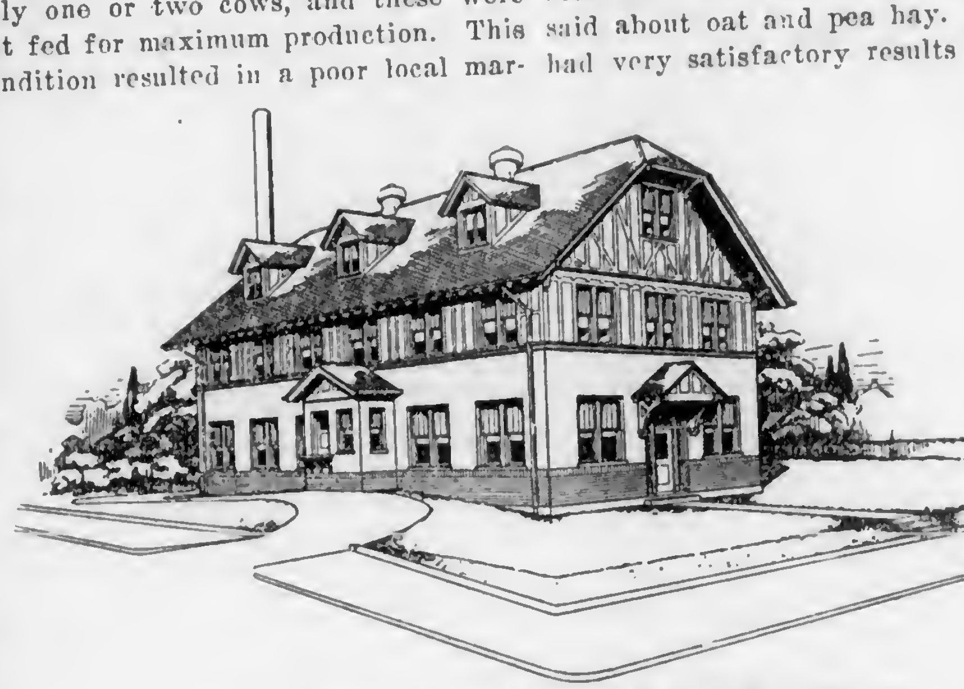
The Dairy

A FEDERAL CREAMERY

A creamery that is attracting considerable attention and comment is conducted by the federal government in Mercer County, Pa. A few years ago our federal government decided to conduct an experimental creamery in some section of the United States where the market for butter was poor. The object was to determine whether or not a profit could be made on the products of the creamery and also to carry on experimental work.

The officials in charge of this project solicited applications from all sources and there were calls from all sections of the United States for the location of the creamery. The Department sent a man to view the different sites offered and finally chose the location offered by Grove City, Pa., and the creamery has been located there.

Grove City is a small town. The citizens of the town and surrounding country are intelligent and prosperous, but until recently very little attention has been paid by the farmers to dairying. Quite a number of the farmers kept only one or two cows, and these were not fed for maximum production. This condition resulted in a poor local market for butter, and the facilities for shipping were not encouraging. The Bessemer Railroad is the only means of transportation to other places.


UNITED STATES CREAMERY AT GROVE CITY, PA.

Soon after the government had decided to locate the creamery, preparations were made to erect a building which could be kept sanitary. The inside including all three stories is finished in hard wood and the latest and most up-to-date machinery has been installed. A room has been set apart for the chemist to carry on experimental work. When the creamery project was under consideration, some of those who expected to patronize it objected on the grounds that they would be required to to put on white suits, and to wash the cows, etc. But the officials decided to conduct the creamery along ordinary lines.

Patrons are well pleased with the results and with returns which they receive from the management. A little more than ordinary prices are received for butter, besides butter, cottage cheese, whipped cream, etc., are sold and any extra money that is realized from these products is divided among patrons. Patrons have the privilege of selling the skimmed milk to the management or taking their share home; 30 cents per hundred is paid for the skimmed milk. The patrons are allowed to separate the milk at home and deliver the cream if they desire to do so.

The cream cans are washed at the creamery in the most thoro manner. Bacteria or germs of any description that hang around waiting for a "Marathon lunch" are sure to meet sudden death. Cans in which milk is brought are not washed at the creamery. Milk and cream that is delivered at the creamery must be absolutely clean and free from odor, or it is rejected by the managers. Milk must be sweet above suspicion or it will be sent back. No inspector is sent around to the farms from which the milk comes.

Mr. A. O. Dahlberg, a graduate of Wisconsin College of Agriculture, is the efficient manager. The greater part of the butter is shipped by express to Philadelphia. The creamery building was erected by the patrons at Grove City and the Government has leased the building for a period of fifteen years, at the average rate of about 7 percent per annum of its initial cost. The officials at Washington have taken a survey of conditions surrounding Grove City and in five years another survey will be taken with a view of determining whether or not conditions have been improved. — Ellsworth Brown, Mercer County, Pa.

OAT AND PEA HAY

Cut Straw for Bedding

While the food value of cut corn is far too high in this section to consider their use for bedding as suggested by Mr. John H. Voorhees, in a recent issue, we want to endorse what he said about oat and pea hay. We have had very satisfactory results with oats and peas. The expense of harvesting and threshing oats, together with the necessity of raising as much feed as possible on a limited area caused us to try the experiment of sowing Canada field peas with oats and cutting them green for hay. Not only the saving of considerable expense incident to raising grain but the large yield and high feeding value of this hay have led us to abandon the practice of threshing oats. If properly cured, the oat and pea hay is far superior to the best timothy for cattle and is eaten with relish by horses and hogs. The yield runs high and a mowing machine and hay rake do the harvesting.

We seed at the time of sowing the oats, the same as if we were raising grain. The oats should be cut for hay just as the berry fills with milk and before the straw turns or becomes hard. It takes longer to cure oats and peas than timothy or clover. Very good results will be had by plowing the peas under and waiting two weeks before sowing the oats. This gives the peas time to properly mature when the oats are ready to cut. As the hay is off the field earlier than oat harvest the clover seeding gets a little benefit. We can buy oats straw here for about $6 per ton, and as we are located we prefer to buy our straw for bedding, our grain for feeding and cut our oats green for hay.

Mr. Voorhees' suggestion of cutting corn stalks for bedding applies with equal force to straw. Any farmer who has a gasoline engine, and no farmer can afford to be without one unless he has other power, will find it very desirable to cut all the straw he uses for bedding. The cut straw is not only easier handled in the stable, but it absorbs the moisture better and puts the manure in a finer condition for applying to the soil.—E. D. Leach, Allegany County, N. Y.

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4.	17,030 "	25.15 "	$200.

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Jersey Bulls from Register of Merit dams, at farmers' prices. Old enough for service. S. O. ENGLE, Marietta, Pa.

BUTTER AND OLEOMARGARINE

Kindly give the analysis of butter and of oleomargarine. Which is the more nourishing? — H. D., Lancaster County, Pa.

The average composition of creamery butter is usually given as about 85 percent butter fat, 12.7 percent moisture, 1.3 percent curd and 1.97 percent salt and ash. The butter fat is a natural fat consisting of a mixture of fatty acids, known as butyric, myristic, palmitic and oleic.

The composition of oleomargarine cannot be stated in definite terms as there is no standard of quality. It is a product made by churning fats other than butter fat with milk or cream or with butter until it makes an emulsion similar to butter in form and consistency. The analysis varies with the quality, which in turn is dependent largely upon the amount of milk, cream or butter used in its manufacture. There is no standard established in this country. In Great Britain the amount of butterfat permitted in oleo is limited to 10 percent and the moisture content is limited to 16 percent.

As to comparative nourishment, there is apparently little difference between best grades of the two products. Good butter is about 97.86 percent digestible and best oleo is about 97.55 percent digestible. The wholesomeness and food value of the two products depend upon method of manufacture and the resulting quality. This quality is likely to vary more with oleo than with butter because of the different ingredients which may be used in its manufacture. The common fats other than butter used in oleo manufacture are "oleo oil" prepared from beef fat, "neutral lard" taken from leaf lard of hogs, cottonseed oil especially prepared as butter oil or in crude form or as cottonseed stearin. Cocoanut oil and peanut fat are also used in making certain grades of oleo. The wholesomeness of the product depends largely upon the kinds, quantities and qualities of these products used.

GRAIN MIXTURES

Millet and Cow Peas

The article on growing grain mixtures in the Pennsylvania Farmer of March 25 and the editors' comment brought to mind an experiment of the kind tried a few years ago. My brother had a field of fairly good soil on which he sowed German millet, about one peck of seed per acre, and three pecks to one bushel of cow peas per acre. He tried several kinds of cow peas but the variety that gave the best results was the New Era. This is a small seeded, early variety of cow peas that ripened just about with the millet. The soil was turned and thoroly harrowed and the peas sowed and well covered with the harrow and the millet seed sowed broadcast and harrowed in lightly. No fertilizer was used but on most soils a light application of a high-grade acid phosphate would most likely pay well.

The millet grew up in some places fully four feet high and all over the field it was a good crop. The cow peas vined on the millet and both together made an immense crop. The worst trouble was harvesting the crop, but by careful work he succeeded in cutting it with a mowing machine. The Iron and the large black cow peas were rather late for the millet, altho they made large vines. The New Era variety had some ripe pods on the vines when the millet was ready to cut. I do not think that I ever saw a better forage crop grow in this country than grew from this mixture. A. J. Legg, Nicholas Co., W. Va.

SOME REMARKABLE PONTIAC RECORDS

Thirteen daughters of King of the Pontiacs have now qualified in the 30-pound class, putting him at the head of the 30-pound sires. The thirteenth daughter, K. P. Gem, a senior three-year-old, has a remarkable record. She freshened on December 11, 1914 at 2 years and 6 months of age, and went on the yearly semi-official test making 19,375.3 lbs. milk, 758.44 lbs. fat and 948.05 lbs. butter.

In 360 days after this freshening, she was started on an official 7-day test in the senior two-year-old class, in the eight-months-after-calving division, and in 7 days broke the world's record in this class, milking 325.5 lbs., containing 14.85 lbs. butter fat or 18.57 lbs. butter. She completed this test in the middle of Decembe. She carried a calf for the last six months.

After completing this test, she was never dry until she freshened again on March 12, at the age of 3 years 9 months 22 days. She was put on an official 7-day test which she has just completed. In the 7 days she produced 522.1 lbs. milk, 25.458 lbs. butter fat equalling 31.82 lbs. butter.

WHAT TUBERCULIN CHART SHOWS

What, in your judgment, does the enclosed tuberculin chart indicate: 1st, as to the health of the animal; 2nd, as to the value of the tuberculin test for interstate shipments of cattle. This is the actual result shown by a test made by a thoroly competent and experienced veterinarian for interstate shipment. Is the animal tubercular or sound? What should the purchaser's attitude be under the circumstances? What should the seller's attitude be under the circumstances?—Subscriber.

The chart is the usual form kept by the testing veterinarian. It shows temperatures taken by owners as: March 3, 11 A. M., 100.8 degrees; 6 P. M. 102.1; 12 P. M., 101.3. March 4, 8 A. M., 101.7; 11 A. M., 100.9; 6 P. M., 101. March 5, 12 P. M., 101.1. Temperatures taken by veterinarian prior to testing read: March 5, 4 P.M., 102.3; 6 P. M., 101.6; 8 P. M., 101.4. The cow, aged 4 years, was injected at 8 P. M., with 1 dram of tuberculin. Temperatures after injection read: March 6, 5 A. M., 100.4; 7 A. M., 100.4; 9 A. M., 102.6; 11 A. M., 102.8; 1 P. M., 102.6; 3 P. M., 103.6; 5 P. M., 102; 7 P. M., 101.4.

I have reviewed the chart carefully and am first led to believe that the animal's normal temperature was very close to 101.5. Thirteen hours after the tuberculin was applied the animal showed some elevation of temperature which kept up for 10 hours, then dropped to normal. Consequently I am led to believe that the tuberculin caused this re-action which is perhaps not sufficient to condemn the animal, but certainly enough to cause suspicion on the part of the purchaser. Therefore, if the buyer was a client of mine I should hesitate to advise the purchase, unless I was certain that other temporary exciting causes produced this elevation of temperature which the chart distinctly shows. An animal of this kind should be regarded as suspicious. I advise a physical examination made every 30 days and the animal again tested in three or six months. The re-test should be made with active tuberculin and the dose doubled.

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FARMERS' ORGANIZATIONS

MARYLAND FARMERS' CLUB

The April meeting of the 9th District Farmers' Club, of Cecil County, Md., was held at the home of Mr. and Mrs. E. F. Kirk, near Rising Sun. The meeting was called to order by the President, C. W. McKinney. All members were present at roll call. The minutes of the meeting held at the home of Mr. and Mrs. H. L. Kirk were read and approved. County Agent Marsh wanted some one to try different kinds of lime; burnt lime and ground lime stone. Also some to raise soy beans and have them threshed and ground to compare the food value and price with cotton seed meal; also to plant three or four different kinds of seed corn, he to furnish the seed.

The host was called on and responded with an essay on poultry breeding and care. He advised the keeping of pure bred fowls, for the beauty in pure bred chickens alone is worth all the trouble and care of them. Great care should be taken in selecting the breeding stock. The best way to get good laying hens is to buy our eggs and stock roosters from people who use trap nests. We should be sure to keep every thing clean; to give them the right kind of feed and plenty of it; also, good clear water. He advised feeding a mash of 200 lbs. wheat bran, 100 lbs. flour middlings, 150 lbs. corn and oats ground, 100 lbs. beef scrap, 75 lbs. of fine ground alfalfa meal, 25 lbs. fine ground charcoal. Keep oyster shell and grit before them at all times.

Mr. Kester, associate editor of the Pennsylvania Farmer, a former Pennsylvania State Grange Lecturer, made a very instructive talk. He spoke about the necessity of farmers combining and all raising one kind of cattle, poultry, etc., so that each neighborhood could be known for that kind. He spoke about the great problem of the times which was to do away with some of the middle men's profit. In selling produce, it should be well graded, not white and brown eggs in the same case, but to mark them white or brown, as the case may be. Butter graded. Apples all one kind in a barrel. Poultry all one kind in a box or barrel, not a mixed variety, as that would ruin the sale. The thing to do is to produce the most for the least money spent and the least work to make a good profit. The farmers were advised to harrow the ground after sowing clover seed. The club adjourned to meet with Mrs. Helen W. Kirk, May 3.—H. R. B., Cecil Co., Md.

FARM BUREAU MEETING

A meeting of the Clearfield County Farm Bureau, together with other interested persons, was held in the court house at Clearfield, Pa., April 8th, 1916, to present to the County Commissioners the arguments and sentiment of farmers and others in favor of the appropriation of $1,000 from the County treasury for the support of a Farm Agent. The meeting was called to order by President Peter Gearhart; H. E. Bodine, secretary. W. H. Patterson, Esq., of Clearfield presented the matter in a short address explaining the law, and what other counties are doing. He also read a letter from Dean Watts, of State College stating that a very suitable and desirable man for our county is now available, and if the County Commissioners will make the necessary appropriation for the expenses, the work can be started July 1.

A number of farmers and others from different sections of the county expressed their approval of the project. John Hayes from Brady township, however, took the position that simply helping to increase production would not be an unmixed blessing to the farmer, unless some way was found to secure to him a greater proportion of the price consumers have to pay for his products. Others admitting the force of this argument held that better distribution is the great need of the times, and one cited as a case in point last summer's large crop of peaches, when with the fruit rotting by the carload on sidings, the price on city fruit stands was two peaches for 5 cents.

On a vote being taken nearly all present favored the project and none voted against it.

The Commissioners were all present and upon being called declined to state how they will act, but they seemed to believe it proper to do what the people of the county as a whole wanted, when that was demonstrated to their entire satisfaction.

One member of the Board said that some farmers had privately expressed opposition to the appropriation and therefore there should be some further consideration of the subject before action is finally taken.

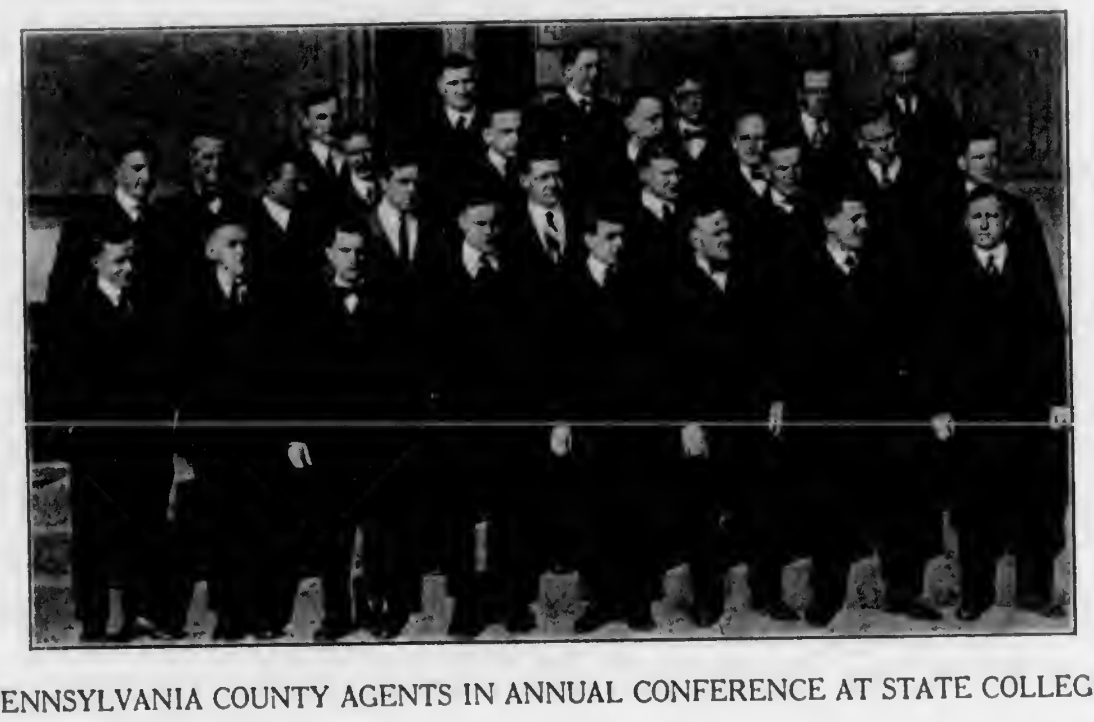
This member asked how many of those present were farmers, and the number that arose showed that a very large majority were tillers of the soil.

It is the expressed intention to further press the matter on the attention of the County Commissioners, and all interested were asked to work for the greatest possible expression of public sentiment in its favor.

. . . . . .

Immediately after the Farm Bureau meeting, the Clearfield Bankers' Association presented to a meeting of farmers called for the purpose a proposition from the New York Central railroad to bring into the county one or more car loads of grade and purebred cattle; the farmers to send a representative into the dairy country of New York to select desirable stock. Some farmers decided to secure stock by this plan, but not enough having gone into it to make up a car load of cattle it was left open for one week.

Farmers who had begun plowing and other spring operations were disagreeably surprised by a snow storm lasting from Friday night April 7 until Sunday morning and covering the ground to a depth of 6 inches or more. No real damages seems likely to crops of any kind, but the delay to farm work may be quite serious if the wintry condition should continue.—T. L. Wall, Clearfield Co., Pa.



PENNSYLVANIA COUNTY AGENTS IN ANNUAL CONFERENCE AT STATE COLLEGE.

CHAUTAUQUA FRUIT GROWERS

On April 8, the organization of the Chautauqua Fruit Growers' Association was perfected at Ashville Grange Hall. The association is purely co-operative and non-profit making and is designed to pack, grade and market the apples of its members. The following temporary officers were elected: J. R. Palmeter, of Lakeville, president; A. Lincoln Gleason, of Open Meadows, vice-president and A. H. Applebury, of Lakewood, secretary and treasurer. Incorporation papers will be taken out immediately. The first year there will be three packing houses established. These will be located at Ashville, Cheney's Point and Watts Flats. The association will probably arrange for a dryer at Watts Flats and a cider and vinegar plant at Ashville. As members of the association sell about 12,000 barrels of apples every year the success of the association is practically assured, and it is believed that double that number of barrels will be marketed thru the association the second year and perhaps sooner. Another meeting of the association will be held at Ashville April 29, to perfect details and get in shape to do business immediately.—D.

GOOD SUGGESTIONS

I saw published in the Pennsylvania Farmer of March 11, a query asking about the kind of directors elected, teachers employed, school buildings and ground, and the educational spirit of the neighborhood. Up to the present date I have not seen an answer given by the farmers, or people of the rural districts. Now there is quite a number of farmers that receive the Pennsylvania Farmer and could not help but see the questions asked by the editors, and if there is any who do not get it, subscribe for it at once or you will be sure not to be up with the times. It is the best paper printed for the farmers and people of the rural districts. The directors should be men who are interested in the educational welfare of the child; also interested in a better school system than we have at the present time. The rural schools of today are not all up to the standard required by law. Many of the buildings are in a delapidated condition and lacking sufficient light, and proper heat and ventilation. There are entirely too many school buildings in some districts that are kept open with only a small number of pupils attending. This can be bettered by centralizing the schools where the roads are in good condition. A centralized school building should be built of brick, have four or more rooms according to the number of pupils, have a good heating system installed, proper ventilation, and sufficient light, fire escapes and everything up-to-date. The school ground should consist of two acres of land around the building, a beautiful lawn, also granolithic walks, flowers, shrubbery and shade trees; one half acre should be laid out in plots for agricultural purpose, the rest for play ground. A building of this sort could not help but make the people happy and more healthy. We have good churches and are getting good roads but certainly are behind along the line of education. The census of 1900 showed that 51 percent of the people of Pennsylvania were in the rural districts and in 1915 it showed about 38 percent. This is due to the fact that many of the people moved to towns and cities to get their children in better schools. Now Mr. Editor, you have asked for short letters so I will stop and hope that some more farmers or readers of Pennsylvania farmer will say something about the rural schools.—Reader, Perry Co., Pa.

DEFENDS THE FARMER

A Baltimore suscriber sends the following which was clipped from a Baltimore paper. It was written as a reply to a news item in which the writer had evidently expressed some slighting remarks about farmers:

"It is open knowledge that writers and cartoonists on city newspapers and magazines always have seemed to take delight in preparing diatribes against the farmer. In their perverted conception of the idea they attempt to portray the farmer as uncouth and ignorant, is a reflection of their own lack of intelligence or information.

"No farmer objects to being represented truthfully, but he is opposed to caricature and ridicule when there is no foundation for them, and any use of these methods is a boomerang. It is the conseasus that the majority of persons in small cities and a large proportion in larger cities are country born or bred, and none would hesitate to defend his birthright. Many city-born people may be excused, for their impressions have been formed by observation of the public prints, which puts a double burden on the authors.

"In marked contrast is the prosperous farmer of today and his prototype of a decade or two ago.

"With the extension of trolley systems, the increasing use of the motorcar and various other modern devices that may be installed on the farm, the agriculturist of yesterday is the suburbanite of today. He is in close touch with the city and enjoys all its privileges; but he has infinitely more. His vision is not limited by towering brick buildings and his rest is not disturbed by unseemly noises.

"The day of the tallow dip has long since been forgotten and the kerosene oil has been superseded in many homes by the electric bulb. Proximity to transmission lines is not a necessity, for the small stream that flows thru the pasture has been made to afford power sufficient to light all the farm buildings, drive the machinery—the cream separator, the fanning mill and the old churn that had produced more than one aching back; while a pump, electrically driven, forces water to an elevated reservoir, whence it falls for the convenience of the household. And a motortruck is not an uncommon sight instead of horses.

"It would be well for the city writers and cartoonists to visit the home of a prosperous farmer of today. They would find him intelligent, cultured and refined, well dressed in the latest patterns. Farming today is a science and the farmer conducts his work along lines that demand hard study, close attention to details and a clear perspective. He may mingle in the best class of society and defy the social expert to distinguish him in the metropolitan circle.

"The farmer of today and the traditions of the farmer of yesteryear should command universal respect, for he is one of the most important factors—indeed, is he not the most important?—in the industrial world, for he produces the materials that feed and clothe and in a measure house the nation. He is the foundation of society, for it is on his vocation that the prosperity of the country is established and it is to him that the people are indebted for their living."

RURAL CARRIERS' PAY

I have read Mr. Smith's article in your issue of March 18, and wish to refute some of his contentions regarding carriers. In the first place, does Mr. Smith realize that a carrier working only 3¼ hours does not receive the same compensation as one serving a longer route? True, one does not need a college education for that job but good common sense together with an ever courteous manner towards patrons under quite often very trying circumstances.

As for his contention that 90 percent of farmers would gladly exchange with rural carriers there is no doubt, but do not think that 90 percent of farmers could fill the position properly. As I live in a rural community I know that farmers can and do find time for leisure whenever they want it, altho not for fifteen days in succession perhaps. I have not seen many farmers working in inclement weather, whereas rural carriers are compelled to be out in all kinds of weather while most of the farmers are sitting around the stove smoking.

An item of expense to rural carriers which cannot be overlooked is the upkeep of horses and wagons, or motor vehicles. This amounts to a neat little sum not to be ignored. If Mr. Smith thinks the job a cinch, I don't. I am not related to any rural carrier and am a man who works 365 days in the year, but I am of the opinion that any man who works for Uncle Sam earns his money. Very truly, G. B., New Jersey.

(Note.—We have given space to both sides of the above question, also treated it editorially some time ago, and feel that we must close the discussion for the present.—Editors.)

GRANGE ACTIVITIES IN MIDDLESEX COUNTY, N. J.

Pioneer Grange No. 1 of Cranbury, N. J., had two very interesting meetings on the evenings of March 14 and 28. Miss M. Anna Houser, Specialist in Home Economics, of the Experiment Station, was in attendance. On the 14th, Miss Houser gave a very interesting talk on "Food Values in Relation to the Human Diet." On the 28th, Miss Houser gave a demonstration in canning which was highly instructive and created a great deal of interest. The attendance at these two meetings was 45 on the 14th and 50 on the 28th which speaks well for the activity of this Grange as both evenings were extremely disagreeable, raining very heavily and the roads nearly impassable.

On Monday evening, March 20th, Miss Houser was in attendance at Plainsboro Grange No. 184, and gave a talk on "Food Values in Relation to the Human Diet." Due to bad weather the attendance was small, but the people were genuinely interested.

The Granges of Middlesex County carry on quite considerable work in co-operative buying. Milltown Grange buys practically all of the grass seed used by the members and also bought some coal last winter. New Market Grange has recently ordered forty tons of fertilizer for its members and also considerable amount of spring seed. In addition to this they conduct a co-operative store where groceries and supplies of various sorts can be purchased—I. L. Owen, County Demonstrator.

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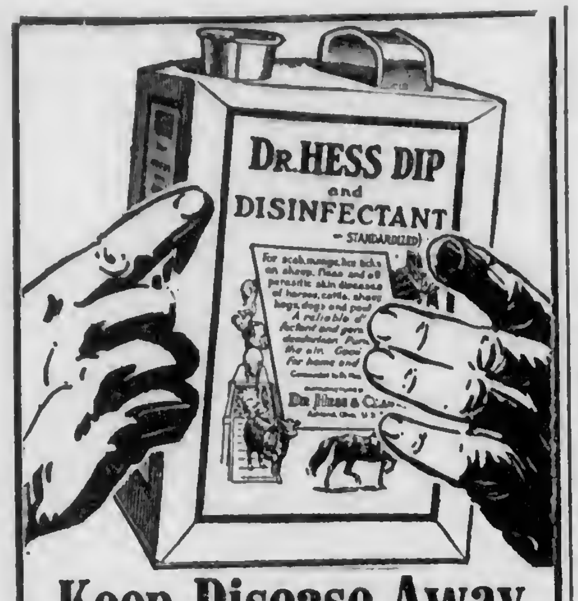

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Live Stock

SPRING SALES AND SELLING

The period for the regular spring sales of farm stock and machinery has nearly expired, and its lessons can be learned. In the first place, the number of sales is annually increasing. Just why this is so is a little difficult to explain. The number of farms here is not increasing; neither is there much increase in rural population. One would therefore suppose that the annual changes would be about the same. Perhaps the best reason, if any can be given for this increase, is the increasing restlessness and dissatisfaction with rural life which is quite apparent; and this problem will in some way have to be solved. So many people "go to farming" who, in a year or two are quite ready to go back to the factory again.

Another feature is the steadily increasing prices of most stock offered for sale. This seems to be almost absolutely independent of its regular market value. Nearly all stock sold high here this year; horses less so than others. I only know of one pair of mules at $500; very few at $400 and most of them at $200 to $300. A horse had to be very good to bring over $200. The difference in price between good and poor is every year growing more marked. Everybody "wants 'em good" just now. What would our grandfathers say about going to a sale and coming home with a one hundred-dollar cow! Yet the boys do it and the Governor must sign the check. We preach economy of war times, but where is the practice?

The time is also here for selling fat cattle. Before the appearance of the foot and mouth disease there were about two hundred car loads of fat cattle shipped every spring from here. Most farmers were still afraid of the disease and fed none this year. A few have fed and are now ready to sell. Fifty or more years ago this used to be a profitable business for the farmer. He would buy his cattle direct from the pastures of Virginia and, when fat, the butchers from the cities would come here and buy direct from the farmer and drive them to his own slaughter house.

Then the butcher and the farmer both made money. The feeder always expected to get at least double what he paid, and often more. Now, with the intervention of the railroad, middlemen, abattoir, health authorities, etc., between feeder and butcher, there is little left for either. Mr. James McSparran gave us a very just and fair statement of the cattle feeding business without sentiment, full of business sense. He, however, omitted to give attention to the selling end which always tried me most. If you want a York County farmer to join the church, go at him before he sells his cattle. His religion is not normal after that.

It works about this way: A commission buyer comes on your place and looks your cattle over, and, if the market it dull (and it always is when they are buying) he will make you an offer which means loss to you. You refuse it and in about a week another one will appear, generally a son of Israel in whom "guile" is apparent, and a confederate of the former who will offer ten cents per hundred less. Between them they will keep you "in soak," sometimes for three months. If you ship your cattle to a commission man, who is usually in the game with the rest, he will be notified of their coming and together they will "skin" you when you get there.

I fed cattle for twenty years and when done I had nothing to show for it, and then made up my mind, if I must keep myself poor to make my farm rich, the farm may get poor. The men who are selling here now are getting from 50 to 90 cents per hundred more than they paid for their cattle as feeders, which is not quite half enough to make it profitable.—D. P. Forney, York County, Pa.

PROFIT IN FEEDING CATTLE

Results With 20 Feeders

R. C. Brown, York County, has had years of experience with feeding beef cattle. The Brown herd this year was of mixed breeding with beef blood predominating. The cattle were purchased in Lancaster on November 25, 1915, at $51 per head. Nearly all were two-year-old cattle and averaged close to 850 pounds per head.

These 20 cattle were fed in a closed shed, but were only kept there while feeding grain. An open pen, 30x50 feet, joins the shed, permitting the cattle to take some exercise. The open lot has a stony bottom with retaining walls which keep it from getting muddy during wet weather. There is also a covered part, 27x27 feet, and a covered shed 10x40 feet for feeding corn stover. The covered sheds provide ample protection from rain and snow.

The cattle were confined in the feed lot from November 21 until March 30, 1916, a period of 132 days. They were fed a grain ration of 75 parts shelled corn, 10 parts cottonseed meal, 5 parts bran and 10 parts commercial feed. The roughage consisted of 10 lbs. corn stover and 10 lbs. clover hay per head per day. These feeds balance to a standard calling for 2.7 percent protein and 16.6 percent carbohydrates, giving a nutritive ratio of about 1 to 6.5. The steers made an average gain of a little more than 2¼ pounds per day for 132 days, or 310 pounds per head. They sold at $92.80 per head on March 30.

The cost of feed per head was $30. The prices of feeds used in this statement are such as prevailed in the vicinity of southern York County during the winter: Shelled corn, $26.75 per ton; second crop clover, $12 per ton; cottonseed meal, $40 per ton; bran, $28 per ton; commercial feed, $27 per ton and corn stover, $6 per ton. The profit per head, after covering all feed expenses, was $11.80, not considering the value of fertility returned to the soil in manure, which value is considerable. The manure should at least offset the labor involved.

If a farmer buys a ton of alfalfa hay, he receives, in addition to the energy for feeding purposes contained therein, an amount of fertilizer constituents which would cost $8.36 if bought in the form of commercial fertilizers. In the same way, the fertilizer value of corn would be $5.64; oats, $6.63; wheat bran, $11.55; linseed meal, $18.75 and cottonseed meal, $23.36 per ton. These figures make up a large proportion of the market values of the feeds. A study of them will show that the most expensive feeds, which are all high-protein feeds, have, generally speaking, also the highest manurial values. Where there is a choice between different feeding stuffs, the contents of valuable fertilizer ingredients in the feeds should receive careful consideration.

Cottonseed meal is a very valuable feed when rightly used. In most sections of the country it is our highest protein feed and the cheapest source of protein for stock feeding. Feeding steers on the Brown farm has been a paying proposition. — S. H. Slenker, York County, Pa.

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can be produced by feeding them a carefully sterilized, specially prepared tankage. It puts vitality into your stock and insures quick growth. Be sure though to use a good tankage.

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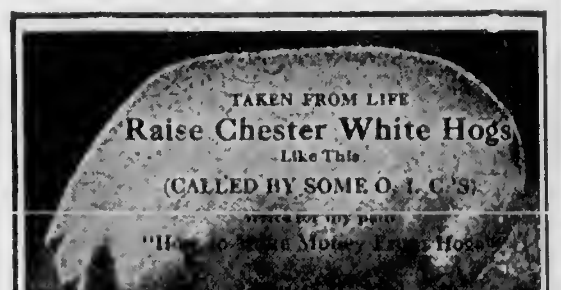

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R. W. McALLEN, Fannettsburg, Pa.

Shropshire Sheep Rams and ewes from noted English and American flocks. Quality high. Prices reasonable. NUTWOOD FARMS, R. D. No. 4, Syracuse, N. Y.

Berkshires 4 litters (51 pigs) for April delivery. Priced to sell. Guaranteed to please. Sussex bred. Ship C. O. D. if desired. L. T. DAVIS, R. F. D., Dagsboro, Del.

Bellevue Farm Durocs Best blood lines of the breed, all ages. Can furnish pigs not akin of Jan. - Feb. farrow. WALTER T. WOOD, Route D, Coatesville, Pa.

Registered Berkshires farrowed March 3, 1916. Boars $8. Sows $10. EDWIN B. MAULE, Coatesville, Pa.

Registered Berkshires of quality, the big kind; both sexes, price low. W. J. McCONNELL, Oxford, Pa.

Reg. Berkshire Pigs at $10. They are the big litter, large boned Highwood farm breeding. P. B. MESSICK, Middletown, Del.

Percheron Stallions for sale: 2 registered gray and black. 2 and 5 years old. Prices very low. J. P. WILSON, Newark, Del.

For Sale Registered Chester Whites and Poland Chinas. All ages. Recording free. J. A. BOAK, Route 4, Newcastle, Pa.

Budd's Jersey Reds, best pigs bred, thrive anywhere, develop quickly. Budd's pigs make big dollars. write your wants. C. BUDD, R. D. 3, Medford, N. J.

Large Berkshire Swine Registered High Grade. Prices reasonable; write HOME FARM, Center Valley, Pa.

Meridale Berkshires Large, healthy, prolific Foundation stock always for sale. Ayer & McKinney, 300 Chestnut St., Phila.

Durocs Choice Fall Boars, Gilts bred for Aug. & Sept. Spring pigs mated not-akin. Pedigrees furnished. Write. Ira D. Jackson, R. D. 10, Van Wert, O.

Poultry

GREEN FEED FOR HENS NEXT WINTER

Solve your green food questions for hens next winter by planting a supply of the red mangel beets this spring.

There is probably no green food that keeps better or that can be handled more easily. The long red sort—Mammoth Long Red as given in the catalogs—are perhaps the best. They can be gathered and piled like cord wood in the cellar.

Two or three stuck onto as many nails just high enough for the hens to reach easily are a source of real delight to them in zero weather, besides aiding in the production of a larger number of eggs during the season when eggs are at a premium.

Sow seed as early as possible and plenty of it.

Do not thin all at once, but during the summer go over the rows pulling out where thickest as plenty of ways can be found to use them all up. If hens are shut up these make an excellent green feed as they will eat leaves and all.

Young pigs relish these tender beets too, and thrive well with such an addition to their food.

There is no waste to the crop from the time it is ready to be thinned out until harvested in late autumn.

The larger varieties will grow to an immense size. Some weighing eight or ten pounds is not unusual.—J. E. Nye.

POULTRY NOTES

Cholera

When I was young all the poultry diseases were condensed into one, cholera. Everything a chicken died of was cholera, even the damage done by lice was attributed to cholera. Well, it was pretty bad those days, and now you seldom see it in our flocks, and when it really comes we can get rid of it in quicker fashion than we can roup or chicken pox.

One thing that makes it easier to simply name a poultry disease cholera is because almost any enteric disease a fowl may have will show cholera symptoms. I have know malignant roup to do the same. It takes experience to know whether we are dealing with cholera or some other germ disease of quick destruction. Often liver diseases caused by over feeding until the liver gets too fat and breaks down, will show cholera symptoms even to the quick deaths.

Pasteur investigated cholera most thoroly. There is no cure for it once the germs enter the body. The action of the germ is like a quick poison. It can get ahead of the quickest acting medicine. Now days, of course, inoculation will do some saving, but is not yet popular. In true cholera I have never known a cholera stricken fowl to linger over four days. I judge it best by the extreme thirst and depression, and the manner in which the bird cranes its neck over and dips its bill into the breast feathers, usually dying in just this position. The saffron or white droppings are usually present, but these are present in other diseases of poultry not so highly destructive.

Pasteur discovered a preventive, one I knew as a best preventive of many poultry diseases before—of late years—I read that Pasteur recommended it as a sure getting rid of the germs of cholera on the place, and it is sulphuric acid. Use one pound of the crude acid to each twenty gallons of water. Keep ten drops of the acid in each gallon of drinking water. Saturate the grounds, the grass and the houses with the solution, and do this with a sprinkler. The fowls can eat over saturated grounds without danger, I long ago found. Kill the sick, burn these, and cholera soon flees the premises. Sulphuric acid kills germs not only by touch but by its fumes. Saturate with this often.

Breeding Turkeys

I find the turkey crop running short this year thru our best turkey raising regions. Tales of loss and late hatches because of cold and water, so many young flocks drowned, kept coming in. At Thanksgiving the shortage was noticeable not only by the high prices demanded but by many charitable institutions giving the inmates chicken, duck or goose for Thanksgiving dinner that heretofore gave turkey. Christmas promises more turkeys of a better size, but the temptation to sell the older and larger turkeys at holiday times because of the big prices should never tempt the farmer to risk keeping over the young and undersized for next year's breeders. This is one best way to start a run down flock for next year—one that will never come to full size. The young hens next year may lay more eggs than a two year old hen but they will not, is the rule, be so fertile or withstand disease if hatched. Don't mate the young together. If you must keep a young, this year's tom, then keep two-year-old and over hens as his mates. If you must use this year's old hens, keep a tom of 2 or more years old. Don't think that you harden our domestic turkeys by allowing them to sleep in drafts or just any old place. This is a mistake. While they need plenty of fresh air, cold and drafts gives them catarrh, and favors roup for them as quickly as for chickens. Keep the breeders in good condition. Don't spare the feed, tho be careful not to overfeed.

. . . . .

I have found that allowing the sun to shine on vessels holding eggs in water glass will thicken the solution, making it nasty work to get out the eggs. Air getting to the preservative makes it also turn white and thick. This does not really hurt the eggs, so don't get scared when you first notice it, but try to not let it happen. Never stir the solution when it gets in this shape, tho it can be poured off and heated. Cover very tightly.—I. M. Shepler.

PENNSYLVANIA EXPERIMENT STATION NOTES

Give the chicks a good start by cleaning and disinfecting the brooder before they are placed in it. The station recommends scrubbing with hot water or the use of a three to five percent solution of any of the coal tar or other commercial disinfectants. Have the brooder dry before the chicks are introduced into it. Cleaning the brooder once a week during the brooding period is a good practice.

. . . . .

A constant temperature is essential in the incubator. The practice at the Pennsylvania Experiment Station is to regulate the temperature carefully before the eggs are placed in the machine. The regulator should not be disturbed after that time. Any further adjustment of the temperature should be made by lowering the flame of the lamp.

For the first week the temperature should be 102 to 103 degrees, for the second week about 103 degrees, and beginning with the third week and continuing to the end of the hatch, 103 to 104 degrees. These temperatures hold good when the center of the bulb of the thermometer is about one and three-quarter inches above the bottom of the egg tray.

CAPON 10 Lbs.
ROOSTER 5 Lbs.

PILLING CAPON TOOLS *Easy to use*

will enable you to caponize all your young cockerels and add greatly to your poultry profits. Simple, convenient and easy to use.

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Day-Old Chicks & Eggs for Hatching Rocks, Reds, Wyandottes, Leghorns, Anconas, 200 egg strains. Chicks, $15 per 100; $4 per 25. Eggs, $2.25 per 15; $12 per 100. HARRY B. CUMMINGS, Warner, N. H.

S. C. White Leghorns 250 egg strain. Long Deep Bodies, yellow legs and beaks and large red combs that lop to one side. Hatching Eggs. Day old chicks and pullets all ages. A. R. GRAVES, R. D. 2, Rexville. N. Y.

Single Comb White Leghorns Baby chicks $10 per 100. Hatching Eggs $6 per 100.
Imperial Pekin Ducks Baby ducks $18 per 100. Hatching Eggs $10 per 100. Write for circular. CHESTERBROOK FARM, Berwyn, Pa.

CHICKS 6 & 8c. Leghorns. Money refunded for dead chicks. Circular free. W. A. LAUER, McAlisterville, Pa.

Barred P. Rocks Holterman Parks strain; well barred; large healthy fowls; great egg producers. Satisfaction guaranteed. 15 eggs, $1.00; 30, $1.90; 50, $2.60; 100, $5.00 delivered. S. E. SPITZER, Linville Depot, Va.

Eggs Wanted Highest prices paid for fresh white or brown eggs. No commission. Returns made immediately. References Chatham and Phoenix National Banks. BLAINWOOD FARMS, Inc., 330 East 53rd St., New York City.

Eggs for Hatching From stock on free range, Leghorns (Young strain), Barred Rocks (Park strain), and Turkeys (Bird Bros strain). Write for mating list and get acquainted with our free range system. W.J. PEARSON, R4, Jersey Shore, Pa.

The Business Farmer's Hen For eggs and meat. Heavy winter layers. Trapnested White Orpington eggs, chicks, stock. Honest values and square deal guaranteed. STEVENS RELIABLE YARDS, Box P, Lyons, N Y

Chicks Leghorns, $11; B. Rocks, $15; R.I. Reds, $14. **Hatching eggs** per 100, Leghorns, Rocks and Reds, $5; Anconas, Black Leghorns and Wyandottes, $1.50 per 15. Free booklet "Success with Chicks." E. R. HUMMER & CO., R. D., Y, Frenchtown, N.J.

Chicks Late season bargains on S. C. White and Brown Leghorns, Barred Rocks and Broiler Chicks $6 per 100 and up. Safe delivery guar: Booklet free. CYCLONE HATCHERY, Box 51, Richfield, Pa

Baby Chicks. Reds and Barred Rocks 12c each. White Rocks 18c each. May and June delivery. Hatched from pure bred farm raised stock WALTER BRITTON, FLEMINGTON, N. J.

Eggs Barred P. Rocks, S. L. and Partridge Wyandottes and Anconas, $1. for 15, $2.50 for 50 $4.50 per 100, Bourbon Red Turkey, $3.00 for 11, pre BREEZE HEIGHTS FARM, Coolville, Ohio

Chicks 7c and up. Barred Rocks, Wyandottes, Leghorns, Minorcas, etc. Safe delivery guaranteed. Circular free. RELIABLE HATCHERY, Box 5, McAlisterville, Pa.

EGGS for hatching. White Leghorns, Sprecher Strain, 1400 farm range selected breeders $5.00 per 100; $40.00 per 1000. I want your trade A. S. HUBER, R. 1, Lititz, Pa.

White Wyandotte Eggs Chickens bred for quality, good layers, free range. Eggs $1 for 15; $5 per 100. CLAUDE L. DRAPER, Chestnut Ridge Farm, Wyoming, Del.

No Frosted Combs with R.C. Brown Leghorns, Kulp strain. Winter layers. Select eggs 15, $1; 50, $2.50. MAPLEWOOD FARM, Navarre, O.

CAMPINES Silver and golden; Indian Runner Ducks. Eggs from one and two year old hens. I. R. Tanger, York Springs, R 4, Penna.

60 BEST BREEDS Chickens, ducks, geese, turkeys, guineas, dogs and hares. Stock for sale. Valuable catalog Free. H. A. SOUDER, Box P, Sellersville, Pa.

Ringlet Barred Rocks the kind that lays and pays. Eggs $1 and $1.50 per 15, prepaid. E. B. PARKER, Tuppers Plains, Ohio.

WHITE ROCKS Large type, heavy layers, eggs 10c each. $8 per 100. ORCHARD FARMS, R. D. 2, Newton, N. J.

White Turkeys; Emden Ganders; Colored Muscovy; Pekin and Mallard Ducks, Barred Rock and Hamburg Cockerels; send for prices. H. F. Kahler, Hughesville, Pa

Ducks Mammoth Pekin and Fawn Runner. Prize Winners. Eggs $1 - 12; $4 - 50; $7.50 - 100. GEO. F. WILLIAMSON, Box 145, Flanders, N. J.

We have an unlimited outlet for
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ALEX MERSEL, 191 Duane St., N. Y. City.

References Broadway Trust Co., N. Y. Chatham Phenix National Bank, N. Y and New York Commercial Agencies

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For you to keep and use for a month as your own, **Would You** then agree to show your bicycle to ten or more of your friends and tell them the ridiculously low factory price, easy terms, unusual conditions and exceptional offers I would make, all of which I will explain to you if within ten days from seeing this you will say in a letter or on a postal, "*Send particulars of Bicycle Offer*" and address your postal card or letter:
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Chix from S. C. W. Leghorns mated to Eglantine cockerels, the strain that produced the world's champion Lady Eglantine; S. C. Reds, heavy layers. WY-HAR FARM, Route 1, Box 12. DENTON, MD.

Cockerels Choice S. C. Buff Orpington, White Orpington, Black Minorcas, R. C. Golden Wyandottes, $2. each, 2 for $3.50.
EGGS For hatching, $1. for 15; $5. per 100. Infertile eggs replaced half price. W. J. WIDNEY, Doylesburg, Pa.

Utility S. C. W. Leghorn Hatching eggs; also p ets 8 and 12 weeks old. Send for circular. Guarantee satisfaction. HIDRI VIEW POULTRY FARM, MT. BETHEL, PA.

Chicks that Live, $15 per 100. Silver, White and Partridge Wyandottes; White Leghorns $12 per 100. Pekin and Rouen Ducklings, 25c each. Aldham Poultry Farm, R. 39. Phoenixville, Pa.

Chicks S. C. White Leghorns, high grade utility stock. $10 per 100, any quantity.
Eggs That will produce strong husky chicks, $6 per 100; $50 per 1000. CHAS. A. SCHWEBEL, Leaman Place, Pa.

S. C. Snowy White Leghorn baby chicks. Wyckoff strain, ten cents each. Eggs $1.50 for 15 or $6 a hundred. Eggs and baby chicks are from trapnested stock. Satisfaction guaranteed. DWIGHT GRIFFIN, Poultry Farm, Greenwich, O.

Baby Chicks S. C. White Leghorns, 8½c to 10c each, according to season. Greatest of laying strains. C. P SHIREY, Muddy Creek Forks, Pa.

Eggs 15 $1; 40 $2; purebred Rocks, Wyandottes, Reds, Leghorns, Hamburgs. 35 years experience. Catalog. White Orpingtons, Houdans, Campines, Brahmas; 13 $1; 30 $2. S. K. MOHR, Coopersburg, Pa.

Turkey Eggs from large M. Bronze, Narragansetts, W.H. and Bourbon Reds, $3.50 per 13 by Ex. or P. P. prepaid. Orders booked now. Safe arrival guar. N. M. CALDWELL, Jacobsburg, Ohio

60 Page Book Free Describing varieties Poultry, Pigeons, Ferrets, Dogs, Hares at lowest terms. Fancy colored catalogue 10 cents. J. A. BERGEY, Telford, Pa

Eggs for Hatching Barred Plymouth Rocks, S. C. Rhode Island Reds, White Orpingtons. $2.25 per 30; $5 per 100. Fertility guaranteed. Circulars. SUNNYSIDE FARMS, Pittsville, Md.

Eggs For hatching, Black and White Langshan, Light Brahma, B. P. Rock, M. P. Duck, $1.25 per, 15, prepaid. M. Toulouse and White Emden geese $1.50 per 5, prepaid. M. H. MYERS, Edom, Va.

Rose Combed Red Eggs for hatching. JOHN D. SMITH, Walton, N. Y

S.C.Buff Orpingtons, S.C. White Leghorns and Buttercups eggs. Satisfaction guaranteed or money back. Denniston & Sons Slippery Rock, Pa.

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S. C. W. Leghorns Winter layer hens weigh 5 to 6 lb. Eggs 15 $1; 50 to $2.75; 100 $5. Circular free. Will H Tope, Carrollton, Ohio.

Barred Rock Chicks 50- $7.75, 100- $15.00 Express prepaid. JOHN SIEGRIEST, Bird-in-hand, Pa

Black Leghorns Day old Chicks and Eggs HAMPTON'S Pittstown, N. J.

Thoroughbred Poultry Best 20 varieties. Eggs $1 for 15; $2 for 40. Catalog free. HENRY K. MOHR, R 3, Quakertown, Pa.

Toulouse Geese Eggs for sale. Farmers' Prices. S. BOLTZ Route 8. Lebanon, Pa.

SAY you saw the advertisement in Pennsylvania Farmer when you are writing to our advertisers.

Sow Primroses Now for Winter Bloom

You should plan for them in your seeding this spring. They are such cheerful, easy bloomers in sunny windows in winter. They are the ideal plants for such exposures.

Primula Obconica and Chinese fringed primroses are most valuable for window culture. Primula Melacoides (baby primrose) adds variety and color to a collection. Primula Obconica Grandiflora is a very profuse bloomer, bearing on long stems large heads of beautiful flowers of different colors and tints. It is an overblooming variety, with true primrose fragrance.

Primula Sinensis Fimbriata (Chinese fringed primrose) is one of the most beautiful and satisfactory house plants, embracing many different colors, white, white tinted pink, lavender, pink, red and blue. Plant lice and diseases do not seem to affect the Chinese primrose as they sometimes do the other varieties. The Chinese primrose is of easiest culture, and will bloom very freely in simply a strong light. A little sunshine always hightens the tints in the colored sorts. All the colored sorts will develop their colors best if grown in a temperature of 60 to 65 degrees, and bloom in a temperature of 45 to 50 degrees if they get sun part of the day. They grow and bloom in any exposure, give fine results in north or northeast windows.

Primula Melacoides (baby primrose) has also proved for us among our best winter blooming plants. It blooms all winter in wonderful profusion, and is a success in any window. The foliage is light feathery-like and the plant is full of flower stalks all the time. The flowers are a delicate shade of lavender produced in whorls on tall, graceful spikes. The baby primrose needs a stronger light and a cooler temperature than the other sorts to be its best. It has very delicately sweet scented flowers.

Culture.—The primulas are all very easily grown from seed. Sow the seed in shallow boxes of light soil in May, barely covering them from view, and if the weather is very warm shade the seed boxes the hottest portion of the day. Do not let rain fall on the boxes, but the soil must be kept always moist, neither wet nor dry. The best way to keep the soil in the right condition is to cover the seed boxes with glass or several thicknesses of newspaper dampened to keep the earth moist. It takes the seed about 15 days to germinate. When the young plants show two or three leaves they should be transplanted to other boxes of the same soil. Later plant them in 5-inch pots to give plenty of room for the pretty leaves to spread. They must not be crowded. Provide good draingage and pot in good, porous soil. Pot them moderately firm and just deep enough to hold them firmly upright. The Chinese primrose is inclined to fall to one side when the bloom appears, because they are so heavy, so it is a good plan to stick short pieces of sticks or twigs about the plants in the soil to hold the plant upright.

A good compost for potting primulas is formed of two parts garden loam, two parts leaf mold, one part sand and one part fine, sifted cow manure, the whole thoroly mixed. Too much fertilizer will burn the foliage. Keep the young plants in a shady location during the summer. They should not have the afternoon sun. Remove to the house when there is danger of frost in the fall. After the buds begin to show, give them weak applications of manure water twice a month.

Watering.—Water the plants enough to thoroly soak the soil to the bottom of the pots, then do not water again until the soil appears dry on top. Then soak again as before, and so on. Overwatering causes the leaves to turn yellow. Always water under the leaves. The baby primrose requires more water than the other varieties.

A WINDOWFUL OF PRIMROSES.

Keeping Plants Over.—Primulas are perennial greenhouse or house plants, so it is not advisable to keep them over more than two winters. Better start a few new ones every year, if you wish to assure yourself of an abundance of bloom. The old plants bloom earlier than the new ones.

Choose the best plants, best bloomers and prettiest colors to keep over. After the flowering season is over, which lasts until May, pick off all the old flower heads and let get thoroly dry for a week, then gradually water; give water until new root growth starts and new leaves show. When the plants are growing thriftily repot in fresh compost like that above described which may be made up and kept for such use.

The accompanying photograph shows our window with winter flowering begonia in the background and all three varieties of primulas about and before the begonia. These were all grown in north and northeast windows. Begonias and ferns do well in the same exposure and temperature as the primulas.—Mary Kintigh, Westmoreland Co., Pa.

GROW SOME SWEET VIOLETS

Everyone likes a bouquet of sweet violets. Grow some of these in your own yard without much trouble, suggests E. F. Ahearn, professor of landscape gardening in Kansas Agricultural College. Select a somewhat shady, well-drained spot for the violet bed. Take away the top three or four inches of soil, unless it is well enriched loam, and replace it with equal parts of well-rotted manure, leaf mold, and thoroly decomposed sod.

Late in April the plants may be set out. Usually plants can be obtained at a small cost from growers who are glad to thin out their beds. Put them six to eight inches apart each way. They must have plenty of water all summer. In the early fall put a cold frame over the bed. Cover the plants with straw or leaves after the first hard freeze and do not let them thaw. Then put wooden shutters over the top of the frame. When thawing commences, in February or March, the wooden shutters should be replaced with glass ones. In the warm part of the day, keep the shutters raised a little to let in the air. Never allow the plants to freeze again after they have started to grow.

OUR "GRANDMOTHER'S GARDEN"

Roses are our especial pride and delight, and when we found that our hens, who "wandered where they listed," took extra pains to scratch about our choicest bushes (since the palings had been removed that enclosed our lawn) we wondered what was best to do. We had two long beds on our lawn containing about 80 roses that we had planted from year to year after gravely selecting those noteworthy for color, form, heavy blooming or hardiness. We must go to the rescue of our plants, see them perish or get rid of the hens. The hens, being a valued commercial asset, had to be kept, so we concluded to move the roses, since the hens needed the range of the yard and lawn. The lawn was always green and velvety and needed no blossoms to enhance its beauty.

The only available spot to transplant the roses to was back of the meat-house. While this was quite out of sight from the front or sides of the dwelling house, we hailed it as a place of refuge and made there what we named "Grandmother's Garden."

A neat fencing was placed around an eighth of an acre, the plot being about twice as long as wide. We moved the plants to this place in the spring of 1910, and lost very few of them. It is gratifying to be able to say truthfully that we are now glad of the necessity that brought into being our new garden. Tho severely trimmed every spring, the bushes have thrived wonderfully, and bloom from May until November. Our dining table, hall and sitting-room are made fragrant with bowls of beautiful roses thruout the summer; we give them for church decoration, we take them to the sick and have enough besides to share with friends in splendid health. We have planted slips from wedding bouquets, and when they grow up these kinds have a sentimental history for us. We have raised some of our choicest roses from cuttings.

"Grandmother's Garden" is as quaint and old-fashioned as it sounds, for it has other blooms besides roses. The south wall of the meat-house, which encloses one end of the plot, is whitewashed and has a fine grape-vine trained up high in front of it for beauty and use. Some choice peonies are planted here, whose blooms sell at excellent prices for Decoration Day. Pinks of many varieties of form and color, with a rich spicy fragrance have an honored place in this garden, for they were sent us in the form of seed by a friend from southern California. They are exquisitely marked, looking much like the lovely flowers so often seen on Japanese china.

This is a word to those who must let their poultry have range, but would not be without the lovely blossoms which are such a delightful part of God's most valued blessings to the country woman.—Elizabeth O. Jean, Baltimore Co., Md.

This puts your home next to a **Van Dyk Store**
PARCEL POST SPECIALS.

40c. Coffee The Duchess 3½ lbs $1.00
30c. Coffee The Winner 4 lbs $1.00
25c. Coffee Best Mara. 5 lbs $1.00
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Orders for $1.00 or more delivered **FREE** within 300 miles. Add extra postage for longer distance.

50c. Tea Any Kind 29c. lb.
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$1.00 Tea Any Kind 60c. lb.
$1.20 Tea Any Kind 80c. lb.

Your money back if you prefer it to the goods.
References: Any Commercial Agency or your own bank.

Van Dyk Dept. P, 50 Barclay St. New York, N.Y.

Saving the Little Chicks

Last year, while her neighbors were losing their chicks by the score from White Diarrhoea, Mrs. S. B. Middleton of Wilsey, Kans., never lost one. For the benefit of other poultry raisers, Mrs. Middleton has written her experience:

"Two years ago I gave up poultry raising because I had lost so many little chicks from White Diarrhoea. Early last year I began to read of what Chictone had done for others, so decided to try again. I obtained a 50c box from The Wight Company and after using it I never lost a chick. I raised between 300 and 400 fine, healthy chicks, and Chictone gets all the praise for saving them." Mrs S.B. Middleton, Wilsey, Kans.

Chictone gets results! Resolve TODAY that you will save YOUR chicks from White Diarrhoea. Chictone is guaranteed to save 90%. There are lots of substitutes, but there's only one Chictone. Chictone is not a poison. Sold in 50c boxes—in tablet form only. Delay is dangerous. Order today from

THE WIGHT CO., Dept. 273, LAMONI, IOWA

8 Beautiful Everblooming Rose Bushes

Given without a single penny of expense.

Only a few minutes of your spare time required to obtain them.

The kind of roses every one should plant---Everbloomers. They always give perfect satisfaction, thriving in any section of the country and never failing to produce great masses of fragrant, beautiful flowers all the growing season. Rugged, healthy and hardy in growth, their flowers are chaste and beautiful.

We guarantee them to arrive in good growing condition and enclose with each collection special printed instructions on the planting and culture of roses. To avoid all possible chance of disappointment, you should mail your order for these roses at once and we will deliver at the proper time to plant in your locality.

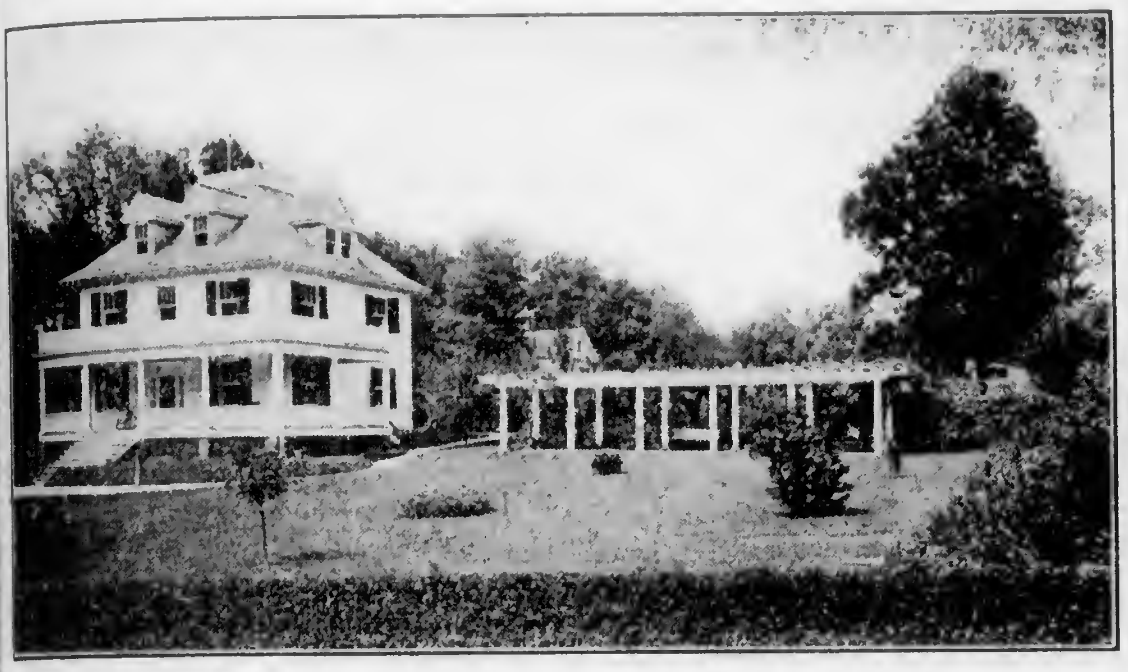
The names of the different varieties are as follows:

Crimson Crown Lady Hillingdon La France
Kaiserin Augusta Victoria
General McArthur Radiance Bessie Brown
and the wonderful climbing **American Beauty**

How to Get This Beautiful Collection

Send us two subscriptions to Pennsylvania Farmer to January 1st, 1917 at 25c each and the entire collection will be sent to you by prepaid parcel post. One of the subscriptions may be your own and you can easily secure the other from one of your neighbors. Do not delay as the proper time for planting rose bushes is now at hand.

Pennsylvania Farmer, 261-63 S. Third St., Philadelphia, Pa.


A PRETTY LAWN, WITH PRIVET HEDGE AND SHRUBBERY BACKGROUND FOR GRAPE-VINE COVERED PERGOLA. THE PORCH NEEDS SOME FOUNDATION PLANTING.

PROPER MASSING OF SHRUBS BEAUTIFIES HOME GROUNDS

The farm home lawn and its adornment of shrubbery should be formed upon a comprehensive plan. An open expanse of lawn with shrubbery massed about the borders and a few especially attractive trees or shrubs elsewhere in well arranged groups, is the ideal design. Trees and shrubbery should be located about the edges of the lawn, not scattered thru its center. Shrubbery massed against the foundation of buildings softens hard lines, and joins lawn and building into a harmonious whole.

Tall growing shrubs and trees should be planted at the rear or the middle of the mass, and lower-growing kind in front. The different varieties should be arranged in groups of certain numbers, and the groups should be massed according to the effects produced by foliage, flowers or fruits, as well as by hight. The same scheme is recommended for beds and borders of flowering plants, with the exception that especial attention be given to color and time of blooming.

Unless tree masses are desired, only long-lived trees should be planted, and for these plenty of room for growth should be allowed. Shade trees should be placed where shade is needed, and should unite with the shrubbery to form and frame vistas and picturesque effects.—Pennsylvania State College Landscape Department.

In the Laundry.—If a little borax is added to the starch the clothes will be glossy and the iron will not stick. Borax and good soap also soften water, making easier washing without injury to the clothes. Borax is a mild antiseptic as well as an aid to cleansing.

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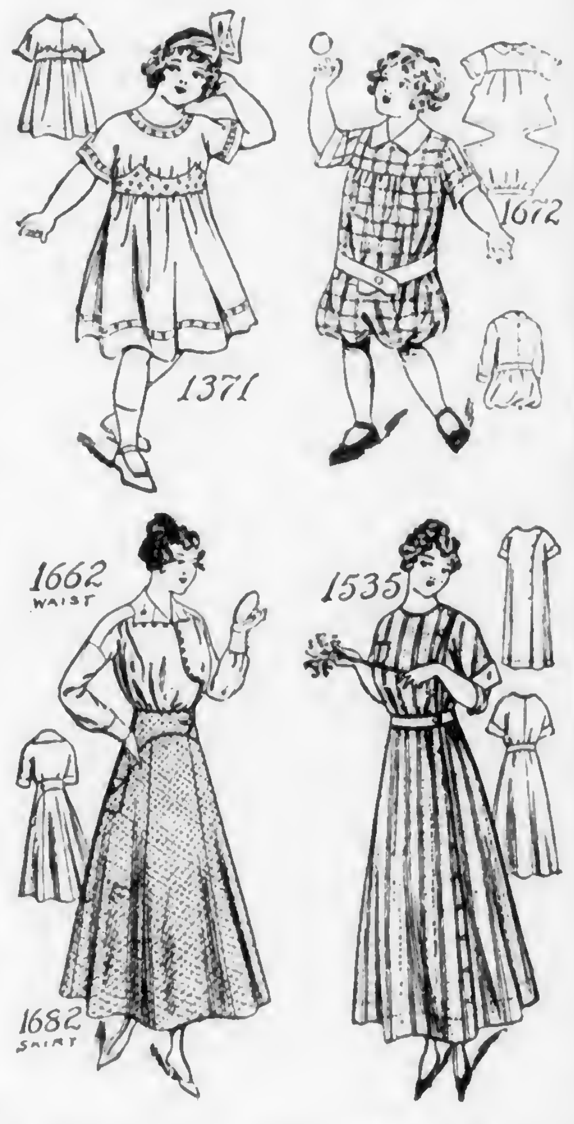
Be sure to give the figures and letters of each pattern exactly as printed at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-263 So. Third Street, Philadelphia, Pa.

1371.—Girls' Dress.—Cut in 4 sizes: 2, 4, 6 and 8 years. It requires 2¾ yards of 36-inch material for a 6-year size. Price of pattern, 10 cents.

1672.—Child's Rompers.—Cut in 4 sizes: 2, 4, 6 and 8 years. Six 6 years requires 2⅞ yards of 36-inch material. Price, 10 cents.

1662-1682.—Ladies' Costume.—Waist, 1662, cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 3 yards of 36-inch material for a 36-inch size. Skirt, 1682, cut in 6 sizes: 22, 24, 26, 28, 30 and 32 inches waist measure. It requires 4¾ yards of 44-inch material for a 24-inch size, which measures 3 1-3 yards at the foot. This calls for two separate patterns, 10 cents for each pattern.

1535.—Ladies' Over All Apron.—Cut in 3 sizes: Small, medium and large. It requires 6¼ yards of 36-inch material for a medium size. Price, 10 cents.



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Philadelphia and Pittsburgh

The Fur Bringers

By Hulbert Footner

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SYNOPSIS OF PRECEDING CHAPTERS

Ambrose Doane is the junior partner of the firm of Minot and Doane, fur traders in competition with The Company in the fur country. The free traders have the friendship of the Indians and trappers, but the enmity of The Company officers. Doane learns that Colina Gaviller, daughter of The Company boss, is visiting her father at Fort Enterprise. He makes the trip there and falls in love with Colina. They become engaged without the knowledge of Mr. Gaviller, who is decidedly unfriendly to Ambrose. Doane receives a call from a young Indian of the camp and is told some of the business practices of The Company. He prolongs his stay and promises to investigate.

CHAPTER IX (Concluded.)

Colina detailed the quarrel she had had with her father that morning.

“When I told him where I was going he took me back in the library and started in,” she went on. “He was so angry he could scarcely speak. If he had let it go it wouldn't have been so bad. But to try to make believe he wasn't angry! His hypocrisy disgusted me.

“To go on about my own good and all that, and all the time he was just plain mad! I taunted him until he was almost in a state of ungovernable fury. He would not mention you until I forced him to.

“He said I must give him my word never to see you or speak to you again. I refused, of course. He threatened to lock me up. He said things about you that put me beside myself. We said ghastly things to each other. We are very much alike. You'd better think twice before you marry into such a family, Ambrose.”

“I take my chance,” he said.

“I'm sorry now,” Colina went on. “I know he is, too. Poor old fellow! I have you.”

“You mustn't break with him yet,” said Ambrose anxiously.

“I know. But how can I go back and humble myself?”

“He'll meet you half-way.”

“If—if we could only get in the dugout and go now!” she breathed.

He did not answer. She saw him turn pale.

“Wouldn't it be the best way,” she murmured, “since it's got to be anyway?”

He drew a long breath and shook his head.

“I wouldn't take you now,” he said doggedly.

“Of course not!” she said quickly. “I was only joking. But why?” she added weakly. Her hand crept into his.

“It wouldn't be fair,” he said frowning. “It would be taking too much from you.”

“Too much!” she murmured, with an obscure smile.

Ambrose struggled with the difficulty of explaining what he meant. “I never do anything prudent myself. I hate it. But I can't let you chuck everything—without thinking what you are doing. You ought to stay home a while—and be sure.”

“It isn't going to be so easy,” she said, “quarreling continually.”

“I sha'n't see you again until I come for you,” said Ambrose. “And it's useless to write letters from Moultrie to Enterprise. I'm out of the way. Why can't the question of me be dropped between you and your father?”

“Think of living on from month to month without a word! It will be ghastly!” she cried.

“You've only known me two days,” he said sagely. “I could not leave such a gap as that.”

“How coldly you can talk about it!” she cried rebelliously.

Ambrose frowned again. “When you call me cold you shut me up,” he said quietly.

“But if you do not make a fuss about me every minute,” she said naively, “it shames me because I am so foolish about you.”

Ambrose laughed suddenly.

There followed another interlude of celestial silliness.

This time it was Colina who withdrew herself from him.

“Ah,” she said with a catch of the breath, “every minute of this is making it harder. I shall want to die when you leave me.”

Ambrose attempted to take her in his arms again.

“No,” she insisted. “Let us try to be sensible. We haven't decided yet what we're going to do.”

“I'm going home,” said Ambrose, “to work like a galley-slave.”

“It is so far,” she murmured.

“I'll find some way of letting you hear from me. Twice before the winter sets in I'll send a messenger. And you, you keep a little book and write in it whenever you think of me, and send it back by my messenger.”

“A little book won't hold it all,” she said naively.

“Meanwhile I'll be making a place for you. I couldn't take you to Moultrie.”

She asked why.

“Eva, Peter's wife,” he explained. “In a way Peter is my boss, you see. It would be a horrible situation.”

“I see,” said Colina. “But if there was no help for it I could.”

“Ah, you're too good to me!” he cried. “But it won't be necessary. Peter and I have always intended to open other posts. I'll take the first one, and you and I will start on our own. Think of it! It makes me silly with happiness!”

Upon this foundation they raised a shining castle in the air.

“I must go,” said Colina finally, “or father will be equipping an armed force to take me.”

“You must go,” he agreed, but weakly.

They repeated it at intervals without any move being made. At last she got up.

“Is this—good-by?” she faltered.

He nodded.

They both turned pale. They were silent. They gazed at each other deeply and wistfully.

“Ah! I can't! I can't!” murmured Colina brokenly. “Such a little time to be happy!”

They flew to each other's arms.

“No—not quite good-by! said Ambrose shakily. “I'll write to you tomorrow morning—everything I think of tonight. I'll send it by Tole Grampierre. You can send an answer by him.”

“Ah, my dear love, if you forget me I shall die!”

“You doubt me still! I tell you, you have changed everything for me. I cannot forget you unless I lose my mind!”

CHAPTER X

Ambrose, having filled the day as best he could with small tasks, was smoking beside his fire and enviously watching his dog. Job had no cares to keep him wakeful. It was about eight o'clock, and was still full day.

It was Ambrose's promise to visit Simon Grampierre that had kept him inactive all day. He did not wish to complicate the already delicate situation between Grampierre and Gaviller by an open visit to the former. He meant to go with Tole at dawn.

Suddenly Job raised his head and growled. In a moment Ambrose heard the sound of a horse approaching at a walk above. Thinking of Colina his heart leaped—but she would never come at a walk! An instinct of wariness bade him sit where he was.

A mounted man appeared on the bank above. It was a breed forty-five years old perhaps, but vigorous and youthful still; good looking, well kept, with an agreeable manner; thus Ambrose's first impressions. The stranger rode a good horse.

“Well?” he said, looking down on Ambrose in surprise.

“Tie your horse and come down,” said Ambrose politely. He welcomed the diversion. This man must have come from the fort. Perhaps he had news.

Face to face with the stranger, Ambrose was sensible that he had to deal with an uncommon character. There was something about him, he could not decide what, that distinguished him from every other man of Indian blood that Ambrose had ever met.

He wore a well-fitting suit of blue serge and a show of starched linen, in itself a distinguishing mark up north. “Quite a swell!” was Ambrose's inward comment.

“You are Ambrose Doane, I suppose?” he said in English as good as Ambrose's own. Ambrose nodded.

“I knew you had dinner with Mr. Gaviller last night,” the man went on, “but as you didn't drop in on us at the store today I supposed you had gone back. I didn't expect to find you here.”

He was fluent for one of his color—too fluent the other man felt. Ambrose was sizing him up with interest.

It finally came to him what the man's distinguishing quality was. It was his open look, an expression almost of benignity, absolutely foreign to the Indian character. Indians may give their eyes freely to one another, but a white man never sees beneath the glassy surface.

This Indian in look and manner resembled an English country gentleman, much sunburnt; or one of those university-bred East Indian potentates who affect motor-cars and polo ponies. Oddly enough his candid look affronted Ambrose. “It isn't natural,” he told himself.

“I am Gordon Strange, bookkeeper at Fort Enterprise,” the stranger volunteered.

The bookkeeper of a big trading-post is always second in command. Ambrose understood that he was in the presence of a person of consideration in the country.

“Sit down,” he said. “Fill up your pipe.”

Strange obeyed. “We're supposed to be red-hot rivals in business,” he said with an agreeable laugh. “But that needn't prevent, eh? Funny I should stumble on you like this! I ride every night after supper—a man needs a bit of exercise after working all day in the store. I saw the light of your fire.”

He was too anxious to have it understood that the meeting was accidental. Ambrose began to suspect that he had ridden out on purpose to see him.

The better men among the natives, such as Tole Grampierre, have a pride of their own; but they never presume to the same footing as the white men. Strange, however, talked as one gentleman to another.

There was nothing blatant in it; he had a well-bred man's care for the prejudice of another. Nevertheless, as they talked on Ambrose began to feel a curious repugnance to his visitor, that made him wary of his own speech.

“Too darn gentlemanly!” he said to himself.

“Why didn't you come in to see us today?” inquired Strange. “We don't expect a traveler to give us the go-by.”

“Well,” said Ambrose dryly, “I had an idea that my room would be preferred to my company.”

“Nonsense!” said Strange, laughing. “We don't carry our business war as far as that. Why, we want to show you free-traders what a fine place we have, so we can crow over you a little. Anyway, you dined with Mr. Gaviller, didn't you?”

“John Gaviller would never let himself off any of the duties of hospitality,” said Ambrose cautiously.

He was wondering how far Strange might be admitted to Gaviller's confidence. That he was being drawn out, Ambrose had no doubt at all, but he did not know just to what end.

Strange launched into extensive praises of John Gaviller. “I ought to know,” he said in conclusion. I've worked for him twenty-nine years. He taught me all I know. He's been a second father to me.”

Ambrose felt as an honest man hearing an unnecessary and fulsome panegyric must feel, slightly nauseated. He said nothing.

Strange was quick to perceive the absence of enthusiasm. He laughed agreeably. “I suppose I can hardly expect you to chime in with me,” he said. “The old man is death on free-traders!”

“I have nothing against him,” said Ambrose quickly.

“Of course I don't always agree with him on matters of policy,” Strange went on. “Curious, isn't it, how a man's ruling characteristic begins to get the better of him as he grows old.

“Mr. Gaviller is always just—but, well, a leetle hard. He's pushing the people a bit too far lately. I tell him so to his face—I oppose him all I can. But of course he's the boss.”

Ambrose began to feel an obscure and discomforting indignation at his visitor. He wished he would go.

“You really must see our plant before you go back,” said Strange; “the model farm, the dairy herd, the flour-mill, the sawmill. Will you come up to-morrow and let me take you about!”

His glibness had the effect of rendering Ambrose monosyllabic. “No,” he said.

“Oh, I say,” said Strange, laughing, “what did you come to Fort Enterprise for if you feel that way about us?”

Under his careless air Ambrose thought he distinguished a certain eagerness to hear the answer. So he said nothing.

“I'm afraid you and the old gentleman must have had words,” Strange went on, still smiling. “Take it from me, his bark is worse than his bite. If he broke out at you, he's sorry for it now. It takes half my time to fix up his little differences with the people here.”

He paused to give the other an opportunity to speak. Ambrose remained mum.

“The old man certainly has a rough side to his tongue,” murmured Strange insinuatingly.

“You're jumping to conclusions,” said Ambrose coolly. “John Gaviller gave me no cause for offense. I was well entertained at his house.”

“U-m!” said Strange. He seemed rather at a loss. Presently he went on to tell in a careless voice of the coyote hunts they had. Afterward he casually inquired how long Ambrose meant to stay in the neighborhood.

“I don't know,” was the blunt answer.

“Well, really!” said Strange with his laugh—the sound of it was becoming highly exasperating to Ambrose. “I don't want to pry into your affairs, but you must admit it looks queer for you to be camping here on the edge of the company reservation without ever coming in.”

Ambrose was wroth with himself for not playing a better part, but the man affected him with such repugnance he could not bring himself to dissimulate. “Sorry,” he said stiffly. “You'll have to make what you can of it.”

Strange got up. His candid air now had a touch of manly pride. “Oh, I can take a hint!” he said. “Hanged if I know what you've got against me!”

“Nothing whatever,” said Ambrose.

“I come to you in all friendliness—”

“Thought you said you stumbled on me,” interrupted Ambrose.

“I mean of course when I saw you here I came in friendliness,” Strange explained with dignity.

“Well, go in friendliness, and no harm done on either side,” said Ambrose coolly.

For a brief instant Strange lost his benignant air. “I've lived north all my life,” he said. “And I never met with the like. We have different ideas about hospitality.”

“Very likely,” said Ambrose coolly. “Good night!”

When his visitor rode away Ambrose turned with relief to his dog. The sight of Job's honest ugliness was good to him.

“He's a cur, Job!” he said strongly. “A snake in the grass! An oily scoundrel! I don't know how I know it, but I know it! A square man would have punched me the way I talked to him.”

Job wagged his tail in entire approval of his master's judgment. Ambrose turned in, feeling better for having spoken his mind.

Nevertheless, as he lay waiting for sleep it occurred to him that he had been somewhat hasty. After all, he had nothing to go on. And, supposing Strange were what he thought him, how foolish he, Ambrose, had been to show his hand.

If he had been craftier he might have learned things of value for him to know. Following this unsatisfactory train of thought, he fell asleep.

CHAPTER XI

Alexander Selkirk and Family

Again Ambrose was awakened by a furious barking from Job. It was even earlier than on the preceding morning. The sun was not up; the river was like a gray ghost.

Ambrose, expecting Tole, looked for a dugout. There was none in sight. Job's agitated barks were addressed in the other direction.

Issuing from his tent, Ambrose beheld a quaint little man squatting on top of the bank like an image. He had an air of strange patience, as if he had been waiting for hours, and expected to wait.

His brown mask of a face changed not a line at the sight of Ambrose.

“What do you want?” demanded the white man.

“Please, I want spik wit' you,” the little man softly replied.

“Come down here then,” said Ambrose.

The early caller looked at Job apprehensively. Ambrose silenced the dog with a command, and the man came slowly down the bank cringing a little.

The quaintness of aspect was largely due to the fact that he wore a coat and trousers originally designed for a tall, stout man. Ambrose suspected he had a child to deal with until he saw the wrinkles and the sophisticated eyes.

“Who are you?” he asked.

“I Alexander Selkirk, me,” was the answer.

Ambrose could not but smile at the misapplication of the sonorous Scotch name to such a manikin.

“You Ambrose Doane?” the other said solemnly.

“Everybody seems to know me,” said Ambrose.

Alexander stared at him with a sullen, walled, speculative regard, exactly, Ambrose thought, like a school-boy facing an irate master, and wondering where the blow will fall.

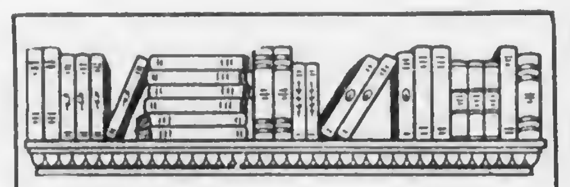
To carry out this effect he was holding something inside his voluminous jacket, something that suggested contraband.

“What have you got there?” demanded Ambrose.

Without changing a muscle of his face, Alexander undid a button and produced a gleaming black pelt.

Ambrose gasped. It was a beautiful black fox. Such a prize does not come a trader's way once in three seasons. The last black fox Minot & Doane had secured brought twelve hundred dollars in London.

(To be continued.)



PIECES *to* SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

LEEDLE YAWCOB STRAUSS

I haf von fonny leedle poy,
  Dot gomes shust to mine knee,
Der queerest schap, der createst rogue,
  As offer you did see.
He runs, und schumps, un schmashes
  dings
  In all barts of der house,
But vat of dot; he vos mine son,
  Mine leedle Yawcob Strauss.

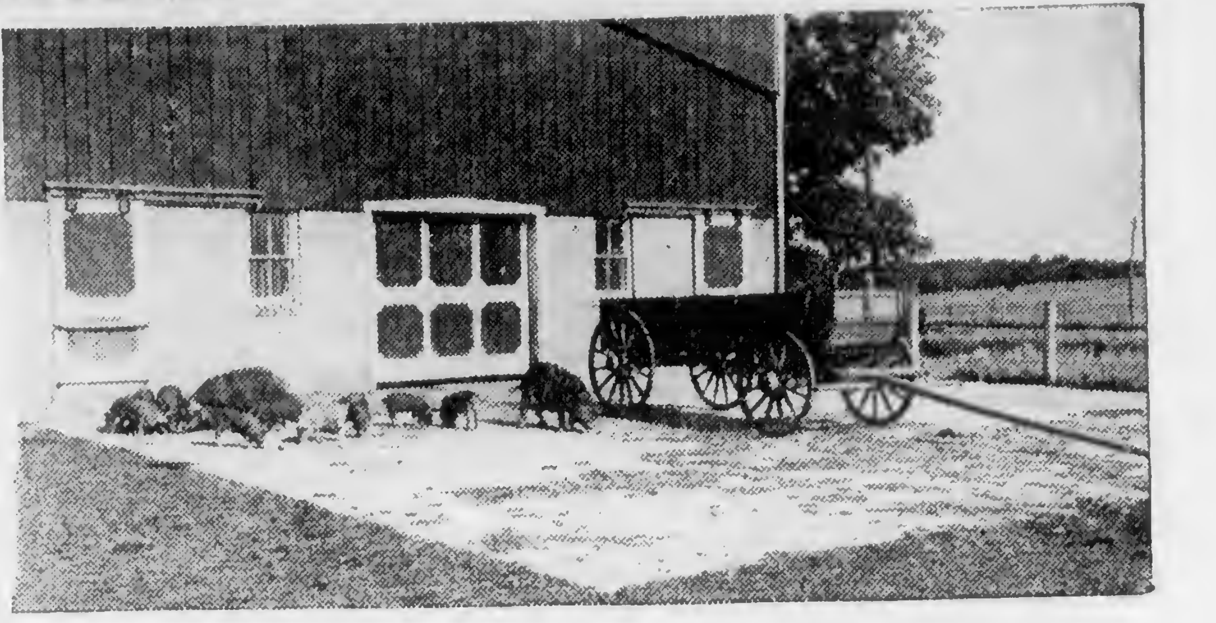
He gets der measles, und der mumps,
  Und everydings dots oudt;
He shpils mine glass of lager beer,
  Poots shnuff indo mein kraut;
He shtuffs mine pipe mit Limburg
  scheese,
  Dot was der roughest chouse,
I'd dake dot from no oder poy
  But leedle Yawcob Strauss.

He dakes mine milk-ban for a drum
  Und cuts mine cane in dwo
To make de schticks to peat it mit;
  I tell you dot vas drue.
I dinks mine head vas schplit abart,
  He kicks oop sooch a touse;
But nefer mindt, der poys vas few
  Like dot young Yawcob Strauss.

He ashks me questions sooch as dese:
  “Who baint mine nose so red?”
“Who vas id cuts dot schmooth blace
  oudt
  Vrom der hair upon mein hed?”
Und “Vhere der plaze goes vrom der
  lamp?”
  Vene'er der glim I douse.
How gan I all dose dings eggsblain
  To dot schmall Yawcob Strauss?

I somedimes dink I schall go vildt
  Mit sooch a grazy poy,
Und vish vunce more I good haf rest
  Und quiet dimes enzhoy;
But ven he vas ashleep in ped,
  So guiet as a mouse,
I prays der Lord, “Dake anydings,
  But leaf dot Yawcob Strauss.”

All poems previously requested have been received.



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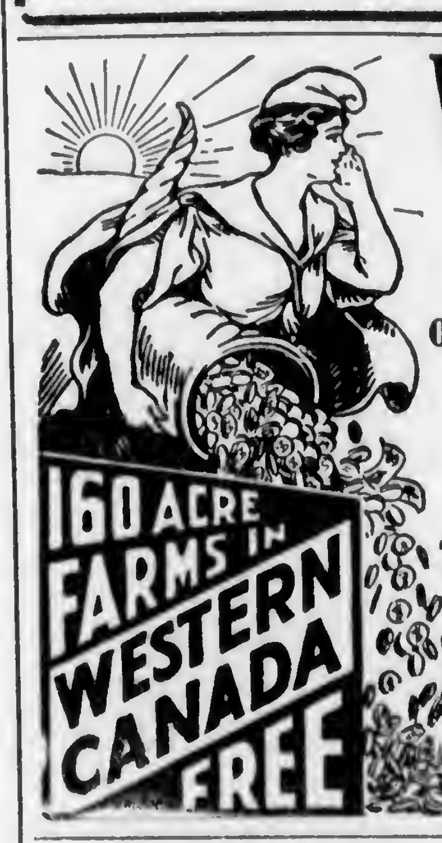

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Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., April 18, 1916.

Supplies of old white potatoes are more than ample for the light demand and the market is a trifle weaker. Growers and shippers thru New York State and Pennsylvania who held their stock anticipating high prices at this season are shipping heavily, and in doubt of any advance in prices during the remaining five or six weeks of the season. Seed stock is draggy and prices considerably lower than when first offered four weeks ago. New crop potatoes are arriving in light supply from the south and maintain high prices. Reports from the southern states are to the effect that the potato acreage is reduced fully 33 percent as compared with last year. Sales in the past few days have averaged as follows: Pennsylvania, $1.10 to $1.20 per bushel; York State stock, $1.05 to $1.15; Maine potatoes, $1 to $1.15, and Western stock, $1 to $1.10. Florida new potatoes sold at $7 to $7.50 per barrel for first grade and $5.50 to $6.50 for second grade.

The market on sweet potatoes is dull and a large proportion of receipts are in poor condition. Jersey sweets are selling at 45 to 55 cents per basket. Hampers from Jersey and the Eastern Shore sell at 75 to 85 cents. Virginia sweets are selling at $1.50 to $1.75 per barrel.

Vegetables

Twenty-one cars of onions were on the tracks against 41 a week ago. Of this number nine cars were unloaded which was two cars more than on Monday of last week. Prices are advanced fully 25 percent and under these prices the receipts are ample to meet the demand. Yellow Texas onions in cummer crates sold at $1.75 to $1.90 for firsts and $1.25 to $1.35 for second grade. The market for white onions is dull with first grade stock selling for $1.75 per crate and seconds at $1.50. New York State yellow globes in 100-lb. sacks sold at an average of $2 per sack.

Considerable quantities of old cabbage are reported to be in holding thru the country and with a large proportion of the stock arriving being worth no more than freight charges, the shipment of any but first grade stock is to be discouraged. The best receipts of Danish cabbage are selling at $10 to $14 per ton.

Root stocks are pretty well cleaned up thru the country and with the warmer weather at hand are attracting less attention. Fancy carrots are in limited supply and sell for $3 to $3.50 per barrel; beets, $1.50 to $2; white turnips sell at buyer's figures, principally 75 cents to $1 per barrel; parsnips, 85 cents; rutabagas, $2.50 per barrel.

Southern Vegetables

Florida tomatoes have met with increased demand during the last week and for the greater part have been in good condition. Of the 19 cars on the tracks this morning, 11 were unloaded. Fancy grades sold at $2 to $2.25 per crate, choice at $1.50 to $2.

Lettuce has found ready sale when fancy, at figures varying from $2.50 to $4.50 per hamper. The supply has run irregular and created a wide difference in prices from day today. Green beans continue scarce and sell at $3 to $4.50 per basket; peas are selling at $3 to $4 per basket; peppers, $1.75 to $2.75 per carrier; eggplant, $2 to $2.50 per crate. Celery has been in heavy receipts and the best marks sold at $2 to $2.25 per crate; small sizes sold at $1 to $1.75 per crate.

Norfolk is still supplying a fair quantity of spinach and kale; spinach is generally in good condition and selling at $1.25 to $1.50 per barrel. Kale is arriving yellow and not so desirable, sales are at 65 to 80 cents per barrel.

Asparagus has been in regular supply in the past three weeks from California and the sales vary from $2 for choice grades, per case of one dozen bunches, to $3.50 for extra selected grades. South Carolina grass is selling at practically the same figures as California stock.

Fruits

Apples of the better grades met with an increased demand last week and held their own very well, considering the heavy receipts. Large quantities of scalded stock are being offered and are finding but little demand. Receipts are running 30 to 40 cars daily, most of which are from New York State. Baldwins are selling from $2.75 to $3, with the few extra fancy receipts bringing as high as $3.50. Greenings show considerable scald but the first quality stock sells at $2.50 to $3. Ben Davis on the present market sell at $1.50 to $2.25; Russetts, $2.50 to $3.25. Fancy Winesaps are bringing from $3 to $3.50 per barrel; York Imperials, $2.50 to $3; Gano, $2 to $2.50.

A car of Northwestern extra fancy Winesaps in boxes was sold at auction today. The sizes were from 64's to 200's and the range in price from $1.75 to $1.30 per box. The sizes between 80's and 113's, which are considered the most desirable by the trade averaged $1.60 per box.

Poultry

While live poultry has not been selling as high this week as it did last week, the market has been in very good shape and prices are holding from around 20 to 21 cents for fair to good stock with a premium being paid for extra heavy fat fowl.

The Jewish Passover is being observed at this time and for its proper observance they must have live poultry. This has created a demand which has kept the market cleaned up daily. Old roosters are holding steady at 12 to 14 cents. The few ducks that have been on the market brought from 18 to 30 cents and geese, 17 to 18 cents.

On account of the high prices that live poultry has been bringing, dressed poultry has been very scarce on the market as shippers were getting such high returns for their live stock that they would not like the touble to dress their poultry. Consequently the dressed poultry market has been in very good shape and dealers were having trouble to get sufficient supplies to meet their requirements. Fancy fowl have cleaned up daily at 20 to 21½ cents. Broilers have been in strong request at 40 to 50 cents, while springers have brought 23 to 27 cents. Dressed turkeys were also scarce and wanted at 27 to 31 cents.

Eggs

While the supplies of eggs have been quite liberal, there has been a good demand both for storage purposes and for immediate consumption and the market is ruling steady at 22 cents for current receipts. Fancy selected are bringing 26 to 27 cents and western extras, 24 cents.

There has been a good demand for goose and duck eggs this week for the Easter Holidays. While there were liberal offerings thrown on the market they were all cleaned up promptly. Goose eggs sold at 90 cents per dozen and duck eggs at 33 to 35 cents. —Selmarad.

YORK PRODUCE MARKET

York, Pa., April 17, 1916.

There was an active trade in the Saturday markets, especially for the greens, as lettuce, spinach, dandelion, onions, etc. Poultry is scarce and high, 18@18½c being offered by the dealers for heavy stock. Eggs are only held up by the dealers shipping to other cities. Apples are getting scarce, and advancing 5 cents a half peck.

Eggs.—21@22c per dozen.

Butter.—Country, 28@34c lb; separator, 32@35c lb. Milk, 3c quart.

Poultry.—15 to 18½ cents per lb.; dressed, 50c to $1.25 each.

Vegetables.—Potatoes, 12@13c ½-pk; $1 to $1.25 per bu; new, 40c ½-pk. Lettuce, 5@10c a head. Cabbage, 5@10c a head. Beets, 4@5c bunch. Radishes, 5@6c bunch. Onions, 2@5c bch; 10@12c ½-pk. Lima beans, 16@18c quart; soup beans, 12@16c quart. Lard, 14@15c lb. Turnips, 8@10c ½-pk. Sauer kraut, 6@8c quart. Spinach, 12@18c ½-pk.

Fruit.—Apples, 15@40c ½-pk; $1@2 per bushel. Pears, 12@ 15c ½-pk. Strawberries, 35@40c per box.

Retail Grain Market.—Wheat, $1.26; corn, 85c; oats, 60c; rye, 90c; bran, $1.45 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.16; corn, 76c; oats, 50c; rye, 80c; bran, $27 per ton; middlings, $32 per ton.

NEW YORK PRODUCE

New York City, April 17, 1916.

The butter market opens a little firmer with prices about as last week. Little surplus on hands. Some indications of a firmer tone in cheese. Little change in prices. Liberal arrivals of eggs with a fair demand. Prices unchanged. The demand for both live and dressed poultry remains good with prices firm. Potato market weak. Bermuda new potatoes selling $5 to $8 per barrel; Florida, $2 to $7.50. Apples in liberal supply but trade steady for best grades. A great deal of the stock is poor stuff.

Butter. — Creamery extra, (92 score) per pound, 36½c; higher score, 37½c; thirds to firsts, 32@36c; state dairy, 30@36c; packing stock, 22@25c.

Cheese. — Whole milk specials, 18½c; daisies, 18@18½c: skims, 11@15c.

Eggs. — Fresh gathered, extra, 23@24c; dirties, 19c; nearby whites, fine to fancy, 24½@25c dozen; ordinary to good, 22@24c; browns, 23@24c.

Dressed Poultry.—Philadelphia and Long Island. fancy, 3 to 4 pounds to pair, 45@50c; Philadelphia fancy roasters, 25@28c. Fowls, 16@19c; old roosters, 16c; squabs, $2.50@5.75 dozen. Spring ducks, per pound 30c. Turkeys, dry picked, 30@33c.

Hothouse Products.—Mushrooms in large supply today, arrivals footing up about 1,300 baskets and market weak and slightly lower. Cucumbers more plenty and weaker with comparatively few sales above $1. Cauliflower in light supply. Very little lettuce arriving. Radishes and rhubarb without change. Tomatoes scarce.

Mushrooms, white, per 4-pound basket, $1.25@1.50; cream, $1.15@1.35; brown, $1@1.25; buttons, 75c@$1; flats and opens, 50@75c.

Apples.—These prices show the range from "B" to "A". Winesap, bbl., $2.25@4.50; Greening, bbl., $2@3.25; King, bbl., $2@3.25; Northern Spy, $2@4; Baldwin, bbl., $2@3; Hubbardston, bbl., $2@2.50; Ben Davis and Gano, bbl., $1.50@8.

Country Dressed Veals.—

Choice	14½@15
Prime	13½@14
Fair to good	12½@13
Coarse, heavy	12½@13
Common	11 @12
Buttermilks	10¼@11
Grassers	9½@10

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., April 17, 1916.

Receipts for the week ending Saturday evening, April 15:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,138	7,321	6,554
Previous week	2,842	5,215	6,335

Calves. — Total receipts of calves for this week were 1,671 against 1,711 last week.

Beef Cattle.—There is a firm undertone predominating, and the better class of cattle commands full values. Offerings, while moderate are equal to average requirements, and include stock from Maryland, Ohio, Pennsylvania and the West. Bulls, cows and calves that were in the desirable class closed steady at the prices quoted.

Best steers	$9.25@9.50
Choice	8.75@9.00
Good	8.50@8.75
Medium	8.00@8.25
Common	7.50@7.75
Bulls	6.00@8.00
Fat cows	5.00@7.50
Thin cows	3.25@4.50

Veal Calves.—

Exceptional lots	$11.00@11.50
Good to choice	10.00@10.50
Medium	8.50@ 9.00
Common	7.00@ 8.00
Southerns and barnyards	5.00@ 6.50

Sheep and Lambs.—Lambs were higher in the upper grades, and sheep realized steady rates. Arrivals showed a material increase, but there was a fair absorption.

Wethers, extra	$9.00@9.25
Choice	8.50@8.75
Good	7.75@8.00
Medium	7.00@7.25
Common	5.00@6.00
Ewes, Heavy, fat	7.00@8.00
Lambs—	
Extras	12.00@12.25
Good to choice	11.50@11.75
Medium	10.50@11.00
Common	8.00@ 9.00
Hothouse, apiece	6.00@ 7.75

Hogs.—With a fractional rise prevailing, current shipments were under satisfactory control. Westerns, $11.20, gross weight; $14, net weight.

City Dressed Stock.—Meats of all varieties that were strictly prime and choice brought firm rates, under an improving inquiry, hogs closing a fraction stronger.

Steers	11 @14½
Heifers	10½@13½
Cows	8 @12
Veal calves	14 @15
Extra calves	16½@
Southerns and barnyards	10 @13
Country dressed	13 @14
Extras	15 @
Sheep	14 @15
Extra wethers	16 @
Lambs	16 @17
Extra lambs	18 @
Hogs	14¼@

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., April 17, 1916.

Cattle.—The supply on sale was 80 loads compared with 90 loads last week. The market ruled fairly active with prices steady to strong on the good cattle of both tidy and weighty grades, while the medium grades were only steady. Heifers in fair supply and sold steady. Cows sold steady on all grades. Bulls in light supply and sold higher. Best fresh cows steady. Springers and medium grades slow. Today's cattle supply totaled 62 loads; demand fair and market fairly active at steady to strong prices on all grades.

Good to choice	$9.25@9.65
Good, 1300 to 1400 lb.	8.90@9.15
Medium to good, 1200 to 1300 lb.	8.10@8.90
Tidy, 1050 to 1150 lb.	8.15@8.75
Fair to medium, 1000 to 1100 lb.	7.50@8.25
Fair, 900 to 1000 lb.	6.75@7.50
Common, 700 to 900 lb.	5.50@6.25
Rough, half-fat, 100 to 1300 lb.	6.25@7.25
Common to good fat oxen	4.00@6.75
Common to good fat bulls	4.25@7.75
Common to good fat cows	4.25@7.25
Heifers, 700 to 1100 lbs.	4.75@8.25
Bologna cows	3.75@4.40
Fresh cows and springers	$25@85

Calves. — Supply of calves light. Market closed 50c per cwt. higher. Receipts of calves today were 1,000 head; market active.

Veal calves	$8.50@11.25
Heavy and thin calves	5.00@ 7.00

Hogs.—The supply on sale during the week has been light and with a good demand the market ruled active and higher on all grades with the better demand for the weighty grades. There were 40 double-deck loads of hogs received today; market lower than last week.

Prime heavy	$10.25@
Heavy mixed	10.25@
Prime medium weights	10.25@
Best heavy Yorkers	10.25@
Light Yorkers	9.75@
Good pigs	9.00@9.25
Common to good roughs	8.75@9.25
Stags	7.00@7.25

Sheep and Lambs.—The supply during the week has been light and with a good demand the market ruled active and higher on both choice sheep and lambs. Heavy lambs slow. Sheep and lamb receipts today numbered 20 double-deck loads; market active and 10 cents higher on a few choice sheep but general market steady on sheep and lambs. Liberal supply of spring lambs and they are steady.

Prime wethers (clipped)	$ 7.80@ 8.00
Good mixed (clipped)	7.30@ 7.60
Fair mixed ewes and wethers	6.25@ 7.00
Culls and common (clipped)	3.50@ 5.00
Spring lambs	10.00@16.00
Clipped lambs	6.00@10.10
Culls to choice yearlings	6.00@ 9.50

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., April 17, 1916.

Hay and Straw.—Offerings of hay of quality continue light and prices have advanced slightly during the week. There is a steady demand and the market is firm at the advance. Straw is steady and firm.

Grains.—The wheat market continues to sag. There is a strong bearish tendency in the speculative market which is having its effect in local trade. The export trade is a minor factor at present. There is little trading in corn but offerings are light and the price holds firm. Oats rule steady at last week's quotations. Offerings are moderate but there is little trading.

Hay.—No. 1 timothy, medium bales, $23@24; No. 2 do., $21@22; no grade, $10@15. Light mixed clover, $20.50@21; No. 1 do., $20@20.50. No. 2 do., $17@18.

Straw.—No. 1 straight rye, $13@13.50; No. 2 do., $12@12.50; No. 1 tangled rye, $11.50@12; do., No. 2 $10.50@11. No. 1 wheat straw, $10@10.50; No. 2 do., $9@9.50. No. 1 oat straw, $10@10.50; No. 2 do., $8.50@9

Wheat.—No. 2 red. $1.14½@1.17½; No. 3 red, $1.14½@1.17½; rejected A, $1.12@1.15; rejected B. $1.10@1.13½.

Corn.—No. 2 yellow western, 82@82½c; steamer yellow, 80@81c; western, No. 3, 77@78c; No. 4 yellow, 75@76c; ear corn, 79@79½c per 70 pounds.

Oats.—No. 2 white, 51½@52c; No. 3 do., 49@50c, No. 4 do., 47½@48½c; standard white, 50@51c; sample oats, 43½@44½c.

Feed.—Winter bran, 100-lb. sacks, $25.50@26; spring bran, do., $23.50@24.

Flour.—Car lots, winter clear, $5.00@5.25; straight, $5.30@5.70; patent, $5.75@$6.00. City mills, choice to fancy patent, $6.50@6.75; do., regular grades, $5.10@5.35. Rye flour, $5@5.50 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., April 17, 1916.

Hay.—Receipts of hay and billings in transit still continue light and market is higher. Any grade of hay if sound sells readily on arrival and buyers eager for more. No. 1 timothy, $22.50@23; No. 2 timothy, $20@21.50; No. 3 timothy, $16.50@18; No. 1 light mixed, $20@20.50; No. 1 clover mixed, $17@18; No. 2 clover mixed, $14.50@16; No. 1 clover, $15.50@16; No. 2 clover, $10@12; No. 3 prairie, $11.75@12.25; No. 4 prairie, $9.25@9.75.

Straw.—Market on straw is considerably better; an excellent demand with very light receipts. No. 1 oat, $8.75@9; No. 2 oat, $8@8.25; No. 1 wheat, $8.75@9; No. 2 wheat, $8@8.25; No. 1 rye, $10@10.50; No. 2 rye, $8.50@9.

Ear Corn.—The demand is somewhat limited owing to the near approach of the warm weather, and is confined entirely to No. 2 yellow ear. Off grade corn hard to dispose of. New stock. No. 2 yellow, 81@82c; No. 3 yellow, 76@78c; No. 2 high mixed, 79@80c; No. 2 mixed, 77@78c.

Oats.—Receipts altho not heavy are fully equal to demand; market a little draggy. No. 2 white, 49@49½c; Standard, 48@48½c; No. 3 white, 47@47½c; No. 4 white, 45@46c; Rejected, 42@45c.

NEW YORK HAY AND GRAIN

New York City, April 17, 1916.

Hay and Straw.—Top grades of timothy hay continue scarce but demand is not heavy and prices are a little easier than a week ago. Medium and low grades of timothy are in over supply and prices are about what buyers want to pay. Quotations given are outside figures even at the most favored market points and are too high for out-of-the-way stations. Much of the hay arriving is no-grade, being coarse, weedy and damaged. Such hay is slow sale at a wide range in price. Heavy mixed and low grade clover are also slow sale. Rye straw is steady.

Grains.—The wheat market is slow and sluggish. Foreign complications are not encouraging. The export demand has fallen off materially. Great Britain taking wheat more largely from South American countries. Reports of the growing crop are unchanged and an average crop seems assured. Corn is about steady. There is practically no export demand. Oats are fairly steady with a moderate cash demand. Spring seeding is reported going on under favorable condition.

Hay.—Large bales.—No. 1 timothy, $26@27. No. 2, $24@25.50; No. 3 $20@22; fancy clover, light mixed, $24@25; No. 1, $20.50@22.50; No. 1 clover, clear, $17.50@19.50.

Straw.—Per ton, No. 1 rye, $15.50@16; do., No. 2, $14@15; oats straw, $10.

Wheat.—No. 1 Northern, $1.39½; No. 2 $1.27½; No. 2 hard winter, $1.29.

Corn.—No. 2 yellow, 86¾@87¼c; No. 3 yellow, 84¾@85¼c.

Oats.—No. 3 white, 50@50½c; No. 4, 49@49½c. Ordinary to fancy, 50@50½c.

Rye.—$1.05.

Mill Feed. — Coarse Western spring one hundred-pound sacks to arrive, $23.25. Standard middlings, $24.25; flour, do., $28 to arrive. Red dog, to arrive, 140-pound sacks $32@32.50. Oil meal, $35.50@36. City feed, bulk bran, $23. Heavy feed in bulk, $24. Red dog, $32.50. Flour middlings, $32.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., April 17, 1916.

The local butter market holds steady at last week's quotations. Receipts of solid-packed creamery are moderate but trade is quiet and supplies are ample for current needs. Ladles are in small supply and quiet at former figures. Receipts of prints are light and the demand absorbs all offerings of desirable goods at steady prices. The demand for cheese is only moderate but offerings are light and the market rules firm.

Butter.—Solid packed creamery, fancy specials, 39c; extras, 37c; extra firsts, 36½c; seconds, 35@36c; ladle packed, 26@27c; nearby prints fancy, 40c; average extras, 39c; do., firsts, 37@38c; do., seconds, 35½@36c; special fancy brands of prints, 43@46c.

Cheese.—New York, full cream fancy, 18¾@19c; fair to good, held, 18@18½c; do., part skims, 11@16c.

NEW YORK MILK MARKET

New York City, April 17, 1916.

The market is oversupplied and the dealers will have additions to their surplus this week, owing to the Jewish Holidays. The receipts last week exceeded those of the preceding week by 5,899 cans of milk and 820 cans of cream. The market value is a shade under 3½ cents a quart for Grade B in the 26-cent zone.

The receipts of milk and cream in 40-quart cans for the week ending April 15, were as follows:

Railroad	Milk	Cream
Erie	43,498	2,226
Susquehanna	8,440	303
West Shore	22,217	1,129
Lackawanna	61,250	1,795
N. Y. Central (long haul)	90,309	2,603
N. Y. Central (short haul)	22,940	44
Ontario	45,245	4,107
Lehigh Valley	42,081	1,587
Homer Ramsdell Line	3,820	41
New Haven	5,402	28
Pennsylvania	8,250	250
Other sources	1,263	31
Totals	354,715	14,144
Same week last year	317,524	11,875

ELGIN BUTTER MARKET

Elgin, Ill., April 15, 1916.

Butter sales today were made at 33½@34 cents per pound, a majority at 34 cents. Seventy-two tubs sold at 34 cents; 50 tubs at 33½ cents.

CHICAGO HORSE MARKET

Chicago, Ill., April 17, 1916.

Horses arrived much more freely last week, and some undesirable animals had to be closed out as much as $10 per head lower, but otherwise the market was active and unchanged, with especially good sales of army horses. Southern chunks sold at $60@100, farm workers at $70@130, good farm mares at $135@150, commercial chunks at $165@240 and heavy horses at $245@315.

TOBACCO MARKET

From all sides come indications that the shortage in desirable cigar leaf tobacco is real and even greater than the more extravagant estimates. A late estimate places the weight at but 60 percent of normal and the quality as far below an average. It has been estimated that less than one-half of this small crop will be suitable for cigars. The promptness with which the desirable part of the crop was bought showed that factories realized the situation some time ago. In face of this shortage the factories are using more tobacco than a year ago, as shown by an increase in revenue amounting in some instances to from 9 to 16 percent. With this situation it is not surprising that growers in nearly all localities are taking a renewed interest in the matter and preparing to plan an increased acreage the present year. It is sure that the future product will find a waiting demand and good prices unless a large crop should enable buyers to precipitate a bearish movement, as is so often the case. Here is where growers should have a "say" but this is practically impossible without some **argument for concerted action.**

The week was blighted by a "pewee" cold snap with the heaviest April snow for many years, a total of six inches having fallen. As a result of this and general late conditions there are yet many plant beds to be sown and farm operations are almost one month behind time. To hurry matters, many have sprouted their seed indoors and will also fertilize beds. The advanced and too often inferior quality of commercial fertilizer the present year is an unfortunate feature of the situation.—H. E. Tweed, April 17, 1916.

Rights of the Road

II—Obstructing the Highway

What right has an adjoining owner to plant and maintain shade and ornamental trees in the highway? He may do this whenever they do not interfere with the public use of it. Ordinarily, a court has remarked, he may plant trees, set posts and do such other acts as will add to his convenience or assist in beautifying his premises. "Public convenience may, in time, in particular locations, require the removal of some of these things, and whenever the necessity arises, and the public authorities request their removal, then the private must give way to the public or paramount right. But while permitted to remain, no one traveling the highway can wilfully injure or destroy them, and should any one do so, he would justly be held responsible." Again, the owner of a tree, thus standing in the highway, must exercise reasonable care that it does not become dangerous to travelers; and if he should cut it down and it fell across the traveled way, and remained there, he would be liable in an action for damages to any traveler who was thereby hindered or inconvenienced.

Whether the public has any right to the use of the trees growing in a highway, and not planted there, is not so clearly settled as it might be. Sometimes the courts have said that a reasonable use may be made by the public authorities of the timber thus growing in a highway for purposes of repair, yet they can hardly be classed as road material with sand and gravel. The right to use them depends probably on the exigencies of the case, such as the abundance, character and value of the timber, and the urgency of the public needs. No one would question the public right to cut down and use such trees to prevent the immediate danger of the destruction of a road from a sudden overflow.

In another state the court has declared that "by laying out a highway, the public acquire no right to use any trees or timber growing upon the land for the purpose of building and repairing the road. The only right they acquire in relation to such trees is that of cutting down and removing to a convenient distance, for the use of the owner, such trees as it is necessary to remove in order to permit the working or repair of the road in a proper and reasonable manner." Our courts have not yet been required to answer this question, but the rule above given is reasonable and in harmony with the rule that prevails in many states. But if any telephone, telegraph or electric light company shall cut the shade trees in a highway, the owner may apply to the court of common pleas in his county for the appointment of viewers to assess the damages against the company; unless it be operating in a borough, in which case this cannot be done.

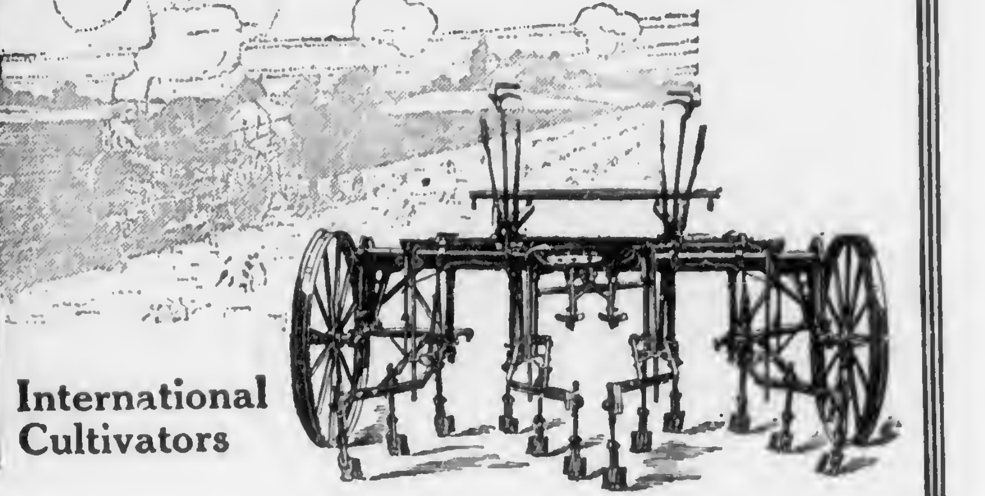
If a spring is located in a highway, the owner of the land is entitled to any use of it which does not interfere with public travel or increase the public burden of making repairs. If the road supervisors can at the same cost make and keep the way equally safe and convenient, and still allow the water to flow from the spring on or over the owner's land, they must do so. They have no right to divert the water to a public watering trough on the other side of the highway, nor take subterranean water from the road to sprinkle it, unless it was included in the award of damages on laying out the highway, or was awarded to the owner afterward. Surely the taking of such water may be a very valuable right to the public, and a serious loss to the adjoining proprietors as their water supply may thereby be diminished and even exhausted.

And the same rule applies to a turnpike company. It has no easement or right in a spring within its right of way. **Said Justice Williams in a case** of this nature against a turnpike company: "**It has a right of way for public travel over the land upon which the** water of this spring descended; and for the purpose of preserving its road bed in a condition suitable for travel it may drain the water off. The right of drainage does not include the right of appropriation, nor does it justify the forcible exclusion of the owner from access to spring of water that comes to the surface on his own land outside the beaten track of the roadway."

If a highway were laid out which included a well within its limits, and the supervisors permitted the owner to retain it, doubtless he would have the same right to protect it from intruders as if it were situated within his field. But if for a good and proper reason to himself, he wished to dig a well in a highway, we think he should first obtain the permission of the supervisors. If a township may dig wells for public purposes in the highway, which has been questioned on the ground that such use of the land was not considered when fixing the damages, the township cannot make a well in the highway to strike a vein of mineral water which an owner may have in his land, for the purpose, not of obtaining water merely, but to supply mineral water free to all, for this would be an attempt to take his property without compensation. "It has no right to hunt in the streets," said the court, "for a vein of mineral water, the private property of the abutting land owner, so as to take this private property for public use without compensation to him."

What right has an adjoining owner to put obstructions of any kind on the land? He may temporarily put a load of wood or other materials thereon. If he wishes to improve his land, he may occupy such a part of it with materials as is compatible with the right of the public and of neighboring proprietors to the reasonable use of the highway. But their rights are as perfect as his. "When several parties enjoy common or rights to the use of the same thing, each must use his with due regard to those of the others." He may therefore use a reasonable portion of the highway temporarily for the deposit of lumber, building materials, etc. And he may excavate under a street or highway, unless a special regulation forbids, and use space so long as there is no interference with public convenience.

But the owner of a lumber yard cannot permanently cover any part of the highway with a pile of lumber. The most noteworthy case on this subject in our state is that of Piolet vs. Summers. Speaking for the court, Justice Green says: "There is a certain right of property owners to leave objects on or along a highway, in front of their premises, temporarily, and for special purposes, and where that right exists, it is of equal grade, before the law, with the right of travelers to journey in the highway. Hence in such cases the obligations of each class to the other are equal, and not superior, the one to the other. Each is bound to ordinary care toward the other, in the exercise of their respective rights, but not to care which is extraordinary." — Albert Bolles.



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Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the cause in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Cough—Indigestion.—One month ago I bought, at a sale, a cow that had previously been tested for tuberculosis. I was told that she failed to re-act. This cow has been coughing since I owned her and has also lost flesh. F. R. G., Bridgeton, N. J.—On account of her new home and different surroundings it is not unusual for a cow to occasionally lose some flesh; but, I do not believe her symptoms are those of tuberculosis. Perhaps she has stood in a draft or taken cold, or she may cough as a result of eating dusty, badly cured fodder. Give her ½ oz. ground licorice, ½ oz. ground gentian and a teaspoonful of salt in each feed. Be sure and admit plenty of fresh air into your cow stable; besides, it should be kept clean and dry.

Garget.—Can you tell me what to do for my cow that is troubled with caked udder, either the result of an injury or inflammation? Some two weeks after she came fresh she commenced giving stringy milk from one quarter and now I am able to milk only about one-half a teacupful of thin fluid from this teat. The other three quarters are sound. I applied turpentine and lard and a salve which is supposed to cure caked udder, but it failed. G. M., Dallas, Pa.—The quicker you discontinue treating a quarter of this kind, the better, for you will never be able to effect a cure.

Twin Colts — Tuberculosis — Nodular Disease.—Have a mare that gave birth to twin colts that were about two-thirds grown. How soon would it be safe to breed mare again? She is in first class condition and does not seem to have been sick in any way. Do sheep have tuberculosis? Do the presence of tubercles or nodules in the intestines indicate tuberculosis? Are sheep ever tested with tuberculine to determine if they have tuberculosis or not? F. B., Phelps, N. Y.—Your mare can be safely bred at any time. Mares seldom raise twin colts; in a great many cases miscarriage occurs before the full gestation period is reached. Sheep seldom suffer from tuberculosis and when it does occur it always runs a chronic course and usually manifests itself in the form of a gradually progressing pulmonary affection. A tubercular sheep very often shows some bloating. Sheep will of course re-act to the tuberculine test; however, I do not believe it at all necessary to test a healthy appearing sheep. Presence of nodules on intestines is evidence of nodular disease rather than tuberculosis.

Cow Leaks Milk.—I have a heifer that leaks milk. I would like to know how to remedy this defect. R. A. K., Berwick, Pa.—Milk her three or four times a day, or else make her wear teat plugs.

Abortion.—We have had two cows come fresh and their calves were dead. The first cow freshened in December, four days too early. The calf was not much larger than a cat and would not weigh more than 20 pounds; but appeared to be perfectly developed and matured except in size. It never moved after it was born. We had quit milking the cow only two days before she freshened. The other cow freshened March 1, three weeks before her nine months were up. She had been dry some time and made bag as naturally as any cow. Her calf was also dead and would weigh about 20 pounds. This calf seemed to be fully matured, but came dead. Both of these cows are five years old this spring—the third calf for one, and the fourth for the other. All their other calves were healthy. We have had three other cows freshen from the same bull and the calves were all right. How can future trouble in these cows be avoided? V. P., Grand Valley, Pa.—From the fact that your cows carried their calves so near to nine months and showed no sickness during pregnancy, we must conclude that they were perhaps injured or else the foetus became displaced enough to interfere with their nourishment and proper development. Better breed your cows again in 60 days.

Enlarged Gland.—I have a 5-months-old calf that has large swollen neck or throat. I believe it the result of using a neck strap applied too tight. Her appetite is good and she is in good condition, but breathes with a little difficulty and can be heard some distance. I applied camphorated liniment and rubbed throat with woolen cloth, but this failed to make an impression. Will you please tell me what can be done for her? C. E. L., Spring Mills, Pa.—Apply 1 part iodine and 9 parts fresh lard to bunches in throat, 3 times a week Also give calf 20 grains potassium iodide at a dose, twice a day.

Paralysis.—Two of my sheep recently took sick and died in a week. Had they lived they were due to lamb April 9th. They were apparently well, but soon after sickness came on they lost the use of their hind quarters and were unable to get up alone. Two days before they died they were paralyzed. They have been fed oats and beans once a day; besides, had other roughage. These sheep appeared to be in excellent condition when they took sick. Could the beans have had anything to do with their sickness? M. H. F., Savona, N. Y —Your sheep may have been infected by eating badly-cured fodder or drinking impure water which caused the loss of power. I do not believe feeding beans caused their death; furthermore, I know of no treatment that you should have given them, other than to change their food supply and see that they had clean wholesome water to drink.

Spavin.—I have a horse that suffers from spavin. He is about seven years old and quite lame. He has been idle all winter, treated by a veterinarian but the remedy failed to cure him. H R., Newfield, N. Y.—You failed to state whether it is a case of bone or bog spavin. It is possible that your horse is incurable. I would suggest that your veterinarian fire him.

Stringy Milk.—I have a cow that gives stringy milk occasionally out of one quarter of udder. I would like to know how to cure her. L. D. T., Herman, Pa.—Apply 1 part iodine and 20 parts fresh lard, twice a week.

Paralysis.—I have a 4-year-old cow that seems to have lost the use of both hind legs. There appears to be a bunch on each leg below stifle joint. When down she is unable to get up without help and is unable to walk on account of failure to lift feet off ground. J. B., Clark, Pa.—Apply 1 part iodine and 9 parts fresh lard to bunches on stifle every day or two and give 1 dr. ground nux vomica and 1 dr. acetate of potash at a dose, 3 times a day.

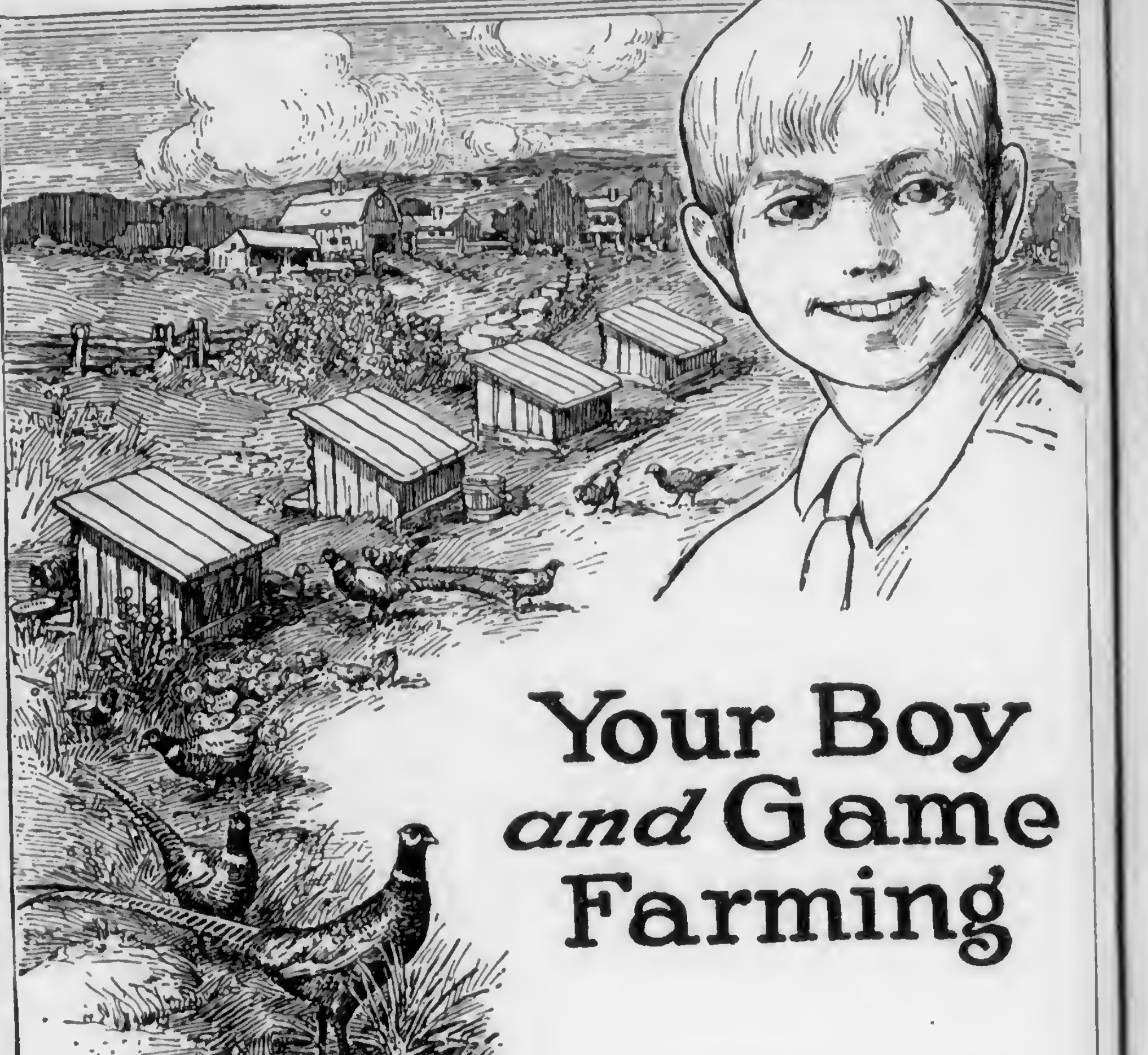
Sore Back—Sore Fore Leg—Worms.—I have a 10-year-old-mare that has a sore back, caused by saddle. She also has a sore on back part of fore leg. She is rather thin and I have thought she might be troubled with worms. W. F. J., Laurel Springs, N. J.—Apply 1 part sulphate of copper and 10 parts vaseline to sore back and sore on leg every day. Mix together 1 part powdered sulphate iron, 1 part ginger, 2 parts powdered charcoal and 4 parts ground gentian. Give a tablespoonful at a dose, 3 times a day.

Congestion of Lungs.—I have a young pig which I recently bought that is breathing heavy and appears to have lost its appetite. J. L., Newfield, N. J.—Apply mustard and water to sides, back of shoulder, and give small doses of sweet spirits of nitre and whiskey every 3 or 4 hours.

FARM NOTES

Loss from Oat Smut.—It is estimated by the Department of Agriculture at Washington that the entire country loses about $20,000,000 a year from oat smut, and that at least one-tenth of that amount is credited to New York State. Last year's oat crop in this state is estimated at 54,270,000 bushels, valued at over $2,500,000 so that on a 10 percent basis of loss from smut, the farmers of the state are $2,500,000 poorer than they would have been had smut been prevented. It is a pretty heavy tax to pay when loss could be largely avoided by treatment of seed oats at a cost of less than a cent per bushel.

Truck Gardening Experiment. — W. H. Hamilton, assistant farm demonstrator of Mercer County, and Roscoe DeBaum, of N. J. Experiment Station, are visiting Mercer County truck growers for the purpose of securing several men to carry on demonstrations in the growing of cantaloupes and cucumbers. Great interest is being taken in the work and the officials who have it in charge predict success for those taking active interest.



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THE MOTOR TRUCK IN THE HILLS

By D. H. WATTS
Clearfield County, Pa.

After months of observation and investigation I "signed up" for a three-fourth-ton truck, one to be as near "fool-proof" as possible. On the evening of July 2, 1915, two of our boys went to Pittsburgh to bring the machine home overland on its own power. A careful demonstrator came along and altho it rained all day and the road was muddy, the supper bell had not rung when the truck came in like a high-strung horse pushing on the bit. Over 100 miles had been covered and the truck was ready for another hundred.

One of the boys said: "Well, that trip was worth $50 to me." So that was the first fifty dollars credited to "Big Ben" as the machine is named by the boys. Marketing early cabbage, onions, sweet corn, etc., gave immediate opportunity to try out the utility of the car. Trips came in almost daily succession, sometimes to our more distant market towns, 22 miles away, and other days to our nearer market, 9, 14, 16 and 17 miles distant.

During peach harvest a load of 64 baskets of fruit was delivered to consumers 22½ miles away, making 45 miles for the round trip, between the hours of 6.30 A. M. and noon, and in the afternoon another load was taken to a distant town. Two trips per day was quite common during the rush of the season. On one occasion the truck covered 88 miles round trip in delivering peaches. However, this distance I consider too great for profitable truck service.

The past season was one of much rain and unusually bad roads; the roads in our locality getting very little care, which made this a hard season on a machine. It is due our readers to know that our roads are dirt roads and as hilly as any in central Pennsylvania. We have hills that one ton on a farm wagon is load sufficient for a good farm team.

The limiting factor on the load for the truck is often the nature of the earth on the road surface at steep grades, such as the wet yellow clay surface. Only once during the entire season up to November 25 did the machine stand out on the road over night when it baffled such skill as could be applied on a dark and stormy night. On this occasion the return was made to within three miles of home, and sedate were the faces that returned without the truck.

Almost all of our crop of 2,600 baskets of peaches and many tons of vegetables were carried to market on the truck, and to our surprise the fruit carried with less bruising than when carried on the common farm spring wagon. This is due to the rubber tires (altho our truck is of the solid type) and also to the long sweep of the springs.

It is no easy task to figure out to one's satisfaction the profit or loss of a venture like this; so much depends on the marketing and the roading to be done and the man on the machine. He must have plenty for the truck to do and must be, at least, friendly to the machinery, keeping it nicely adjusted constantly. To start with, any one can compute the possible gasoline expense. Then with most trucks come chain and tire expenses and renewals. You have three sets of chains: Mud or anti-skid, drive and transmission. So far, we have worn out one set of mud chains and, owing to a seeming defect in the tempering of the drive chains, we have renewed them. The total cost for the two sets was $27.

The tires on the front wheels will be good for another season, and rear tires will probably last for about 2,000 miles' service, which, when added to the mileage now covered, will be about 5,000 miles for the rear tires. When these are renewed they will cost about $40.

Interest on the investment of $1,000 to $1,200, and depreciation of the value of the truck, are part of the cost per mile covered but must be figured against the entire life service of the machine. Situated as I am, two men will market as much produce in one season, to the consumers' door, as can be accomplished by two or three spans of horses and twice to three times the number of men on the road, which service requires the most tactful and honest men. We find, too, that when we get a dull market on a given day the truck will flit quickly from place to place, covering a wide delivery, not possible with any team.

The Truck in Social Life

The truck markets, goes to mill, hauls fertilizer and does all like errands while the teams constantly toil in field and orchard. On the Sabbath day these

PREPARING A GOOD SEED BED----CUTTING AND TURNING THE SOIL AND SMOOTHING THE SURFACE.

same friendly toilers of the field are turned into the rough pasture lot to feed and bask in the sun while our machine, converted into a comfortable carry-all, goes off on an eight-mile round to Sunday School and church, carrying its load of 6 to 16, as we happen to find people enroute. Again, in the event of a grange meeting, picnic, etc., the same convenience and pleasure is available and the hard-worked farm teams escape the cruel road ordeal of being run hither and thither at a gait foreign to their make-up.

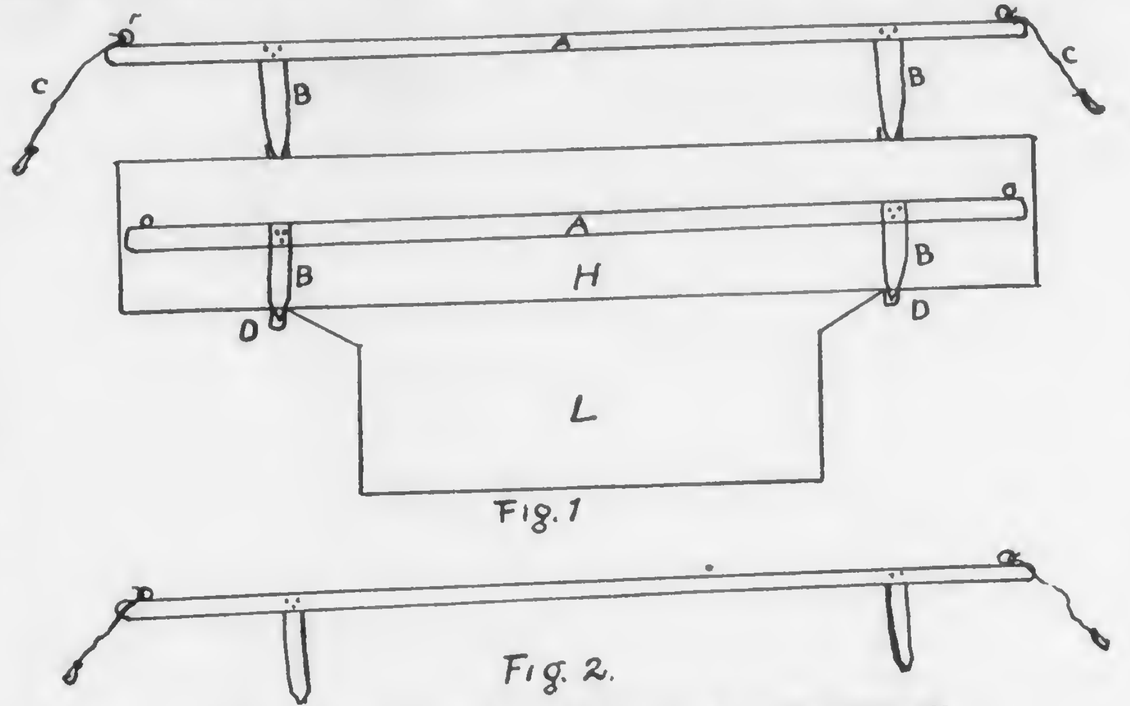
In a social as well as in a utilitarian sense, the truck transforms life and its possibilities in the remote rural environment.

Basket Tray Attachment

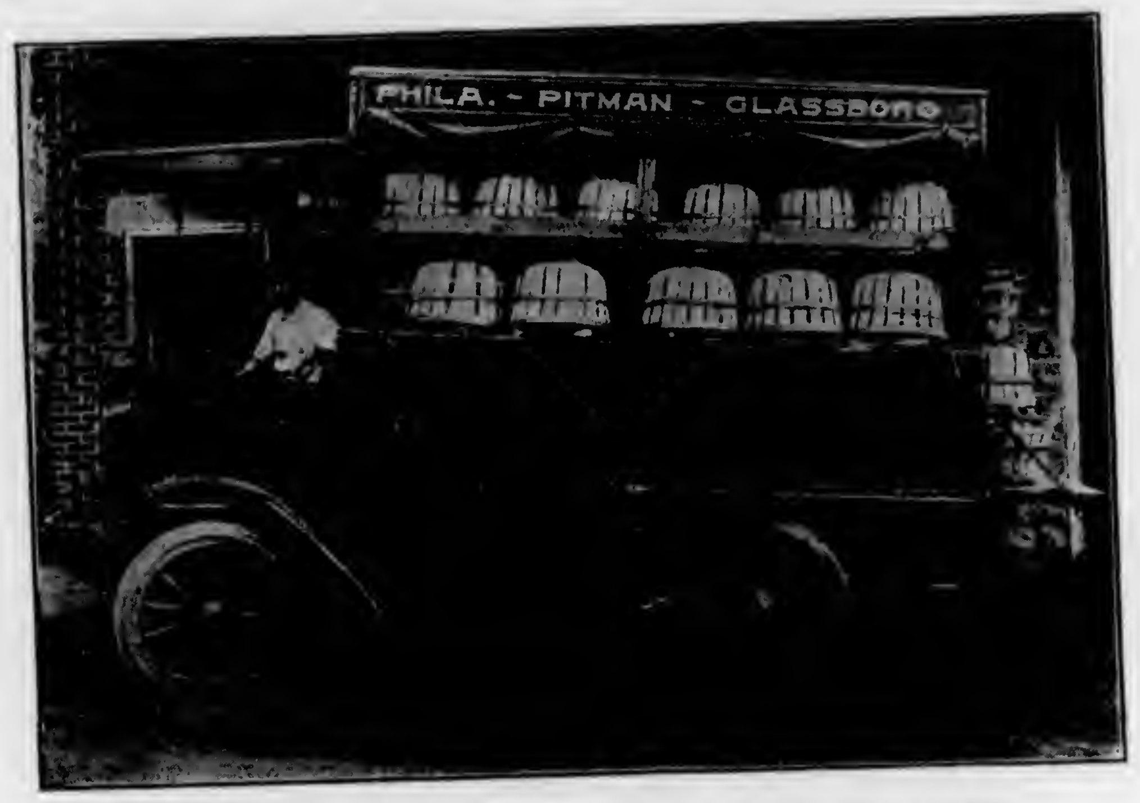
A simple, light and cheap basket tray is used to carry fruit on the upper deck. Each tray carries 6 standard 16-quart baskets and we set on as many trays as are required for the delivery, one setting alone if necessary. This plan eliminates the many objections found in the heavy rack covering the entire loading space and that must go along intact even tho but little of the loading space is needed for the trip.

Fig. 1 shows one tray setting on rear end of truck body L; also bottom board, H., 8 inches wide and ⅞ inch thick. Nailed to this are two cleats, D. D., with ¾-inch holes in each end to receive the posts, B. B. The cleats also serve as spacers for the trays along the wing boards, so each tray is held in place not by the wide tops of the baskets alone but by the projecting cleats as they rest along the side of the wing boards. A. A., and the posts, B. B., are made of good ash, ⅝ inch thick and 2½ inches wide. The cleats are of pine, 3 inches by ⅞ inch. F. F. are little screw eyes and C. C. are common strong twine, having on their ends small harness snaps.

Fig.2 shows side of tray detached and ready to throw with the bottom board into bottom of wagon bed for convenience of loading any other goods on the return trip. When the baskets are on, the string is snapped and the tray will ride alone at any point along the body. These trays are very light and satisfactory.



HOME-MADE BASKET CARRIER FOR AUTO TRUCK.



AUTO EXPRESS BRINGING NEW JERSEY FRUIT TO MARKET.

Corn Improvement Work

The first step that we took to improve our corn crop was to test the seed before planting. At first we tested only a small portion of the seed, but the results were soon so apparent that we made a testing box and have since tested all of the seed that we plant. We have done this now for five or six years regularly. We take four grains from each ear and place them on a square in the testing box whose number corresponds to the number on the ear. We plant only those ears that show 100 percent germination. Sometimes, in case we do not have enough of the 100 percent grade, we finish the planting with the 75 percent grade, but this is not often and is always kept separate.

Our second step was not only to test the seed but to grade the ears after they were tested. In fact, there is not much chance for improvement if there is no careful grading of the ears after testing and before shelling. To do this we lay all of the 100 percent ears out on a table in rows, tip pointing away from us (the table should be large enough so that all of the ears can be laid out in front of the one who is doing the grading). When the ears have been so placed we select one that we think is the best, or that comes nearest to our ideal of a good ear of corn and lay it to one side. Then we take these ears and go over them and pick out five or ten of the best and call them grade No. 1. The remaining ears of the first selection we call grade No. 2. All others we call grade No. 3. Each grade is placed in a sack and tagged for indentification. Each grade is shelled by hand and graded with a chatham corn grading attachment to the fanning mill. We always run it over this grader until we are sure that the machine has done all that it will do, then each grade is placed in the original sack and tagged.

At planting time, we put grade No. 1 in the planter first; then grade two, and finish with grade three. We mark the rows between the different grades in the field with small stakes on which has been written some phrase that will identify the particular grade. We also carry a note book with us and make a record in it also. This far in the work of improvement we have practiced now for five years, but last year we did still another thing which gave such good results that we shall do it again this year.

After the ears of each grade had been shelled and graded mechanically, a handfull of the shelled corn was dropped on a fanning mill screen and all of the small grains picked out by hand. In doing this we were surprised at the improvement that was made in the appearance of the seed. We picked over all of grade one, and grade two, and of grade three until we had in all about three pecks of seed—all nice big grains of uniform size and with large well-shaped germs. We planted grade one along the west side of the field, followed by grade two, then by grade three that had been hand picked.

All thru the summer this part of the field where the hand picked seed had been planted out-grew the other part and at husking time the results were especially noticeable. Here we noticed especially the straightness of the rows of kernels on the cob, the tendency of the ears to take on a more cylindrical form, and the grains were of a larger and more uniform size. We went thru this part of the field last fall several times when it was beginning to shoot the ear and noticed that many of the stalks were growing two ears, but the dry weather soon came and on account of the prolonged drouth the crop was not so good as indicated by its appearance at the beginning of the season. While going thru the field at this time we selected about 100 ears for seed from the stalk in the hope that after some years of selection we shall be able to get a strain of corn that will mature at a more uniform period and at the same time have a greater uniformity in the stalk.—V. Ross Nicodemus, Bedford Co., Pa.

Experience With Cover Crops

In the latter part of June, 1914, I plowed an old field that had probably not been plowed for fifteen or twenty years. The soil expert told me that it needed lime and that was evident from the amount of sour grass, weeds and moss growing on it. It received very poor cultivation and I put on about one ton of caustic lime per acre. I also added about two hundred pounds of 2-8-10 commercial fertilizer.

The buckwheat was sown about the first of July and at the same time I mixed with the buckwheat seed about one-half bushel rye, about three quarts hairy vetch and three quarts of crimson clover. The season was very dry and the buckwheat was not a good crop. The rye and vetch were barely visible in the fall, but the following spring as soon as the snow went away the vetch looked green and started to grow, the rye soon made headway and by the middle of June the rye was six feet tall. The vetch had grown enormously and the roots were packed close with nitrogen nodules. The crimson clover was not much of a success; it appears not to be in this section. We are at an altitude of about two thousand feet and our winters long and cold.

I turned this rye, vetch and crimson clover down about June 20, and sowed it again in buckwheat; this time sowing only vetch as a cover crop. This vetch seed was mixed with the buckwheat and all sown about June 25. I used a very little amount of commercial fertilizer and had as fine a field of buckwheat as one could see anywhere thru this whole community. And it yielded fully thirty bushels of buckwheat to the acre. The vetch made good headway, some of it getting a foot or two high by the time the buckwheat was cut, altho at no time did it interfere with the buckwheat. I walked over the field about a week ago and there is an elegant growth of vetch and it bids fair to be most satisfactory and encouraging this season. I have sown some sweet clover with it and will be able to give you a report on that later. The vetch seed was inoculated both times.

The particular fact that I wish to give your readers is that on poor run down land, land at high elevation and where buckwheat is grown, I know of nothing better than using rye and vetch with the buckwheat. You can raise an excellent crop of buckwheat carrying the cover crop and do all of this with but one seeding. A number of the farmers of this community who grow buckwheat are going to follow this method and we feel that it is the most economical way of getting humus and nitrogen into the soil.—John S. Miller, Somerset Co., Pa.

Trend of Southern Land Values

Previous to the Civil War, the South held the highest priced farm lands in the United States. At present it has some of the cheapest. This revision of prices has been due to a peculiar condition of land holding rather than to a loss in actual farm value. Take Charles County, Md., in which the New Canal Zone Colony is located, for example. It is a beautiful plateau rising from 175 to 225 feet above tidewater, gently sloping toward the river flats and marshes, intersected by the valleys of the Port Tobacco and Mattawoman Creeks, which gather the waters of innumerable springs and streams to carry them into the broad bosom of the Potomac. When worked by slave labor, the old colonial estates produced immense crops which were all taken to the river for water transportation. To this day, all roads still run to the river landings. Now that railroad and automobile transportation is being developed, the whole road system must be replanned and made over. The first step in this direction has been taken by the state, which has planned and built a great arterial system of highways to connect every county seat with Baltimore City.

It is doubtful if any section of this country suffered more severely thru the Civil War than Southern Maryland. The large plantation owners sent their sons into the confederate armies. They sent their cattle to feed them. They then gave up their every dollar, even to mortgaging their homesteads for "the cause". Utterly disheartened by Lee's surrender at Appomattox and the hopeless situation confronting them, their young men went West to look for a new start, leaving the old folks to try to hold their lands with the hired labor of former slaves. They discouraged immigration from other states and abroad, for they very plainly say that an influx of "foreigners" meant the cutting up of the old family land holdings to which they clung with passionate attachment. Every newcomer in that country is a "foreigner", whether he comes from Pennsylvania or Russia. If he comes from Virginia, he is "home-folks".

The present tenant system soon became prevalent. The reliable colored people gradually sought remunerative employment in neighboring cities, despite every effort to hold them. Field after field was "turned out" to grow up in scrub pines. The larger growth of the outlying fields usually becomes smaller as you approach the old manor-house, indicating the gradual abandonment of field after field. I have seen a fine old apple orchard smothered in a young forest of jackpines. People persuaded themselves that these once fertile farms were worn out. What was once the highest-priced is to day the cheapest land in the United States. Farms within twenty miles of Washington sell for less than $15 per acre.

Still their owners with fine sentiment clung to their ancestral homes and traditions. I have heard it said that you can find more of the spirit of the old South in Charles and St. Marys counties, with its fine courtesy, simple kindness and splendid hospitality, than in any other part of Dixie land. I believe this to be true. These people may be a little slow in accepting a newcomer, but once accepted, there is nothing too good for him. But this by no means implies that they are eager to sell him their lands. Quite the reverse. Selling to homefolks is one thing. Selling to a "foreigner" is another.

You may call this ridiculous sentiment if you will, but it is a fact with which the Canal Zone Colony was compelled to reckon. Had it not been for the formation of a holding company by prominent and public-spirited citizens of the state, who went ahead and bought piece by piece the 5,000 acres needed by the colony, I doubt that they ever would have secured a site in one continuous tract. As it was, this problem presented considerable difficulty.—The Country Parson.

Queries and Comments

(This department is open to all of our subscribers. Queries and short comments are invited. Queries will be answered by best available authorities.)

Lime and Fertilizer

"I have manured and plowed a sod field for tobacco, on which I will sow a 4-10 fertilizer at the rate of 600 pounds per acre. Had also intended to use lime on this field but am told lime will neutralize the fertilizer. Is that correct? If so, how would ground lime stone act? Thanking you for your courtesy."—J. S. E., Lancaster Co., Pa.

You need not hesitate to apply both lime and fertilizer. Harrow the lime well into the soil. If burned lime is used you would probably not need to use more than 25 or 30 bushels per acre. Phosphoric acid has a tendency to unite with lime and become reverted, but the action does not destroy the value of either. However, either hydrated or ground limestone is preferable to use with either manure or fertilizer. Never use manure and quick lime together.

Quick Work

Some time ago I read an article in an agricultural paper on the subject of dynamite as an agent in agriculture. The writer did not recommend the use of dynamite but since that time I had before me the task of draining a piece of timber land at the Taylor Dairy farm located on the Congaree River.

The timber is a heavy growth of gum, poplar, etc., thick and tall with an undergrowth in places almost impenetrable. The roots of the large trees are so intelaced as to form a net work in which it is almost impossible to get up a shovelful of earth and the ground was so saturated with water the men bogged to their knees in most places. The right of way was cleared some 20 feet wide, the overhanging limbs removed so as not to interfere with the movement of earth thru the air, a line was drawn tight where the ditch was to be and on each side of this line the ditch edge was marked by chopping the surface sod and roots with an axe, going down about six inches. Then another mark was chopped just under the line in the centre of the ditch way and with a sharpened pole six feet long, two inches thick. Holes were punched about two and one half feet apart and the cartridges primed with No. 6 electric fuses were pushed down with an old broom handle to a depth of about a foot.

The action of the dynamite is to scour out deeper than the cartridges are placed. The wires were then connected and little sticks broken from the brambles and stuck in the ground to lift the bare connection above the wet earth. Thirty holes were charged and the shot fired with a blasting machine which is better than a battery. It is a small dynamo operated by the stroke of a lever. It does not get out of order and will last a life time. One stroke fires the shot.

On returning to the place I had loaded I found an open channel about eight feet wide and three feet deep. The surface sod was lifted up from centre of the ditch and turned back bottom up and the trees for an acre of ground were covered with an even coat of mud. The ditch resembled an enormous furrow, a little extra dynamite was placed under the stumps standing in the way and no sign of them was left. The work was inspected by the owner and manager of the property and pronounced satisfactory and these men are exacting in their methods. This work was continued clear thru the swamp three-quarters of a mile with the lateral ditches and now has a bold stream running thru.—R. F. V.

Easy Lessons on Ropes—III

By R. A. Andree, Dept. Farm Mechanics,
Pennsylvania State College

Short Splice

The short splice is found very convenient for permanently joining the ends of two ropes, because it can be made rapidly and forms a strong joint. It has one objection, and that is that the splice will not readily pass thru pulley blocks on account of its bulkiness. It has, however, been used with considerable success in making a rope belt. When used for this purpose, the pulleys over which the belt passes must be larger and the belt must move rather slowly in order to prevent thumping.

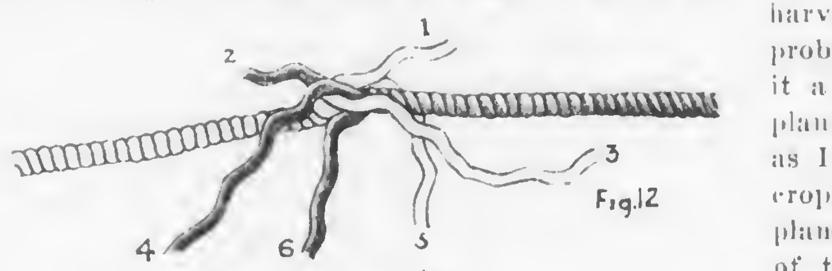


Fig.12

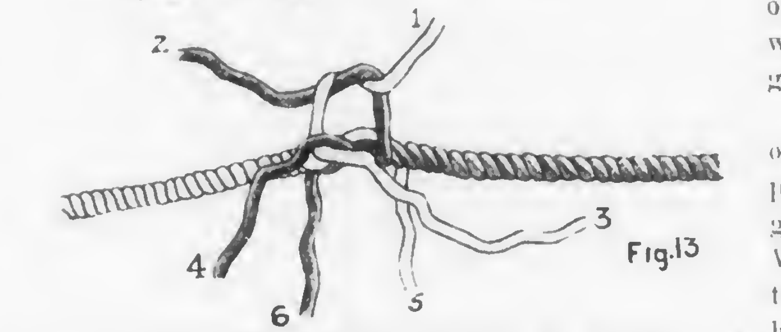


Fig.13

Untwist the strands of each end for a length of 12 to 15 inches, and butt the ends together as shown in Fig. 12. Every two strands from one rope must have one of the strands from the other rope between them. No two strands from the same end should lay together. Now lay the rope on the table and pick up with the right hand, one of the strands which points toward the right, as strand No. 1, Fig. 12. This one now lies between two others, as strands Nos. 2 and 4. With the left hand, pick up strand No. 2, which is the one farthest from you. Then tie a common over-hand knot as shown in Fig. 13, drawing it up lightly.

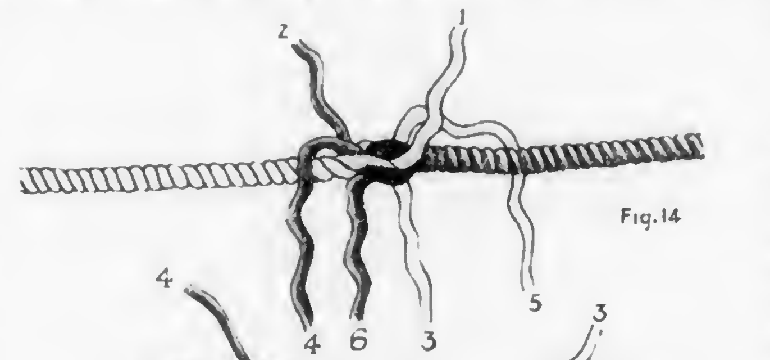


Fig.14

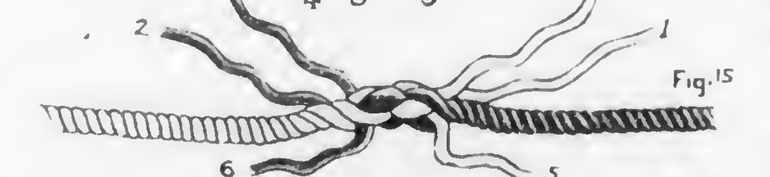


Fig.15

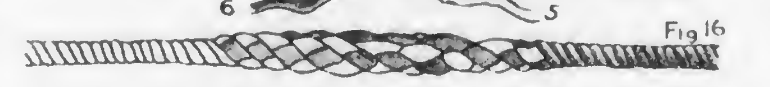


Fig 16

The same kind of a knot must now be tied into strands No. 3 and No. 4, and also into strands No. 5 and No. 6. All three knots should be drawn up, as shown in Fig. 14. The beginner can avoid trouble by tying strands Nos. 2, 4 and 6 temporarily with a piece of string to the rope shown unshaded in Fig. 13. Examine strand No. 1 and you will notice that it comes from under one strand and tends to lay over the next. This is also true of any of the rest of the strands, and this next step could be begun with any of the six ends but we will work with No. 1 first, for the sake of clearness in the explanation. Let strand No. 1 go over one strand and under the one next to the right. Then let strand No. 5 go over the strand that No. 1 went under, and tuck it under the strand next to the right. Then let strand No. 3 go over the one that No. 5 just went under, and tuck No. 3 under the strand next to the right of this. Fig. 15 shows this step completed.

It is now well to remove the string from strands Nos. 2, 4 and 6, and with the knot held in the left hand, draw it up tightly by pulling the ends of each strand separately, a little at a time. This drawing up of the knot must be well performed if a good piece of work is desired. Now strands Nos. 2, 4 and 6 are tucked to the left just as strands Nos. 1, 3 and 5 were tucked to the right. The splice is as strong now as it will ever be; that is, about 80 percent as strong as the rest of the rope. The loose ends may be cut, allowing about ¼ to ½ inch of stub to remain. If it desired to give a taper finish to the splice, do not cut the strands completely off, but simply cut out some of the material of each strand and tuck the remainder again toward the right and left just as was done before. Then remove a little more material and tuck again until the ends of the strands are reached. The completed splice is shown in Fig. 16.

Lindenhurst Farm Notes

By R. P. Kester

I have been watching the farming operations on a certain field that lies along the road I travel to the city. Three years ago it was in fairly good, productive condition and a fairly good crop of hay was harvested from it. It had been mowed several years probably and the farmers considered it time to give it a "round of crops." So, two years ago it was planted to corn. No manure was applied and as far as I know, no fertilizer; neither was there a cover crop sown. The crop was only fair. Last year it was planted to corn again with the same treatment, or lack of treatment. The crop would hardly pay for the work, and the surface water has been washing and gullying the field the last two winters.

This morning, as I came by, they were sowing oats. The plowing was done I noticed when the poor, lifeless soil was too wet, with the purpose of growing a crop of oats and seeding down to grass. What a prospect! We can well imagine how hard the ground will get later, and how much deeper the half-filled gullies will be before fall. The cause of such farming may be named in one of two words: Ignorance or indifference.

Under proper treatment this field might have produced two crops of corn and be in better condition than it was three years ago. If a cover crop, say rye and vetch, had been sown both years at the last working of corn, the oats would have been sown in a live instead of a dead soil. The washings of the past two winters would have been prevented, and the vetch would have added needed nitrogen.

The pity of it is that this field is respresentative of a great number of fields thruout the country. It seems strange that so many farmers neglect the cheapest and the most natural method of maintaining fertility—the sowing of cover crops.

Too Busy to Read

A subscriber in responding to a notice that his subscription had expired wrote us that he would let it stop until next fal as he was always too busy in summer to read anything. We have heard other farmers say the same thing. We know by personal experience that the press of work, the long days and short evenings give less time for reading, but we honestly feel that the man or woman who leads so strenuous a life that there is no time or inclination ror reading, even in the busiest season, is working too hard, and at odds, for success. Such a life is more like the experience of a galley slave than of a free, independent being.

A farm paper that is carefully and intelligently edited contains matter that is timely for the season, and if carefully read thru the growing season, most any one may find enough information to not only pay the price many times, but also save much valuable time and labor. Reading adds zest to life by suggesting new ideas which the reader may further develop while about his work; it is a recreation which the mind needs if the body is to be able to do best work. Surely no one can afford to be so "busy" as to have no time to read.

WHAT IS ACID PHOSPHATE WORTH?

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Strawberry Culture---II

Harris T. Kille, N. J. Experiment Station

Cultural Methods

Land for strawberries should be fall plowed. As soon in the spring as it is workable go over it with the cut harrow, followed by the acme harrow, so that planting can be done early. The marking depends upon the system of planting used, of which there are three in common use; viz. the hill system, the hedge-row system, and the matted row system.

The hill system is a very intensive method. It is adapted to the production of high-class fruit on rich or heavily fertilized land. The plants are set one foot apart each way, except that in one direction every fifth row is omitted to permit of an alley way for picking the fruit. No runners are allowed to form. Cultivation and weeding is done by wheel hoes, hoes and hand work. Of the three, this system is the least used.

The hedge-row system is much more common. Plants are set 18 inches apart in rows 3 or 3½ feet apart. Enough runners are allowed to root so that the row becomes about a foot wide, after which all the runners are removed. This system requires less work than the hill system and it results in the production of fruit of high quality.

The hill and hedge row systems may become more popular as the everbearing strawberries grow in popularity. They give the best results in the production of berries out of their natural season. But for the standard spring varieties, grown for the ordinary markets, the broad matted row system is the best. In this system the rows are 4½ or 5 feet apart. Plants are set 18 inches apart in the rows as a rule, altho the varieties that make few runners may be set closer and those making many may be set farther apart.

The rows are ridged slightly, especially if the land is low. For this purpose an old-fashioned corn coverer, or a half-hiller, such as is used in the preparation of ridges for sweet potatoes, may be used. Many growers set the plants with a trowel, claiming thereby to get the roots spread out better in the soil. The plants can be set quicker and with less fatigue with the puncher and tongs. It should be remembered that the roots on the plant when it is set are short lived. They serve as an anchor for the plant and supply it with moisture and plant food until new roots can be formed. These new roots spread out regardless of the position of the old ones.

Cultivation should start soon after the plants have been set. As the need of weed and grass destruction is often more urgent than the conservation of moisture, the ordinary cultivator with five shovel teeth—the tool condemned long ago by "moisture conservatists"—is used. The cultivator should be run as close to the row as possible. When the runners begin to start it will have to be held away from the row somewhat; but can be used to sweep them in along the row, making the mat fairly solid in the center. After the first new plants have begun to strike root care should be taken in hoeing not to loosen them. Careless, indifferent or lazy workmen often hoe these new plants loose in order to clean out the grass from among them rather than take more time to hoe between them or bend their backs in order to remove the grass by hand. The early rooted plants are the ones which will store the most food, develop the largest crowns and the largest number of buds. The removal of the blossoms from newly set plants so hastens the early formation of runners that it is a profitable operation. When varieties of the everbearers are grown by this system the blossoms appearing after the first of June should be left to mature berries, as sufficient fruit is often harvested in summer and fall to pay for the entire care of the bed the first year.

Berries grown on light sandy soils need no winter mulch. The plants are heaved out only when grown on the heavier soils. Mulching and fertilization can be accomplished by one and the same operation if the rows are top dressed with strawy horse manure. An application of such manure is probably the best fertilizer, all things considered. On the light soils it helps retain the moisture thru the bearing season as well as to supply plant food. If a spring application of fertilizer is used instead of the dressing of manure, a high percentage of nitrogen should be avoided. Too much nitrogen produces foliage at the expense of the fruit.

Harvesting

When ripe they must be picked without delay. Pickers should be engaged a month before the picking season. When most of the berries are of one variety it requires from 2 to 3 pickers for each acre. Italians pick most of the berries in South Jersey, and are very satisfactory. Growers erect cheap shacks for them to live in and furnish them with fire wood. In the past growers have paid them 1½ cents a quart for picking. This year it may be necessary to pay more because of the high wages prevailing. If fifteen or more pickers are employed a boss is necessary to see that no fruit is missed and that the boxes are carried in out of the sun. The berries are not, as a rule, handled twice. The pickers should be compelled to keep all inferior fruit out of the boxes. Then as the carriers are brought to the packing sheds the boxes can be placed directly in the crates. The standard 32-quart crates are used.

Various ticket systems are used to keep account of the number of boxes picked by each picker. A very common and good method is to have small colored tickets printed with various numbers and the name of the grower, tickets of the same denomination being of the same color. As the fruit is delivered at the packing shed a ticket bearing a number corresponding to the number of quarts brought in is given the picker. At the close of the picking season each picker returns his tickets and is paid on the basis of the number returned.

Part III, to follow, will deal with treatment of established beds, insects and diseases and their control.

SOME LITTLE-KNOWN APPLES

One of the most delicious apples in my orchard is the Austin Sweet. The tree is large, with massive limbs, wide spreading and high. It is my earliest bloomer, a week earlier than Baldwin; probably unknown except in Western Pennsylvania. It is not mentioned by Beach in "Apples of New York". It is here the most popular summer eating apple. Hornets and yellow jackets attest its superiority, swarming around the fallen apples to suck the juice. The apple is one of the largest sweet apples known, a rich, golden yellow, flesh tender, melting and juicy. It is much used for preserving, often with quinces, and is worthy of a wider extension. (Catawba possibly. — Editors.)

I have one tree in the center of my Baldwin orchard which is to all appearances a Baldwin and so are the apples except that they are sweet. I took a barrel of them to a grocer, supposing them to be Baldwins, and he accepted them as such, when, happening to taste one, he discovered to his and my surprise that they were sweet. I now call them sweet Baldwins. Tree and apple resemble the Baldwin so much that no one can say it is not a Baldwin until he tastes it. Apparently it is a grafted tree, but whether a Baldwin sport, or a distinct variety, or a natural fruit, it is difficult to decide. I do not find it in "The Apples of New York".

I have two branches of Drops of Gold and one of Detroit Red on the same tree. The first is an old French variety, possibly from the time of Queen Anne. Its French name is Drop d' (English, Drops of Gold). "The Apples of New York" gives its name as Lowell, with the synonym "Greasy Pippin". The apple is one of the best eating and cooking apples of its season, a clear, waxy yellow, the skin very oily, a slightly acid, juicy and aromatic.

A single branch on my Drops of Gold tree bears the Detroit Red. This, too, is of French origin, having come to Detroit with the early French, and then spreading east to Pennsylvania far back in the last century. It is much like the Baldwin in appearance and shape, but is a deeper red. In taste it is mild, only slightly acid, aromatic, tender, juicy, agreeable and good. Its chief interest, however, is in its European origin and in its roundabout course with the French settlers thru Canada to Detroit and then back to Pennsylvania.

Golden Gate is a very popular apple in Pennsylvania, but I cannot find it in "Apples of New York". It is very large, a clear, bright yellow, with bronze cheek, ripening in September and October. The flesh is juicy, aromatic, tender, acid. It is the most highly prized apple of its season, commands the highest price and cooks in less time than any other apple. Judging from many of its characteristics, it also is of French origin.

One of the most pleasant recollections of my boyhood is eating Gilliflowers in the Sabbath evening twilight, as we sat around the stove after the winter feeding was done. I have still two trees of this variety. It was once a very popular apple and elderly people among my customers in New Castle still ask for it, for the sake of old associations. It is a deep red apple, very long, somewhat pointed, flesh tender, aromatic, with a decidedly distinct flavor of its own which is very agreeable to those who have known it long. Its season is early winter, and after midwinter it becomes mealy. The tree is open and slender in trunk and in limb.

While all these apples are comparatively little known, yet it is to be hoped that the affection of those who have known them from childhood will preserve them from extinction.—J. M. C. Johnson, Lawrence Co., Pa.

IS IT WISE TO PLANT PEACHES UNDER PRESENT CONDITIONS?

The above question is one that many peach-growers have been trying to solve ever since the very heavy and unprofitable crop of last season was harvested. It is a fact that every commercial grower is aware that last season's peach crop was greater than the demand, hence, prices were low and unprofitable in many instances, but it is rare that we have such a universal crop as last season. It is a fact, too, that many packages of fruit that were put on market should not have been offered for sale. It would have been better had many of them been left under the trees, or fed to the hogs.

The writer has been studying this question since last fall. I have talked with many growers and visited several peach sections. The arguments advanced pro and con are about as follows: Some growers seem to think planting should stop for a year or two, offering as their reason that there is yet to come into bearing thousands of young trees that have not yet borne even a partial crop, claiming that this vast acreage of young trees will supply fruit enough to keep our markets glutted for years to come. Others argue that because of disappointments to many growers with last year's crop these growers will, in many instances, dig out their trees, thus lessening the acreage materially. The writer thinks that past discouragements will no doubt cause some orchards to be pulled out and knowing by this time that the coming crop is to be very short on many varieties, it is likely to cause more orchards to be taken out and this is probably a wise thing to do where the orchard is at all old.

Many peach orchards that bore fruit last season were planted and cared for (what care they received) by farmers who were enticed into the business by the high prices of a few years ago. These growers never have fruit except when the trees can't help but bear and then of small and poor quality. The most of these amateur growers are about to lose their courage because they have not made any money. The writer's belief is that it is safe for those to plant peach trees who know how to grow good fruit, take good care of the trees, select the proper varieties, and then see to it that the trees are not allowed to overbear. Overbearing is one of the great drawbacks to successful peach growing. Thinning is one of the essentials in peach production that requires courage. It certainly requires nerve and knowledge to go into a heavy laden peach orchard and pick off from 50 to 70 per cent of the young fruit, but it must be done in order to produce fruit that will command a price. When thinning is universally practiced and a sufficient amount of the young fruit removed to permit the tree to grow the balance to a good size, a big step has been made towards relieving a glutted market. Another essential occurs to me: Under present conditions, varieties should receive careful study. For example each locality has its own marketing problems, hence must be solved locally. Where the best demand is early in the season, plant early varieties like "Carman" and Miss Lolo. There are so many peaches grown south of us that mid-season varieties grown in this latitude are more likely to arrive on a full or glutted market than are either early or late sorts. The writer does better with late sorts, but it is wise I think to plant some good sized early varieties too. Some seasons these varieties come thru the winter in better shape than do many later varieties. This is the case at the present time. My Carmans promise better than any variety I have. I am planting this spring Miss Lolo and late Elberta. This comes a little too early for me but it is a popular sort hence sells good; Chair's Choice to follow Elberta and Krummelo October for last. With varieties selected to suit one's market conditions, a thoro thinning of the fruit in June, proper spraying, pruning, fertilizing, and cultivation, I see no reason for discontinuing peach planting entirely. However, I do not think it would be wise to rush into large commercial orchards for a few years to come.—C. C. Hulsart.

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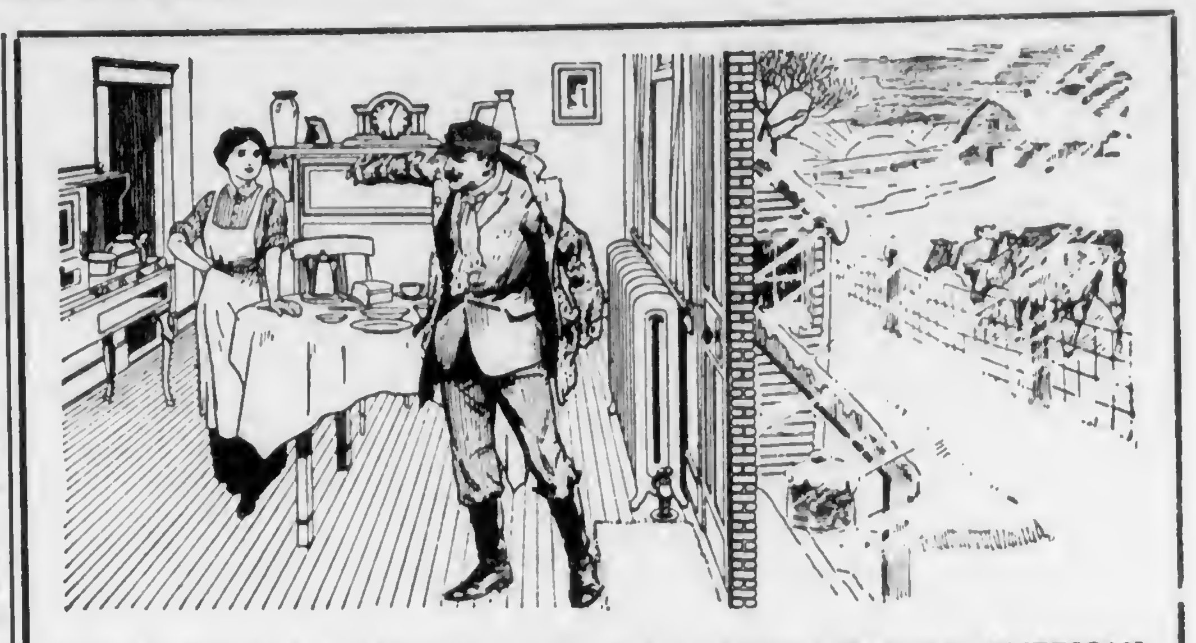

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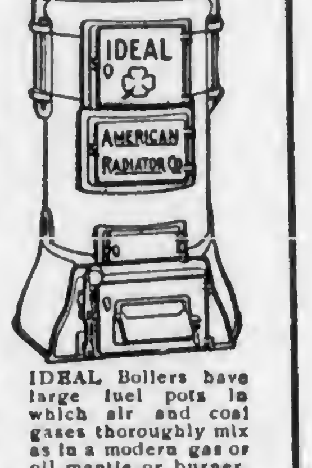

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Philadelphia, Pa., April 29, 1916.

THE WATER-POWER GRAB

We have a communication from John A. McSparran, too late for publication on another page, calling attention to the fact that Congress, by covert methods, is about to pass a water-power grant bill which will virtually turn over the water power of the country into the hands of private monopoly. He says: "To the credit of the House of Representatives it must be said that the bill which they approved, both in the last Congress and in this one, was a good one. But when the Ferris bill came over into the Senate everything but the enacting clause was stricken out and the Meyers bill substituted, which bill gives to private interests the same control over non-navigable streams which the Shields bill, which had already passed the Senate, gives over the navigable streams composing the 28 percent not covered by the Ferris bill. This method of working different bills against each other will most probably result in the whole thing being thrown into conference. . . . . It cannot then be amended after it comes up for final action and, therefore, must be accepted, or rejected entirely." We have called attention to this matter before and urged our readers to express themselves to their senators and representatives. Let us have the Ferris bill or nothing. The public has given away untold wealth for exploitation by private individuals, and the public has found itself empty handed of necessities except as it paid tribute to monopoly. There is one natural resource left—water-power, and in view of the coming need for this in every activity, let the public retain some control over its development and use. Even when leased to private concerns, let it be for a terminable period instead of in perpetuity, and also, that the lease contribute something to the public treasury.

HOG CHOLERA CONTROL

The government report of live stock conditions of the country on April 1 shows a generally satisfactory condition. Figures touching on hog cholera are particularly gratifying. Government authorities take these figures to indicate that the epidemic of hog cholera is apparently on the wane. The total losses from the disease last year are estimated at 6.6 percent of the total supply, as compared with about 10 percent a year ago, 11.9 percent two years ago, 11 percent three years ago, 8.9 percent four years ago, 4.5 percent five years ago and 4.5 percent six years ago. Taking these figures as an index of the development and progress of the epidemic, it would appear that the disease started its widest spread in 1911 and reached its high tide in 1913, when it caused a loss of practically 12 percent of the total supply of hogs. Compared with that high point, the 6.6 percent loss in 1915 shows a very material improvement. This decline may be due to a number of reasons, the first perhaps being the efficient control of state and inter-state shipping and the ready checking of outbreaks by use of the serum treatment. Another factor which undoubtedly had its effect last year was the close guarding of all live stock due to the foot and mouth disease. The decline in losses from 10 percent in 1914 to 6.6 percent in 1915 would seem to be a clear indication that losses can be checked by close quarantine and wise restriction of shipping. This means co-operation between growers and the state sanitary officials. Hog men should not take these recent figures as an excuse for laxity in guarding against the disease, but rather as encouragement for continuation of the quarantine methods practiced during the past two years. The figures for last year would also seem to call for a revision of our cholera map. We have become accustomed to regarding hog cholera as a corn belt disease. The states that suffered a 10 percent or greater loss last year were Ohio, Indiana, Arkansas and Florida. The first two are in corn belt territory, but the great corn states of Iowa, Kansas, Missouri and Illinois show better disease control than several states outside of the corn area.

WHERE IGNORANCE IS BLISS

The following is quoted from a leading city daily of the East: "While Congress gags over true preparedness, it gladly continues the flower-seed graft, so dearly beloved of the rural communities that do not care what becomes of economy so long as their gardens blossom with government gratuities." The paragrapher would have been straining a point to make an argument for preparedness even if he had been telling the truth. But his implication that country people welcome, much less use, the obnoxious free seed gratuity, betrays a condition of blissful ignorance. No single class of citizens has a keener appreciation of the uselessness and petty politics in the free seed farce than the farmers. And no single class has opposed the continuation of that farce more consistently or persistently than the farmers. Yet this city fount of all things wise would foster the belief that there is an actual demand for these tainted gratuities thru ignorance of their strongest opposition. He could scarcely have chosen better words to betray his ignorance of country people and the country mind than this questioning of the farmer's regard for real economy. But where ignorance is bliss, it is folly to go to night school.

SISAL TWINE PRICES

It is estimated that the increased price of sisal twine will cost the farmers of this country over $3,000,000 this year. The causes back of this increase have been quite widely discussed by two vitally interested factions. The Yucatan organization, which is said to be financed with United States capital, and which appears to be in absolute control of the market at present, has published lengthy and frequent reports on past conditions in the trade. The substance of its complaint is that the International Harvester Company exercised a virtual monopoly of the trade for many years, and stifled competition by depressing prices to sisal growers to such an extent that living conditions in the Yucatan sisal territory were almost unbearable. It points to itself as the liberator of the Yucatan growers. The Harvester Company in turn points out that the Yucatan commission, thru the assistance of United States capital, has created an absolute monopoly and is taking its monopolistic profits out of the farmers of this country. These farmers are not so much interested in the past history of the trade as in the present conditions which are bringing about the higher prices. They have a right to know the third side of the controversy, which should be revealed by a Congressional investigation. They are willing that the Yucatan growers be paid a living wage and a profit at least comparable with that obtained by the farmers of this country. But they are not willing to pay tribute to a shipping company or to a body of home capitalists that may have gained control of the market. The heavy consumption of sisal used as binder twine in this country makes the advance in price a serious burden to farmers, and the charge that home capitalists are interested in and profiting by this advance should be ample grounds for a complete investigation.

FARM LAND PRICES

We published a few weeks ago an editorial on the subject of the average increase in the price of farm land, and intimated that it was not all due to the natural rise from increased profits in farming, but that part of it is due to the operations of speculators. We have just received from the Department at Washington statements which show this is correct. This circular refers to 30,000,000 acres of cut-over land in the northern part of Michigan, Wisconsin and Minnesota which are undeveloped, but which are held largely by land speculators at prices which make its development at present impossible. Similar conditions exist in many parts of the Central and Western states. A report on file tells of the delayed development along a certain railroad in a certain western state. The road passes thru a belt of level and fertile but undeveloped prairie land. Less desirable land eight or ten miles from the railroad is well developed and producing paying crops. Investigation showed that the best land along the road was owned by speculators and held at prices which made its development impossible. This same situation exists in most all new sections. Land speculators have not only inflated the price of land, but they are today holding a tremendous area out of production. In the suburbs of nearly every city a great deal of rich agricultural land has been divided into city lots. Such land is held for speculation and may serve no useful purpose for several years except to enrich its holders. It is often badly kept, unsightly and a menace to the health of the community. The government circular remarks that it is not an easy matter to solve. Why not have tax laws such as will make it unprofitable to hold land out of use? Assessors often overlook the fact of unearned increment, and place a low valuation on unimproved land simply because, on the surface, it appears to not be producing anything, when as a matter of fact the labor and investment of other people on adjoining property is adding value to the idle land. Tax laws should be so drawn as to make unearned fortunes gained in this way impossible.

THE APPLE MARKET

Present conditions in the apple market are likely to have a direct influence upon prices next fall. A government report points out that prices were strengthened last fall thru the fact that the crop was considerably below that of the preceding year. Apples purchased were put into storage with the expectation that the market would absorb the reduced supply at proportionately higher prices. This belief was so general that a much larger proportion of the crop was put in storage than usual. It is pointed out that while last fall's commercial crop was estimated around 10,000,000 barrels short of the previous one, the amount placed in cold storage exceeded that stored in 1914 by about 13.5 percent. Thus, while the total crop was considerably below normal, the amount in storage was above normal, and this stored stock had been purchased at prices based on the total fall supply. With this increased storage stock on hand, there was a heavy decline in export demand. Exports from United States ports up to March 1 of this year were 669,566 barrels less than for the same period last year, and the April report is expected to show even a greater loss. These two conditions combined to depress prices this spring. It is apparent that many dealers are closing out their storage stock at an actual loss. Government inquiry disclosed the fact that No. 1 Baldwins and Greenings put into storage last fall at an average price of $3 per barrel are selling out of storage at present at $2.50 to $3.00; Ben Davis apples bought at $2.25 last fall are selling at $1.75 to $2.50 per barrel. As seasonal storage charges will run close to 45 cents per barrel and from 25 to 50 cents must be charged up per barrel for freight and handling, it is evident that dealers are losing money on this stock. This experience is likely to prove expensive to growers next fall. Those who have to sell at harvest time will find a wary market made cautious by the experience of this spring. Dealers may be expected to use every precaution against overpricing another crop. The growers who are equipped to store and hold their apples are likely to find such equipment particularly valuable next year. It will be a season to test the best skill and management of growers. These conditions need not necessarily indicate an unprofitable season, but they call for good management and particularly for good apples. Every business has its ups and downs and the man who sticks thru thick and thin is the man that wins. Temporary defeat weeds out the plungers and the quitters and clears the field for the earnest, conscientious stayers. There is too much invested in a good, hitherto well-cared-for orchard to permit of neglect, and only the best fruits from best cared-for orchards win in time of depressed markets. The movement of boxed fruits as compared with barreled stock this year should be considered by eastern growers. Boxed apples have moved much faster than barrels. The government figures on stock on hand April 1 show that barreled holdings are 68.9 percent greater than on the same date last year, while boxed apple holdings are 6.4 percent below. This means a greater comparative demand for boxed stock, which may be due to a number of reasons. On the principle of supplying market demands, it would appear that our eastern growers may well give greater attention to growing a box quality and putting their apples up in that form. There are several good reasons why consumers prefer apples in boxes rather than barrels, and the preference so strikingly shown by the market figures this year may be expected to increase in the years to come.

HARRISBURG NOTES

Highways and the Law.—No more striking illustration of the need of getting the state's highway system, the highway department and the appropriations into tune can be afforded than by the series of opinions rendered in the last week in regard to payments for construction and maintenance of state main highways and state aid roads. The legislature has provided for two classes of highways in which the state shall have a part, but its methods of voting the money for them have not been on a definite basis. The last three legislatures have voted what money could be spared, in the opinion of the leaders, for road construction and maintenance and the governors cut off what they thought could be spared from the sparings. The result is that the state now has practically no money for construction of main highways and must use the revenue from automobile licenses to keep them up. Its proposed construction of main highways in boroughs and townships is stopped. Furthermore, it must use state aid road money only to match what is put up by counties and townships, altho much may not be touched at the end of the year. The time seems to be at hand when the principle used in voting money for the construction of the new western penitentiary, the Capitol park extension and other projects which had appropriation programs should be applied to the greater propositions of building and maintaining roads for 8,000,000 people.

The School Problem.—It is probable that the next legislature will also be called upon to discuss the necessity for a change in the method of distributing the millions the state gives for school appropriations. Under the present plan the cities are getting more because of the increase of pupils while the rural districts, in the face of demands for higher salaries and advanced cost all around, are actually getting less and going to get less next winter. The present state administration is eminently qualified to deal with the problems of country roads and country schools and they are of far more importance than the chairmanship of a delegation to a national convention.

What the Farmer Gets.—The state department of agriculture is making an effort to obtain and to set before the people figures showing just what the farmer gets for his produce on the farm. In these days of soaring prices for food and considerable uncertainty as to where it is going to stop, there is a recurrence of the tendency, in letters received here, to blame the farmer for the prices. The department's tables show just what prices were paid on the farms and when these are compared with what the housewife is paying, the difference is rather striking. There is a broad field for the department's calculators and if they can get data on prices in every county they can soon show farmers where they are losing and the public where it is paying too much.

Rabies Again.—In the last week several localities have reported rabies, and quarantines have been established which will be rigorously maintained. The rabies appeared in the greater number of instances in Erie county. There have been fewer cases of rabies the last two years than known for a long time and the effort to keep dogs penned up is more popularly supported now than before.

Working for Modifications.—Efforts are under way to secure change in regulations regarding drainage into streams. Many letters received indicate that farmers are objecting to prohibition of pasturing cattle along some streams used for water supply when industrial pollution is infinitely worse.

Storage Reports. — Publication of cold storage reports showing amount of food in cold storage on April 1, has brought numerous letters of inquiry to the Capitol. Some are from people who have stocks of eggs to sell or who hope to have and who want to get into the market, while others come from persons who ask for data about what is most in demand before planning their gardening operations. The relationship between the state reports and the raisers of produce, poultry and dairy products is apparently becoming closer.

The Fair Aid Question.—The action of the Lycoming county court in knocking out the act of 1915 providing for aid for county fairs and agricultural exhibitions is regarded as likely to bring this matter to a standstill at a time when efforts are being made to encourage a greater number of agricultural features. The governor cut down the appropriation about one half and the money available has to be spread pretty thin. Now the decision comes along and will tie up the whole proposition for the present. In some cases fairs must return money which had been already voted by county commissioners. It is likely that the whole matter will be put on a practical basis with an assured appropriation next session.—Hamilton, Harrisburg, April 24.

NEW YORK LETTER

Legislature Adjourns. — The state legislature has adjourned. For three months the work has been dragging along ending, however, with the accomplishment of some important things. Among these are the reapportionment of senate and assembly districts according to constitutional provision; improved form of appropriation bill and legislative budget system; woman suffrage amendment to be submitted to referendum in 1917 if approved by next legislature; compulsory physical training for all school children over eight years of age, applying to private and public schools alike; compulsory military training for boys between 16 and 19 years of age for not more than three hours a week after school hours, and the voluntary training is also provided for in summer camps; general amendments to the workmen's compensation laws and the labor laws, etc. Among the bills killed by the legislature was the one for a state constabulary; prohibition legislation; Bible reading in schools.

Appropriations for Farm Bureaus.—The Farm Bureaus and the Farmers' Institutes will get about $60,000 this year with which to do their important work. It appears that under the new system amounts are appropriated for specific things in the agricultural department, including the Bureaus and Institutes. One in position to know asserts that salaries of officials are provided for but the matter of expenses for employes of the department are not included. If this be true then we have the officials provided for but those who have to incur expenses, such as orchard inspectors, etc., have nothing with which to pay car fare and hotel bills. This will curtail the work in the field immensely and seems to be a short-sighted policy.

Cattle Men to Meet.—The Western New York Holstein Breeders' Association will meet on April 22 at Kennedy, N. Y. This association is growing constantly and has now about 200 members. The A. J. C. C. will hold its annual meeting in New York on May 3, and the Guernsey men will meet one week later. There will also be a meeting that week of the state Guernsey breeders in New York.

A Large Proposition.—Large tracts of land are to be drained this season in Wayne county for vegetable growing. In some instances it will cost $200 an acre to make swamp land suitable for vegetable growing. The state conservation commission will undertake the drainage of 5,000 acres of marsh land and will assess the cost back on the land. A channel seven miles in length will be dredged and into this, owners of adjacent lands can drain their swamps. Another tract of 3,000 acres in the town of Sodus will be treated in a similar manner.

State Saves Money.—The state industrial commission reports that about $200,000 has been saved by the consolidation of the state labor department and the workmens' compensation commission, in the operation of these bureaus by the state. The appropriation for the commission the coming year will total $1,225,000.

Automobile Registration.—It is believed by those in position to know that 300,000 autos will be registered in this state the present year. Licenses are being issued at the rate of 2,000 a day. Registration fees now amount to $1,477,000 which shows an increase of more than $250,000 over last year for the same period. The law now requires motorcycles to be registered and for the first three months of the year about 3,000 were registered.—D.

NEW JERSEY FARM NOTES

Motorists Boost Bill.—A campaign to boost the Egan good roads project was inaugurated by the Automobile Trade Association of Hudson County at a meeting held during the past week in Jersey City. After going on record in favor of the proposition the club instructed its secretary to notify all members to use their influence to persuade customers to vote for the Egan bill at the referendum election next fall. The bill, if favorably voted upon, will affect practically every section of the state.

Pine Belt Damaged.—Woodland owners are heavy losers thru forest fires, which have been burning during the past week in the Burlington County pine belt. Several square miles of property have been burned over, the high winds sending the flames thru damp underbrush, which would have checked the fires under ordinary circumstances. The fires are thought to have been started by woodsmen who attempted to burn brush on the cleared lands and were unable to control the flames when the wind suddenly sprung up and scattered the embers to adjoining wooded tracts. Several cranberry bogs have been in the path of the flames, but as the bogs were still flooded, they suffered no loss. In one fire, near Red Lion, a big section of valuable cedar swamp was destroyed. The state has issued orders that it will prosecute offenders if it can be shown that the fires were started thru carelessness or with intent.

Florence Wants Road.—In answer to their request to meet with them and explain why Florence was not included in route No. 2 of the proposed $7,000,000 state highway, Senator Harold B. Wells met the township committee and talked over the matter thoroly. The Senator stated that there had been no intention to ignore the interest of this township in the road bill, and said that should they want the road to come thru Florence and along the river front to Burlington, it is up to the township committee to interest the Highway Commission in their plan. Nothing definite, however, can be done until after the general election in the fall, when the bill comes before the voters of the state.

Attend State Conference.—A conference of college extension workers was held at the Experiment Station at New Brunswick, during the past week. This conference was called by and under the direction of Director Alva Agee, of the Extension Department. Work in the different counties was compared and studied.—L.

HENRY'S FEEDS AND FEEDING

The fifteenth edition of Henry's Feeds and Feeding is now being distributed. The first edition of this book was published in March 1898, and it was almost immediately accepted as the standard authority on feeds and the handling of feeds for all classes of farm live stock in this country. The latest edition follows the general plan of the first but is entirely rewritten to include new data and new results made available by recent experiment station work. This new edition is greatly enlarged, making 691 pages, 6x9 inches, with numerous tabulations, bound in cloth.

Feeds and Feeding presents in a simple manner the most important facts concerning the science and practice of all phases of live stock feeding. It gives tables showing the average composition of American feeding stuffs, the average co-efficients of digestibility, and the digestible nutrients and fertilizing constituents in the various feeds. The book is divided into three parts. Part I presents the fundamental principles of animal nutrition with discussion of various feeding standards and a new chapter on Economy in Feeding Live Stock. Part II considers the various feed stuffs, combinations of legumes with grains, economic value of silage and the relation of animal industry to the economic maintenace of soil fertility. Part III presents the most important findings of experiment stations on value of different feeds for each class of animals and comparisons of results with different feeds for easy reference by feeders. Henry's Feeds and Feeding is a standard in its field. It is accepted as authoritative by experiment stations and agricultural colleges. The new edition will increase its value in a still larger field. It is published by The Henry-Morrison Company, Madison, Wis. For sale thru Pennsylvania Farmer for $2.25.

NEW BOOKS

Concrete on the Farm.—By H. Colin Campbell, C. E., E. M., contributing Editor to Cement World. 128 pages, 5x7 inches. Illustrated. Bound in cloth. Published by Norman W. Henley Pub. Co. For sale thru Pennsylvania Farmer. Price 75 cents.

This book is admirably designed for use of the farmer or beginner in concrete work. It discusses the general and fundamental principles of concrete work in plain, simple language readily understood and easily applied. It follows these principles out in application to the varied uses of concrete on the farm, such as foundations, walls, fences, posts, troughs, tanks, cisterns, manure pits, hot beds, pavements, feeding floors, walks, steps, etc. The subject matter is well arranged and full indexed making a ready reference book and general guide to farm concrete work. The author is well known to readers of Pennsylvania Farmer thru popular articles on concrete construction. His new book should be of value to every farmer.

Marketing of Farm Products.—By Professor L. D. H. Weld, Professor of Business Administration in Yale University. 5x7½ inches, 438 pages. Bound in cloth. Published by Macmillan Company. For sale thru Pennsylvania Farmer, Price, $1.50.

This book is a timely discussion of the fundamental principles of market distribution as applied to the selling of farm products. It will prove of immense value to every farmer who is studying marketing from an individual or a community point of view. There are chapters on Marketing at Country Points, Methods of sale, Organization of the Wholesale Trade, Middlemen, Sale by Auction, Cold Storage as a Factor, Costs of Marketing, Prices of Farm Products, Produce Exchanges, Future Trading, Inspection and Grading, Direct Marketing, Co-operative Marketing, etc. This book should have a wide reading at a time when farm marketing organizations and machinery are in the formative period.

Manual of Soil Physics.—By Percy B. Barker and Horace J. Young, professors in agronomy, University of Nebraska. 101 loose leaf pages, 6x8 inches. Bound in Loose Leaf Binder Cover. Published by Ginn & Co. For sale thru Pennsylvania Farmer, Price 65 cents.

This is a collection of 41 exercises in soil analysis and demonstration of soil management. It is designed as a text book in class and laboratory work, and is well planned for the purpose.

COUNTY NOTE

Steuben Co., N. Y., (W.C.) April 15.—Weather fair and warm. Some wind. Sheep are good property; wool, 35 cents a pound. Calves, 9c pound; cows as high as $70. Wheat wintered well and young clover doing well. Plowing and manure drawing well under way. Grass seed sown on wheat and rye.—C. M. Drake.

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The Sharpe Dispersion Sale

125 HEAD **Blairstown, N. J.** Pure-Bred Holsteins

Sale will be held at Dr. Sharpe's farm at Blairstown, N. J. and it is strictly a breeder's sale.

Included in the Herd is

SIR PRILLY WALKER - about 50 of his daughters and 25 of his granddaughters. Sir Prilly Walker is a grandson of Hengerveld De Kol. He is an unusually fine sire and has about 75 living daughters, 29 of whom have been tested and have the following averages; 3 daughters av. 30.085 lb.; 4 av. 29.016 lb.; 18 av. 24.012 and the 29 av. 21.04. One, as a 5 year old, made two records of over 30 lb. in two successive lactation periods.

The Junior herd sire, who will also be sold, is LEWIS PRILLY ROUBLE HARTOG 2nd and he is from a 30-lb. four-year-old daughter of a 31-lb. cow, and in his pedigree appears the only combination of three 30-lb. cows in which two are under full age.

There will also be offered in the sale a few choice selections from the herds of Bernhard Meyer, Finderne, N. J. and Irving N. Roe, Branchville, N. J.

Sale under management of

Liverpool Sale & Pedigree Co., Inc., Liverpool, N. Y.

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118 Pearl Street. New York City

Heavy Producing Holsteins
Have four pure blood bull calves for sale from persistent Dams whose records are;

	Milk 1 yr.	7 day A. R. O. Butter Record	Price.
1.	10,418 lbs.	30.59 lbs.	$75.
2.	10,580 "	32.05	$85.
3.	12,700 "	28.36 "	$95.
4.	17,030 "	25.15 "	$200.

Delivered any R. R. Station in Penna. Sires two nearest Dams average 30.22. No Tuberculosis. No Abortion.
BENNETT & LATZER, Wellsboro, Pa.

Garden Spot Guernseys
Two heifers 5 months old, dams producing 375 lbs. butterfat a year, sired by our herd sire who carries 50 percent Langwater Dorothy Blood, record 781 lbs. butterfat. LOCUST LAWN FARM, Bird-in-Hand, Box 2, Lancaster Co., Pa.

Start a Holstein Dairy Herd.
Registered bulls 1 and 2 months old, $30 and up. Grade heifer and bull calves from 2 weeks to 1 month old, $10 to $15.
J. A. LEACH, - - Cortland, N. Y.

Holsteins Improve your herd. The Bull is half. Superior Holstein bull calves of excellent ancestry offered at attractive prices. IDEAL FARM, Conyngham, Penna

Jersey Bulls from Register of Merit dams, at farmers' prices. Old enough for service. S. G. ENGLE. Marietta, Pa.

Registered Holstein and Guernsey bulls from calves to serviceable age. 250 animals in the herd. BONNYMEADS FARMS, R. D. 1, Harrisburg, Pa

Guernsey Bulls Calves and yearlings at prices to please. FRED. W. CARD. Sylvania, Pa

Ayrshires Herd established 32 years. A. R. stock for sale. Inspection invited. R. TEMPLETON & SONS. Ulster, Pa

"Meridale Jerseys"
1916 Issue
Just Off Press
It contains the pedigrees of eight Meridale service bulls, and illustrations of 32 prominent Register of Merit cows in the Meridale Herd, including 2 Gold Medal winners in tests completed in 1915. It also presents a brief outline of the breeding policies which have counted for success at Meridale Farms, and describes the blood lines back of the young stock offered from the herd this season.
A copy will gladly be mailed you on request.
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Maple Lawn Holsteins
¾ grade Holstein heifer calves 10 days old, $10 to $15. Express paid in lots of 5 to your station. Buy them shipped in warm light crates without danger of exposure. Now is the time to buy and start them on low priced milk and watch them grow into money. Just as nice individuals as registered ones. Remarkable bargains in grade and registered bull calves.
MAPLE LAWN FARM,
C. W. ELLIS, Cortland, N. Y.

Ayrshire Bulls Sired by Finlayston of Westtown, whose 3 sisters average 10000 lbs. 4 percent milk at 2 years.

	Born	Dam	Milk	Butter		
1.	4- 1-16	Rose Delight	9580	441	at 3 yr.	$50
2.	4- 6-16	Rose Bluepond	6532	347	" 2 yr.	$25
3.	9-27-15	Lady Keepsake	8578	422	" 3 yr.	$40

WESTTOWN SCHOOL FARM, Westtown, Pa.

Aurav Farms Offer a few Registered Holstein Bull Calves by their well known sire, King Segis Pontiac Clorinda, and bred from full list of A. R. O. dams, at Dairy Farmers' prices — $75; $100; etc. Delivered safely by express. Write your wants — will send pedigree, particulars and make best offer. IRVING M. AVERY, Sparta, N. J.

Holstein Herd of 20 head of the highest grade Holsteins. Each cow has a complete cow testing association record. Registered Pure Bred Bull calves for sale at all times. PLUMLYN FARM, Fairview Village, Pa. near Norristown

HOLSTEIN BULL CALVES
registered, 1 to 18 months old, $30 to $100.
BROOKDALE FARM, GREENVILLE, DEL.

Guernsey Bull 18 months old tuberculin tested $100
Edwin S. Maule, Coatesville, Pa.

Grade Holstein Heifers and calves, prices reasonable. P. S. GRAYBILL, Bird-in-Hand, Lancaster Co., Pa.

Jersey Calves both sexes. Fine stock, of the most noted pedigrees in the world. FRED G W RUNK Allentown, Pa

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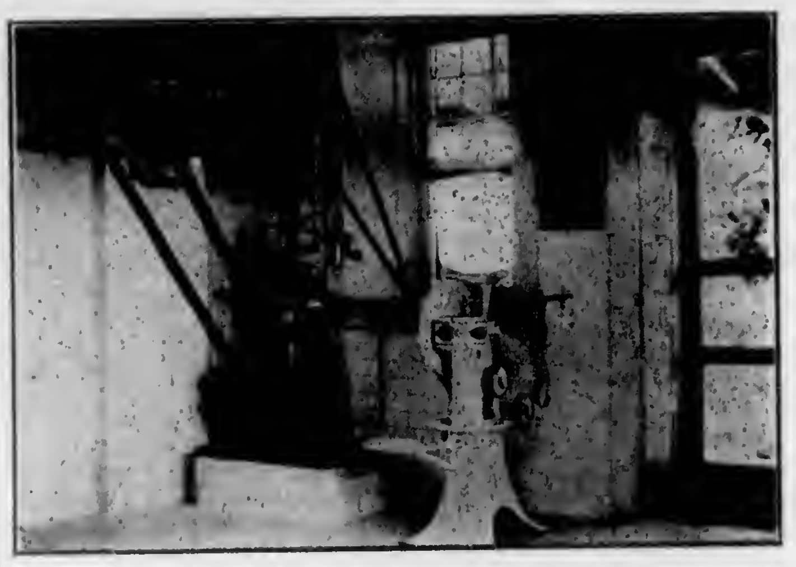
from milk fever. Attacks heaviest milkers—50 to 60% succumb quickly. Yet the **new air treatment saves nineteen out of every twenty** cases. With the Pilling "Easy to Use" Milk Fever Outfit you can give instant treatment—no dangerous wait for veterinarian.
PILLING *Easy to use* **CATTLE INSTRUMENTS**
Best made, last longest. Backed by 100 years of service.
Write today for our 48-page book showing treatment for milk fever, bloat, garget, hard milkers, etc. Shows and prices all needed instruments.
Case No. 2 contains $3 milk fever outfit and 8 other "Easy to Use" Cattle Instruments.
Value $15, for $10
G. P. PILLING & SON CO.
2313 Arch Street Philadelphia

Making Good Dairy Butter

Ripening and Churning

The production of good butter of uniform quality starts with the cow. Cows that are kept in unclean, unsanitary places cannot produce clean milk, and milk from unclean, unhealthy cows can never be made into first class products. If the butter-maker produces the milk also, he has a great advantage. He can keep his cows in good condition, take the greatest care in cleansing all milking utensils and eliminate the dirt factor, which so easily destroys the flavor of a product which would otherwise be good.

The temperature of the milk immediately after milking is ideal for separation. The best results will be obtained when the cream has about 28 to 30 percent of fat. If the percentage of fat is too high the cream tends to adhere to the sides of the churn, making churning difficult. When the cream is thin, or the percentage is low, too much is lost in the buttermilk, and a longer time is required for churning. Immediately after separation, cool the cream, holding it at a temperature below 45 degrees Fahrenheit until sufficient cream has been accumulated for a churning.



A BRIGHT CORNER IN THE DAIRY ROOM

Warm the cream for churning up to 75 degrees until the proper amount of acid is developed in it. Butter from cream that is too sour will have a tainted or stale flavor. If the cream is ripened until it is sharply sour it usually contains from 0.6 to 0.8 percent of acid, which is too much. The best flavors and keeping quality will be secured when ripened to 0.4 percent of acid. This amount of acid may be approximated, if no test is used. The cream should taste only mildly sour. This amount of acid will usually develop in 10 to 12 hours if the ripening temperature is held at 75 degrees.

THE BARREL CHURN IS STILL ONE OF THE BEST.

The ripenings process is a very important factor, since it affects the churnability and the quality of the final product. To insure perfect ripening and accurate results a starter is often used. The commercial powdered starter is very satisfactory. Care and cleanliness must be exercised in its preparation. Select clean skim milk, pasteurize and cool to 80 degrees. Add the culture and set away at 70 degrees, until it has just started to coagulate, when it is ready to add to the cream. If the starter is good a large amount improves the butter, but about 10 percent is a common amount to use.

The temperature at which cream is churned is very important. When the cream has been properly ripened, it should be cooled down to the temperature at which it is to be churned and held at that temperature two or three hours to allow the fat to cool and become firm. The churning temperature is affected by the season of the year, kind of feed given the cows, condition of the cream, and the temperature of the churning room.

In the spring and summer, when the cows are fresh and the feeds soft and succulent, the butter fat is naturally softer than at other seasons. This necessitates a churning temperature of 52 to 56 degres, which should be increased to about 56 to 60 degrees in the winter. Because of the cream being poorly ripened or abnormal in some way, it is often necessary to use higher temperatures. When difficulty in churning is experienced and it is desired to raise the temperature, it should never be done by adding hot water to the churn, but the contents of the churn removed to a can, and this set in hot water, slowly raising the temperature a few degrees.

Altho the proper care in the ripening process is essential, it does not insure good butter, as good cream may be easily spoiled in churning. To eliminate this danger, keep the churn in the best possible condition. Scald it out well and cool down before using. The hot water kills any molds that may be growing in the wood and also closes the pores of the wood so that the butter falls readily. A churn should be simple, easy to clean, and durable. A barrel churn meets all these requirements and is a general favorite.

The correct length of time for churning varies with the condition of the cream, but is usually from 15 to 30 minutes. If churned less, the butter will be soft and lack body. Raise the temperature rather than churn too long.

Churning should be continued until the butter collects in granules the size of a pear and the buttermilk is the color of skim milk. One washing in pure, clean water, about 3 degrees below the churning temperature, should be sufficient.

Now remove the butter granules and place on the working table. This should be clean, and wet with cold water, since butter will stick to a dry, warm, or dirty board. Spread the granular mass out and sprinkle evenly with the best quality fine dairy salt, three-fourths of an ounce to the pound. In the working process flatten the butter out into a thin sheet, fold back to the center and repeat until the excess water no longer appears, and the salt is worked thru evenly. To test the body, break off a piece of the butter. The proper texture will show a brittle, grainy appearance, like a break in steel. Print the butter into neat, attractive form and wrap in a good grade of parchment butter paper. Cloth or oiled paper are unsatisfactory, as they collect molds, which grow and produce taints and odors. The producer's name on the wrapper, and a neat, attractive package increase the market value and the demand for a good product.

All utensils must be carefully and thoroly cleansed after using. A thoro washing with very hot water, to which a little lime or dairy washing powder has been added, will keep things clean and sweet. Temperature, cleanliness, and care are the three factors of supreme importance in good butter-making.—David Schmidt, New Jersey.

STATE COLLEGE TO CONDUCT BUTTER CONTESTS

An educational farm-butter scoring contest is to be conducted during the spring, summer and fall by the dairy husbandry department of the Pennsylvania State College, for the benefit of the farm butter-makers thruout the state.

The contest will be conducted along the following lines: (1) Every maker of farm-butter in the state is eligible and is urged to send in samples. (2) One-pound samples are desired. They are to be well cooled, wrapped in several thicknesses of paper and packed in a small wooden or tin box similar to a common chalk box. (3) Samples should be sent by parcel post to the Dairy Husbandry Department, State College, Pa. They should be sent early enough so that they will arrive in State College before the date of the contest. (4) The contest will be held on the following dates: May 1, June 1, July 1, August 1, September 1, and September 30; and a second contest will be conducted during the winter months if desired. (5) The butter will be scored and tested each month. (6) A complete report of each churning from which samples are taken is desired. This report is to be made out on blanks furnished by the department. These blanks will be sent out each month with the report of the previous score. They are to be filled out and sent in with the sample. (7) The butter will be sold, less the small amount used for sampling and the proceeds will be returned to each contestant each month. (8) First, second, third prize ribbons for the highest average score for the state will be awarded at the end of the contest. First, second, third prize ribbons for the best county score of ninety or above will also be given. (9) Further details and information can be secured by addressing the Dairy Husbandry Department, State College, Pa.

TIOGA COUNTY ASSOCIATION RECORDS

The Jackson Co-operative Cow-testing Association, of Tioga Co., Pa., began its year's work, August 1, 1915. There are about 350 cows represented, and the breeds are about equally divided between Holsteins and Jerseys, with a few scrubs. During the seventh month, ending February 29, there were 31 cows that made 40 lbs. or over of butter fat. The average production of these cows was 1,109 pounds of milk; average test, 4.33 percent; average butter fat, 46.4 pounds. Of this number 15 were Holsteins, 11 were Jerseys, 1 Guernsey, 1 Durham and 3 scrubs.

The largest producer made 62.9 lbs. of butter fat. One grade Jersey has a record of an average of 60.3 lbs. of butter fat for three months in succession, beginning December 1.—J. B. Smith.

A Wonderful FEED
THAT'S GUARANTEED
—to produce more milk than any other ration either home mixed or purchased and do it without giving your cows constipation or udder trouble. Ready to use right out of the sack without any mixing.
Larro-feed
Absolutely free from adulterants and fillers, just like the feed you would mix for yourself, is a special combination of choice cottonseed meal, dried beet pulp, gluten feed, corn distillers' grains, wheat bran, wheat middlings and a little salt, that's all; each ingredient weighed by automatic scales and all thoroughly mixed in huge power driven mixers, so that it is always absolutely uniform, and always good. An extra quart or two of milk daily from each cow may turn a loss into a profit. Try LARRO-FEED for more profits. Sold on "money back if not satisfied" plan, the decision being entirely up to you. LARRO dealers almost everywhere; write if none near you.
THE LARROWE MILLING CO. 1155 Gillespie Bldg., Detroit, Mich.

$15.95 UPWARD ON TRIAL Fully Guaranteed
American CREAM SEPARATOR
A SOLID PROPOSITION to send new, well made, easy running, perfect skimming separator for $15.95. Skims warm or cold milk making heavy or light cream. Bowl is a sanitary marvel, easily cleaned.
ABSOLUTELY ON APPROVAL
Gears thoroughly protected. Different from this picture, which illustrates our large capacity machines. Western orders filled from western points. Whether dairy is large or small write for handsome free catalog. Address:
AMERICAN SEPARATOR CO., Box 3062 Bainbridge, N. Y.

HARDER SILOS
have been for 17 years the recognized Leaders, used by the most prominent dairymen, copied by competitors.
They keep the silage pure and sweet in coldest weather, save all the corn crop, give universal satisfaction. Storm-proof, solid as an oak, doweled staves, sealed joints.
Illustrated Catalog tells of distinctive Harder features.
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Buy your Silo Direct from Factory
Save Agents Profits
DIRIGO and STANDARD Silos have always been famous for their uniform high quality and exclusive features. The strongest and tightest construction. Safe steel ladder. Sure anchorage. Money back guarantee. Send for free catalog, prices and the most liberal offer we ever made for early orders.
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Only $2 Down
One Year to Pay!
$24 Buys the New Butterfly Jr. No. 2. Light running, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in four larger sizes up to 5 1-2 shown here.
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No. 5½

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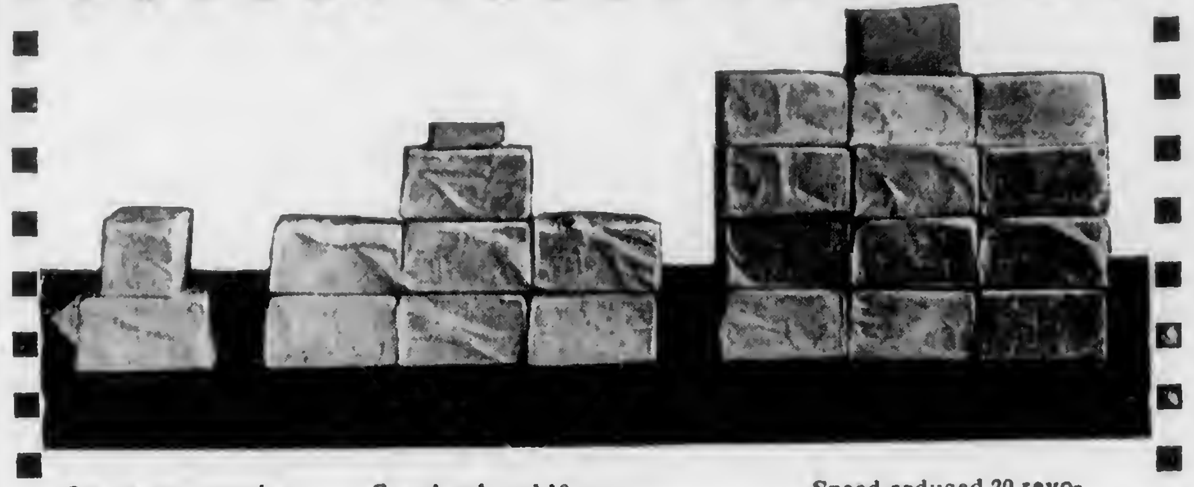
INTERNATIONAL SILOS
strongest built, simplest to put up and easiest operated on the market. Adjustable automatic take-up hoop—continuous open-door front—air-tight door and permanent ladder are some of the unusual features. The International Silo Co. 118 Main St., Linesville, Pa.

Registered A. R. O. Holstein Bull
CALF, born January 30, 1916, more white than black. Average A. R. O. record of dam, sire's dam and sire's granddam, 7 days, 537 3 lb. milk, 26.28 lb. butter; 30 days, 2,354.3 lb. milk, 105.9 lb. butter; semi-official, 1 year, 19,991.9 lb. milk, 953.52 lb. butter; average fat per cent for the year, 3.8 percent. First check for $125 takes him. Catalogue for stamp.
Geo. E. Stevenson & Sons, Clarks Summit, Pa.



Separator running at full speed. Loss of butter 1.75 pounds
Speed reduced 10 revolutions. Loss of butter 7.28 pounds
Speed reduced 20 revolutions. Loss of butter 12.74 pounds

Which pile did *you* lose?

These figures from the Purdue Experiment Station Bulletin No. 116, show the loss in butter resulting from not turning a fixed-feed separator at exactly the speed stamped on the crank.

And investigations showed that 19 out of every 20 separator operators thruout the country turned their machines too slow much of the time.

THE NEW SHARPLES SUCTION-FEED

is the *only* separator made which *will not lose cream at varying speeds.* The wonderful "Suction-feed" always feeds the milk to the bowl in exact proportion to the separating force being generated. At 45 revolutions it *skims clean;* at 55 it *skims clean* and at 35 revolutions it *skims equally clean.* No other separator can do it.

No matter how you turn the New Sharples you always get *even thickness* cream. Just set the cream screw at the desired thickness and it will come out *velvety* and *even*—no matter how you vary the speed. No other separator can do it.

The Sharples Tubular bowl is the simplest and lightest in existence. It has only one plain part in it—*no discs to wash* and bother with.

All these and many other features explain why the New Sharples is the profitable separator for *you* to use. It is described in detail in catalog *"Velvet" for Dairymen.* Send for your copy today. Write Dept. 20.

See how easy he pours into the low supply tank.

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Also Sharples Milkers and Gasoline Engines
West Chester - - - Pennsylvania
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Spot Farm Holsteins $15.00
¾ Holstein heifer calves $15 each express paid in lots of 5. 10 reg. heifers $1000. 8 reg. 2 yr. olds, due in Sep. $175 each; bred to 31 lb. bull. Reg. bulls $25 to $50. 2 carloads of high grade 1 and 2 yr. old heifers $30 to $40 each. Reg. and high grade cows. 10 reg. Berkshire Sows bred.
J. C. REAGAN, Tully, N. Y.

FIRST CHECK **$70.00** TAKES HIM
Holstein-Friesian Bull Born Nov. 5, 1914. Sired by a grandson of King Segis, while his sire's dam is a good daughter of King of the Pontiacs. Dam is by King Segis Pontiac Zella whose dam is a good producing daughter of King of the Pontiacs. A fine breeding "nick".
STEVENS BROTHERS CO., Liverpool, N. Y

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Quality for quality these prices are the lowest obtainable.

No. 2 Yellow Pine, size 13-16" x 3 1-4 inches, Dressed and Matched, per 1,000 ft. **$24**

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Ask for current price list on rough hemlock framing, cornice boards, etc.

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Look over these prices and remember the quality.

Matched barn siding: No. 3 White Pine, 1x4 in. Dressed and Matched, per. 1,000 ft. . **$25**

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A couple of single men for stable work. Also married man as teamster. Good wages and steady employment

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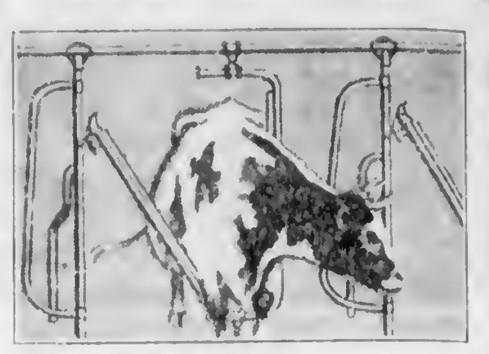

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with the new indestructible DREW Stall, because it's equipped with a sure-stop on *each side* to guide the animal's head into the open stanchion.

Another important feature about the new DREW Stall is that the stanchion lock is always connected. Even when the stanchion is open there is still a solid connection between lock and arm.

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A FARM IN CANADA
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Operates safely and easily. Special pulley for your engine. Guaranteed every way. Write for hoist circulars — also about our draw saws, wood saws, saw mills and shingle mills.

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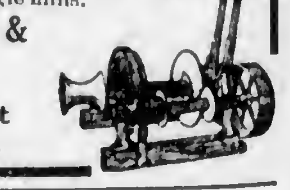

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145 Acres --- $8500

On State road, only 1 mile to stores, canning factory, schools and churches; 2 miles to railroad; in the heart of a prosperous farming section; level clay loam land, not a foot of waste and not a rock, 100 acres under cultivation; adapted to alfalfa, corn, timothy, clover, early and late tomatoes, potatoes, and fruit of all kinds; splendid 9-room house, in center of 2-acre lawn with beautiful shade; 70-ft. barn, 70-ft. machine shed, 30-ft. stable, nice lot of outbuildings, including large poultry houses; 30 acres growing wheat included, together with 4 good mules, Jersey cow, 10 sows, 30 chickens, 3-500-egg incubators, brooders, potato planters, digger, power sprayer; buildings and personal property are worth more than the asking price. $2500 down and easy terms as owner, a widower, is anxious for an early sale. See page 59 for details of this productive farm located on the Eastern shore of Maryland between ocean and bay. Mild winters and long delightful summers.
E A STROUT FARM AGENCY, Dept. 1765 Land Title Bldg., Philadelphia, Pa.

Touring West This Summer?

Let an experienced traveler give you correct information on all details and help plan your trip furnishing daily itinerary with all trains and hotels engaged ahead. Makes traveling easy and saves time, annoyance, and money. Write to M. HARRIS FERRIS, N. W. Cor. Broad & Reed Sts., Philadelphia, Pa.

FARMERS' ORGANIZATIONS

Among the Granges

Montgomery Co., Pa.—At the regular meeting of Cold Point Grange No. 606, of Montgomery Co., Pa., held April 4, 1916, Brother James K. Thomson, one of the oldest members, was given a farewell dinner, as he expects to leave the neighborhood this spring. Bro. Thomson is very well known thruout the county, having at various times held prominent offices. He was Secretary of Cold Point Grange until January 1915, when he declined the re-election, having fulfilled the office faithfully for 22 years.

The hall was beautifully decorated and dinner was served at six o'clock. At the close of the dinner Past Master J. R. Caley, on behalf of the grange members, presented Bro. Thomson with a gold-handled cane, appropriately engraved, as a token of appreciation of his untiring efforts to make the grange a success.

Cold Point Grange is very anxious to have a hall of its own and the members are now starting a fund for that purpose. The younger members are busily engaged rehearsing a drama which they expect to present the sixth of May. The sisters of the grange have formed a Grange Sewing Circle which meets every Tuesday that Grange does not, at the homes of members. They are very busy making fancy and useful articles to be sold at a Grange bazaar in the early fall.—I. G. C.

Clearfield Co., Pa. — Pomona grange met with Susquehanna grange in their hall at Curwensville, Pa., March 13, at 10 A. M. After some preliminary work the report of Clearfield County Grange Fire Insurance Company was read by its secretary, E. H. Harmon; $2,077,502 worth of insurance was in force April 1, 1916. The three deputies in their several reports discussed the strong as well as the weak points of the granges visited.

Deputy G. W. Hatch spoke of a visit he had lately made to Indiana Pomona, where, as here, he had found many of the best or most successful farmers not affiliated with the grange, and he forcibly called attention to the mistake such farmers are making, and at the same time they depend upon the grange to look after agricultural and rural interests as, for instance, the work of getting rural delivery, and now the effort to have the uncalled-for changes lately made, rectified.

On account of the large amount of business and number of reports it was decided to refer reports of subordinate granges to a committee, to report later.

The afternoon meeting was an open session for one-half hour for the discussion of the county fair to be held at Clearfield, September 12, 13, 14 and 15, 1916.

J. P. O'Loughlin, representing the Chamber of Commerce and business and professional men of Clearfield, made a very acceptable address making a plea for the hearty co-operation of the farmers and especially grangers to make the fair a success as a good, clean, helpful agricultural exhibition, and showing how the Chamber of Commerce and all the business interests were working in that direction.

After his retirement some further information of the work that had been done by the County Agricultural Society was given by T. L. Wall, President Curtis Read, and others; attention being called to the premiums offered subordinate granges for best exhibits of farm and household products.

The report of Committee on subordinate grange reports showed written reports from 19 granges and verbal reports were received from 2 others out of a total of 31 granges in the county in good standing.

The assistant steward and lady assistant steward elect not having appeared for installation these offices were declared vacant and Martin Stevens and Kathryn Davis were elected. On invitation it was decided to hold the next Pomona meeting with Foudy Grange, August 10th.

Lecturer's Hour

"The Grange and the Church in Cooperation", was discussed by the Worthy Chaplain, Rev. G. W. Hatch, who expressed the thought that in social and some other ways such co-operation is possible but that each must work in its own field. C. A. Woods said that one could not be a consistent church member without, in fact, subscribing to many of the foundation principles of the grange.

Mrs. Lottie Kline, who has been a very successful lecturer in her grange, told how she had succeeded in getting the members to respond when placed on the Literary program. At one time she had had roll call to find whether it was because they feared her or loved her so much that they responded. Only her husband feared her! Most said they thought it a duty to respond. She tries to assign to the members something that each knows about or can at least open for others to discuss.

The speaker thinks that "Insurance members" should be made to attend at least 4 times a year to have policy hold good.

D. H. Watts spoke on "Ruts", and said that even nations may get into ruts as instanced in the present terrible war pointing to something wrong with the world's education and even religion. The greatest genius and ability of humanity is being put into a stupendous effort to kill fellow men. In the state, officials should get out of the rut of working for themselves rather than for general good. Individuals get into ruts that make them waste much time and effort by doing things the hard way as in location of buildings, set ways of working without thought, etc.

Sometimes the County Superintendent gets into an educational or political rut, again it is the people who are in the rut and the Superintendent in advance of them. Young men in the habit of loafing in country stores are in a bad rut. Better schools would help to keep them out of it. Some cross roads country towns seem to have solved the problem well—others not.

In his home township the estimate had been made that $50,000 had been spent away from home in sending boys and girls to distant schools for lack of providing good home facilities for education. The home training school should have been better in the line of keeping the boys and girls at home and if rightly carried on would have prepared them for home work rather than for leaving the farm for town or city employment as is the tendency of our present system. There are hundreds of boosters for the colleges and larger institutions of learning, why not more for the smaller home institutions?

The great things have come from those who have not traveled in ruts. Mr. Watts very appropriately finished his address by reading "The Calf Path."

Other speakers voiced their hearty endorsement of the truths presented.

"Fancy Work" was discussed in a well prepared paper by Alice Moore, in which she asked that boys and girls be interested in work in school that may continue outside. Be practical and make it applicable to purse and condition in life. The speaker quite well covered the subject of Domestic Science and Manual Training as applied to country conditions.

In discussing "What can the School do to Create More Interest in Rural Life," S. C. Read confessed that he had no children to send to school for 12 years and had not been in a school for 8 years, so thought he was hardly the person to talk on this question but could endorse the educational good sense shown by those who had discussed the other educational topics.

C. A. Woods spoke of the great cost of the county institute to the taxpayers in comparison with the small amount of returns in educational uplift that it seemed to give to the schools. Prof. James Rowles extolled the value of the opportunity given teachers at Institute to come in contact with the great minds of those who came there to instruct them.

T. L. Wall and D. H. Watts called attention to the lack of our education to prepare young people for interest in rural or farm life. The query "Why do so many pupils fail in 8th grade examinations" created a lively discussion. Answers were somewhat as follows: Too many one-room mixed schools. Too many subjects undertaken. Lack of organization in rural schools. One speaker criticized the teaching, another the superintendent for preparing questions that pupils could not answer; another said too many were getting thru as it is only to drag along as a burden in high school.

Mary McClure said the fault lay in not beginning at the foundation and teaching little children to learn from what they know. Prof. Rowles said there should be a curriculum for country schools to fit country needs as there is for city schools to fit city needs.

The Committee on Resolutions reported one in favor of stopping waste of public money in certain directions, one supportion the county fair at Clearfield and a memorial resolution in honor of Sister Eliza Bell deceased since last Pomona, which she attended. A memorial service was held, led by Rev. G. W. Hatch.

RESPECT FOR FARMING

It should be a part of the work of the Farmers' Institutes to uphold the dignity of farming. The Division of Institutes should demand a respect for the work which is frequently absent. Too many meetings are held under conditions that do not command respect or uphold the dignity which should go with a work of this kind. It is time to stop holding meetings in cold, dirty, dingy, poorly lighted, foul-smelling halls which put the work of the institutes on a par with questionable affairs that are pulled off in such places and counteract the influence that hard working men of high ideals are trying to create. Every community should be made to understand that no meetings will be granted where a respectable meeting place is not provided. This might work a seeming hardship in a few places but it will bring some communities to a sense of their responsibility in a way that will accomplish more good than the granting of an institute. A hall in which the audience, in overcoats, shiver around a smokey stove, or one in which half the people are compelled to stand while the others sit on planks laid over boxes or beer kegs, or where the folks are compelled to breath the filth and dust and bad odor which would not be tolerated in a stock barn, is a waste of funds and a menace to health and most surely detracts from, rather than adds to, a respect for things agricultural.

The lecturer who has a vital message and tries to present it under such conditions cannot help but feel that his work is not accomplishing what is should and there is an effect which is far from an inspiration to his best efforts. Before the institutes can accomplish what they should accomplish they must be held under an environment which will contribute to the comfort of the audience and command the respect and confidence of the best people in the community, while giving an inspiration to the instructor to give the best that is in his heart. Even when a man works under the most favorable conditions he comes far short of what he feels he would like to express.

These criticisms do not apply to those places in which the folks have enough pride in their calling to open their churches to the institutes, or have provided comfortable halls for such meetings. It does apply to a lot of places in Pennsylvania where institutes are held where they should not be held. I have frequently seen the work of a conscientious, hard working instructor fall on barren soil because the meetings were held under such conditions as made effective work impossible, and where a farmer and his family who have a proper respect for themselves and for the great calling of farming did not care to go.

There are other places which seem to ask for, and secure an institute, not because they expected to receive any benefit or instruction, but rather, because it afforded an opportunity to get something for nothing or to rent a foul hall to the state for a few dollars—a passing show that will draw a crowd to town or to the hotel. In one place I learned they had a better hall but they wanted the meeting near the hotel and so used a room over the hotel livery stable. In such cases if the community or the county chairman are not interested enough in maintaining a proper dignity and respect for the work, it seems to me it is time for officers higher up to take action in the matter. Blanks could be provided upon which the condition of every meeting place could be fully recorded, together with the attitude of the community toward the institute and these records should form a basis for future work. It might even be advisable for the section leaders to visit every proposed place of holding the coming institutes and report on these things before final action is taken. While this would add something to the cost, it would be money well spent. We could have fewer institutes, but better and more effective ones.

I sometimes think that institutes should be granted only to those communities that are willing to provide a suitable meeting place free of all cost to the state. This would remove the temptation to apply for an institute because some one saw a possible chance to get a few dollars out of it and go a long way toward establishing a proper respect for the work, while placing the institutes at those places where there is a chance of doing real service to the people.

If the Institute work is to go forward they must have high class men as instructors. The conditions must be such as to attract, develop and hold that class of men. The question of securing men qualified to do this work is not altogether a question of the wages paid. The greatest need of Pennsylvania agriculture is a feeling of greater dignity and respect for farming and for those engaged in the greatest and most fundamental occupation, which dignity and respect is still too largely lacking in the men who are engaged therein. The Department of Agriculture has a work to perform here.—J. T. Campbell.

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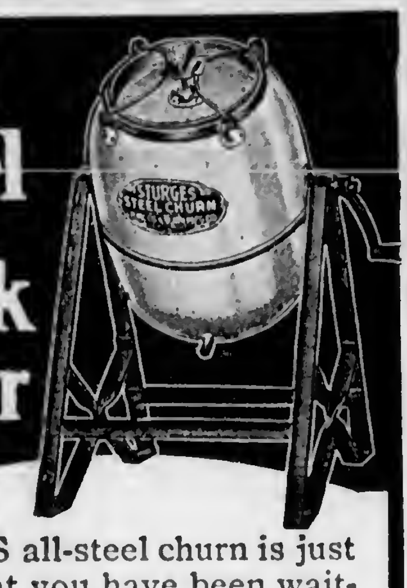

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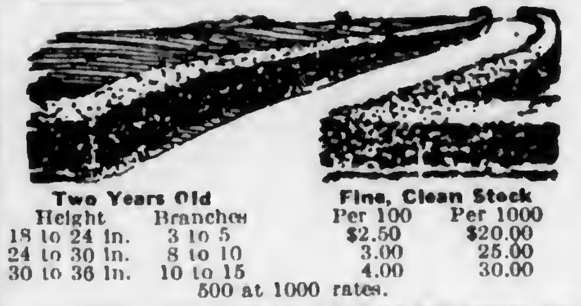

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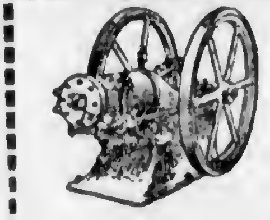

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Poultry

Poultry Queries

Hatching Geese Eggs

"Please let me know if geese eggs can be hatched in an incubator, and full directions concerning same."—F. W. H., Montgomery Co., Pa.

Geese eggs may be hatched in an incubator the same as hens eggs, but it requires 28 to 34 days for incubation. As a rule they should not be hatched until there is green grass for food. The eggs must have plenty of moisture, especially during the last week. It is well to sprinkle them two or three times with warm water. The average fertility of geese eggs is much lower than that of hens eggs, varying somewhat with the breed. See article elsewhere on feeding young ducks and geese.

Apoplexy

"I have a fine lot of pullets one year old. For the past week many of them have been going around the yard staggering and ready to fall over. What is the trouble? I feed them a mash of boiled oats and table leavings in the morning, oats and buckwheat at noon, corn at night and have hoppers of bran always before them. They have free range."—E. McG., Pa.

It is quite likely that your trouble is apoplexy due to an over fat condition of the fowls, brought on by over feeding of rich foods. There is no cure for those effected. Give a dose of Epsom salts to the flock, using about a heaping tablespoonful to each ten hens, placing it in the drinking water. Reduce the amount of richness of the feed until the hens are willing to seek diligently for food over the range and thus secure much needed exercise.

I would suggest that you discontinue the hoppers of bran, feed grain in deep litter in the morning—oats, wheat and corn equal parts, allowing about a quart to every twenty hens and the same amount at night. Mix the table scraps with bran and feed at noon, allowing not over a quart to every twelve hens, as such feed is exceedingly rich and fattening.—J. R. K., Chester Co., Pa.

DUCKS AND GEESE

The duck and goose are much the same in habit except that the duck is more prolific, lays many more eggs and requires less care in the mating, as good results may be obtained by having a sufficient number of drakes in the flock. But ducks require more care and feed than geese, as the former are the most voracious feeders in the poultry line. But they are also rapid growers.

Ducks and geese can't be raised in the same yard or on the same rations. Ducks need more animal food than do geese and the latter require more green food than ducks. Neither should ducks and geese be housed and fed with the chickens for the rations required are very dissimilar. The digestive apparatus of the duck is intended to handle principally soft, moist food. Mash should form most of its rations. Whole or cracked dry grain should not be given to ducks more than once a day at most.

While it is not absolutely necessary for geese to have access to a pond or stream of running water, water should be provided whenever possible, especially during the breeding season and at all other times if possible, as the birds seem to enjoy frequent baths. Ducks enjoy water to swim in also, but they will do as well without it. But they must have plenty of fresh, clean water to drink at all times. Ducks stand confinement well and a two-foot fence will hold them. If kept closely confined, however, the yards should be made movable, if possible, so that fresh ground can be supplied at least once a week. If this is impossible, the runs should be spaded up often to keep them satitary.

After hatching, goslings require less attention and feed than any other poultry. They are great foragers, and if a short pasture with plenty of grass and tender weeds is accessible they will do well after being fed for a week until they become strong enough to range. A shelter from hard rains must be provided and they must not have access to swimming water while young, as they are liable to drown while very young and in their down. When full feathered no shelter is necessary for geese in summer, as they prefer to remain outdoors night and day. In winter a dry shed should be provided for their use.

Ducklings require artificial heat for only a few days, hence they may be hatched by hens or in incubators and the brooding is easily managed. They require dry shelter while young, however, as they must not be allowed to get wet until well feathered out.

Ducks require lots of shade in hot weather and it should be provided; the hot sun is very detrimental to these fowls and there will be some losses unless there is abundant shade in the yards. If no natural shade is at hand, provide some artificial shade.

The eggs of geese are in good demand every season for hatching purposes at from fifteen to twenty-five cents each if the stock is purebred and kept up to the standard. Good prices are easily obtained also for breeding stock by judicious advertising.—W. F. Purdue, Ind.

COALING THE FIRE

In caring for the fires of mammoth incubators and colony brooders, using coal burning stoves, many persons use a great deal more coal than is needed to develop the necessary heat. The chief thing to look after in seeking economical coal consumption is the raking of the fire.

The fire in these small stoves should never at any time be raked down until all the ashes are removed from the grate, as to do so will cause the fire to burn up fiercely, consuming double the coal and developing a great deal more heat than is necessary, which is usually left out thru the ventilators. Such firing also causes constant variation in heat, as the fire is always on the increase until raked and heavily banked with coal, then the heat immediately drops and after a few hours again begins to increase, causing the operator to constantly change the heat regulators.

In order to keep a fire that will develop an even amount of heat thruout the twenty-four hourse, it is best to rake the fire a very little twice a day, morning and night, raking only enough to keep the fire alive for the next period and coaling lightly. Experience will teach each one how much this should be and what variations are necessary for different seasons of the year.

It is surprising how much fuel can be saved in this way. With slight raking, two or three shovels of coal will often last as long as half a dozen when the fire has been heavily raked.

If the fire seems somewhat dead the door under the grate may be left open for a few moments to allow the coal to catch up, but the draft should only be left on for a very short time, as there is danger of overheating and causing a great deal of trouble to reduce the fire.

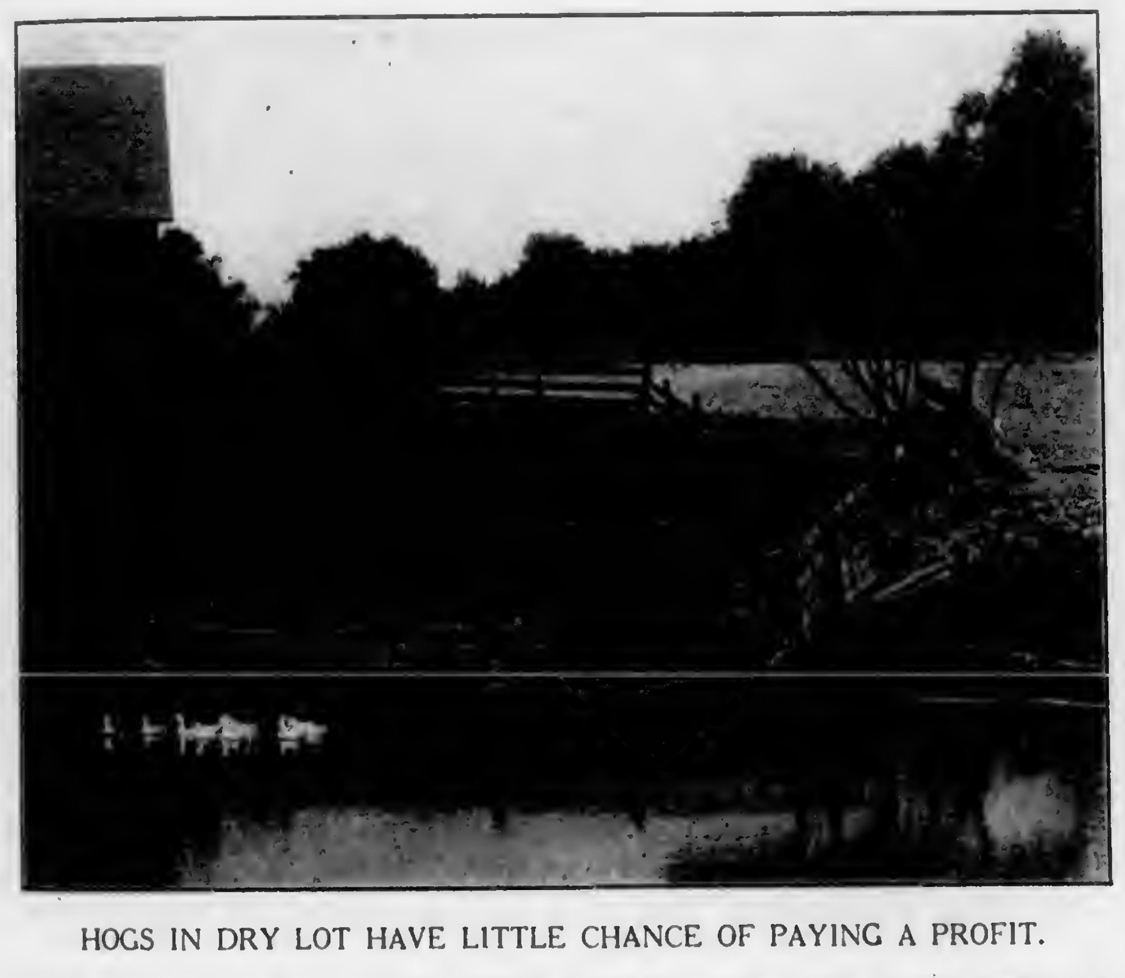
After raking the fire it is always a good plan to try the bed of coals from the top with a poker to see that it has dropped during the raking and did not leave space between the live fire and the grate.—J. R. Kessler, Chester Co., Pa.

Live Stock

VALUE OF BROOD SOW DEPENDS UPON MANAGEMENT

The season of the year is here when the brood sows are giving evidence whether they are profitable or not. Some farmers seem to have the idea that all depends upon the breed of hogs kept, and no doubt some breeds are better than others for this purpose. Some sows produce better litters than others, and some are naturally better sucklers, and more quiet and gentle. But the care and management of the brood sow may make a good sow a poor one, or it may make an ordinarily poor sow a fairly good one.

It is quite a common occurence to find farmers who keep their brood sows in a close and cold pen, or lazing around an old straw stack with an exclusive diet of corn and water. It can hardly be expected that a sow will produce a nice thrifty litter of pigs under such conditions. She, like all other breeding animals, should have plenty of room for exercise and a good, dry and well-bedded place to sleep. A pen not less than 6 by 8 feet should be provided. Shredded fodder answers the purpose for bedding very nicely. I prefer to have these buildings out in the lot and with a small pen, say 10 by 10 feet, in front. These little buildings are on runners and the yard fence is in sections, so all can be easily and quickly moved from place to place. A guard rail is placed all around the pen before the brood sow is put in.


HOGS IN DRY LOT HAVE LITTLE CHANCE OF PAYING A PROFIT.

Instead of a steady corn diet, a more nitrogenous ration is given, such as ground oats, middlings and oil meal. Besides this I feed some roots, such as mangels. This kind of feed keeps the digestion in good order and helps to nourish the unborn pig. Brood sows kept in close quarters and fed principally on corn are almost sure to become constipated, and the pigs, when born, will not be as vigorous and thrifty as they would have been had the mother been given more exercise and a more liberal diet. This is one of the ways to turn a good brood sow into a poor one, just on account of bad management.

At farrowing time, avoid having the sow too close to other hogs, and do not have too much litter in the pen, or she may lay on the pigs. In about eighteen hours after farrowing, I give the first feed, which consists of strengthening and easily digested but not heating foods. Wheat bran is given if there is any indication of costiveness. And a constant supply of salt and ashes or charcoal is kept before them. In about two weeks I can gradually bring the sow up to a full ration, and from this time on the sow must be well fed in order to have the pigs come to good development. I always aim to have the pigs take lots of exercise after two or three days old, and I never have any trouble from thump.—V. M. C., Tompkins Co., N. Y.

AIR AND SUNLIGHT CHASE TROUBLES FROM HOG HOUSE

To prevent the collection of moisture on walls, ceilings and floors of large hog houses, ventilation systems similar to those used in dairy barns and other farm buildings may be used. A high ceiling, plenty of windows and three or four large ventilators in the roof will insure a supply of fresh air and reduce the moisture content of the house to a minimum. Air intakes should be so constructed that cold air will not strike the animals directly but will be carried upward to the top of the building, and then down. Drafts and extremely low temperatures are to be avoided.

In the small colony or movable house, the type used at the Pennsylvania Experiment Station, where several animals are kept, very damp conditions are likely to occur. To avoid this condition windows or the hinged portion of the roof should be kept slightly open.

Pens should be free from dust. Spraying down the interior of the house occasionally with crude oil or one of the commercial dip preparations is practiced by the Pennsylvania Station. A small amount of crude oil sprayed on the pigs will do no harm. Windows covered with blankets or boards exclude sunlight, one of the best eradicators of damp and chill. By providing plenty of ventilation, keeping pens clean, and allowing the entrance of sunshine, many troublesome conditions may be avoided.

TEST OF HOG CHOLERA TREATMENTS

The Iowa Experiment Station reports on tests to determine the efficiency of various widely-advertised hog cholera cures and preventives. A total of 46 hogs were infected by exposure to infected hogs in closed pens and those receiving serum were further infected by injection of cholera serum. Six hogs were given no treatment and all died. Thirty-four were treated with products other than serum and they all died. Six were treated with hog cholera serum and none of them died. The test would seem to prove that hog cholera serum is the only reliable preventative of the disease, and as yet there is no cure. The Iowa test is described in Circular No. 25, Iowa Experiment Station, Ames, Ia.

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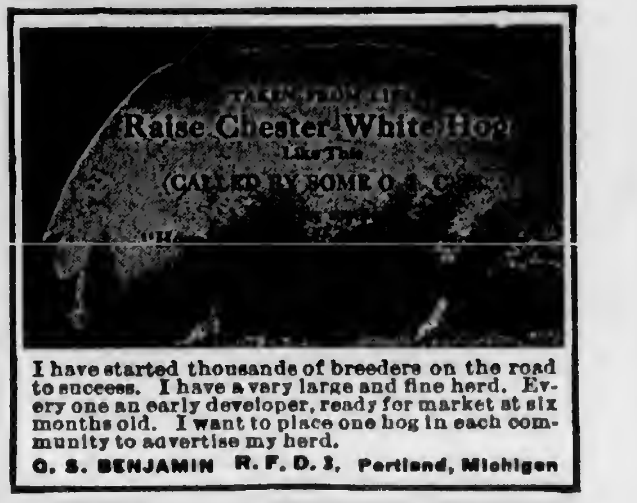

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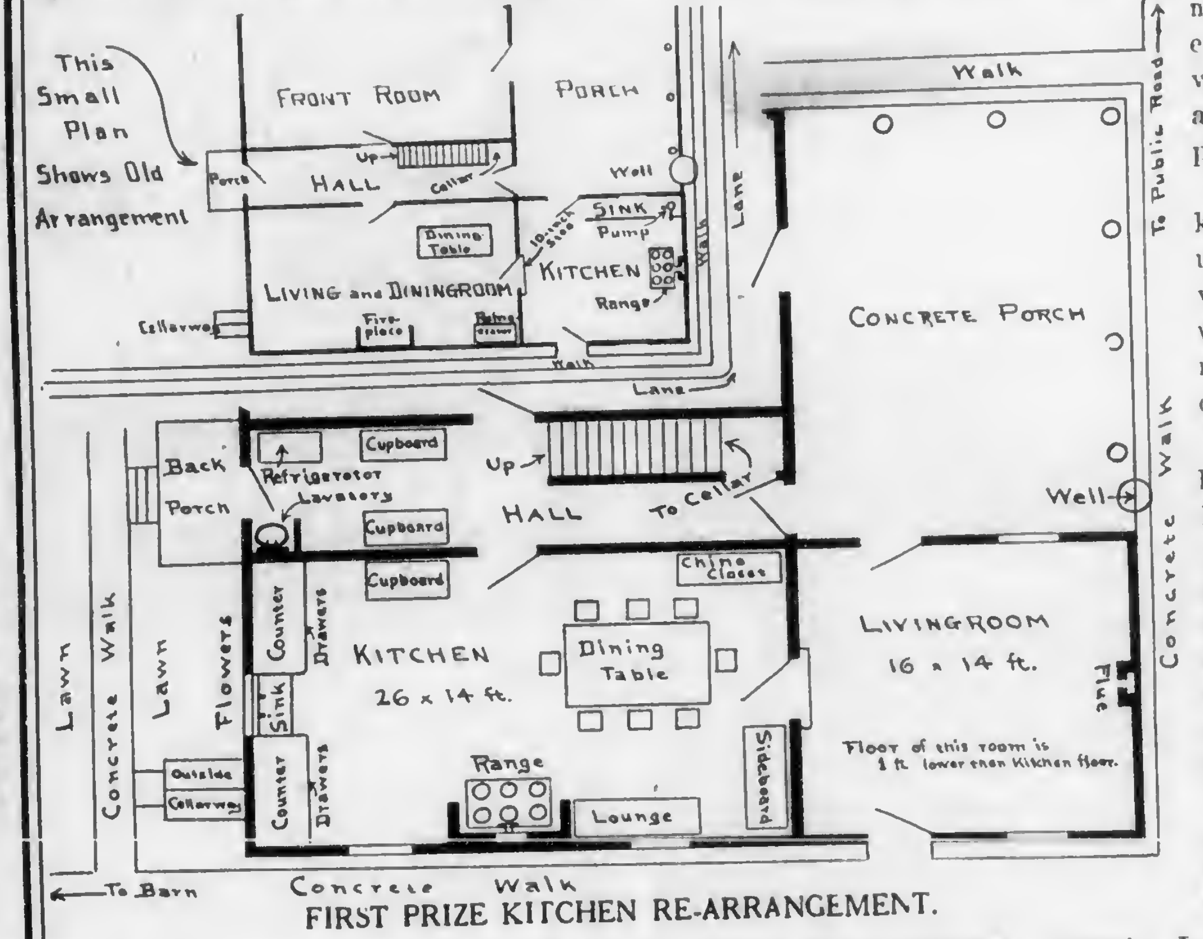
Kitchen Re-Arrangement Contest

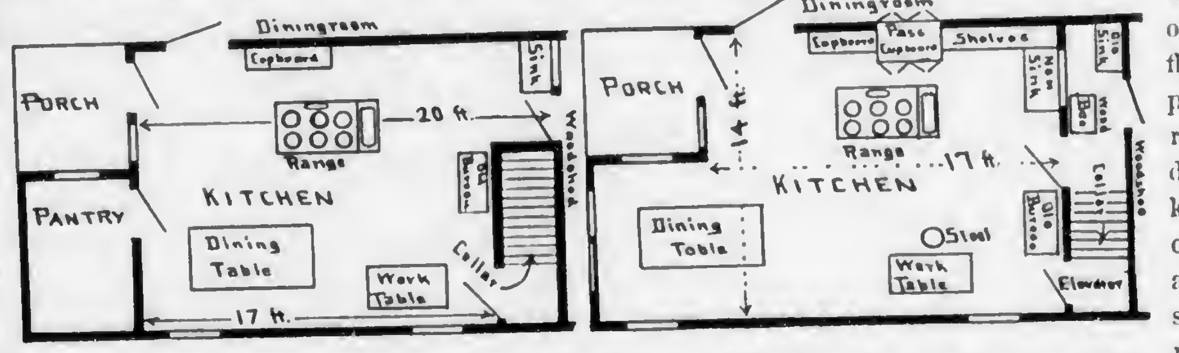
(The latter part of last year we offered prizes for the most efficient rearrangement of old kitchens. The plans submitted were most interesting; it has been pleasantly exciting to go over these ways in which some of our readers have worked out their ideas of better kitchen efficiency. We feel as if we had been making some cheerful kitchen calls on the owners of these kitchens, so much has the capable personality of the designers of these rearranged kitchens made itself felt in the very lines of the plans as well as in the spirit of the descriptions. There were some excellent arrangement ideas in some of the plans that did not attain prize status, but inasmuch as water and drainage convenience are the prime essentials in kitchen efficiency, the only fair way to judge the plans was to score them feature by feature according to a standard score, and sum up the points. Following is the score card used in judging the plans in this contest. First prize wins $15; second, $10. The other acceptable plans will be used and paid for at regular rates during the year.—Household Editor.)



FIRST PRIZE KITCHEN RE-ARRANGEMENT.

First Prize Rearranged Kitchen

Twelve years ago, when I came as a bride from a state in the middle west to this almost century-old brick farmhouse, nestled in a fertile valley among the foothills of the Alleghanies, my young husband and myself were millionaires in love and confidence in each other and the future, but almost paupers in pocketbook.



SECOND PRIZE KITCHEN RE-ARRANGEMENT. (LEFT, OLD PLAN; RIGHT, NEW).

We have met with the usual disappointments, losses and failures, yet every year we have added somewhat to the comfort and convenience of home surroundings. A change in the road since the building of the house had set it rear-end roadward, so we began by gradually changing the front of the house to face the public road and the lane, then we put the kitchen nearer the cellar doors, also nearer the barn and necessary out-buildings. This also put my diningroom and kitchen (combined) on the same floor level, thus avoiding a 10-inch step and a door to open and shut in the old arrangement, which curtailed an enormous waste of energy during the preparation of three meals per day.

In the meantime our family having been increased by two winsome little girls and four rollicking happy boys besides the necessary hired help, it became imperative that my work shop should be made as convenient as possible. I herewith submit the old kitchen arrangement, and the kitchen as it now is, and a summary of what I consider improvements in the new arrangement.

First: Our forefathers of a century ago evidently did not understand much about the kind of household economy secured by closets, our house being destitute of such necessities. Herein I am sure I have the sympathy of all Pennsylvania Farmer housewives whose kitchen walls have to be utilized for coats, caps and necessary wraps. So my new kitchen is not only nearer the doors leading to basement, but I use the back end of the hall, as shown in the drawing, for a coat closet, food cupboard and refrigerator. One corner is partitioned off for toilet making purposes, thus getting this business away from the kitchen sink, a most improper place for such purpose.

Last spring we installed a hydro-pneumatic water system, and now have an abundant supply of hot and cold water in bathroom on second floor, where is installed the range tank and kerosene heater, also in the hall lavatory and kitchen on first floor, and in a dairy room and laundry in basement. The water is forced from the well near the old kitchen to a large pneumatic tank sunk in the ground by a gas engine in the cellar connected with shaft to geyser pump. This shaft is also connected with cream separator and churn in the dairy and cheese room; also to washer and wringer near stationary tubs in the laundry room, thus taking to the basement much of the work that was formerly done in kitchen, which was thereby kept in constant state of disorder, and real menace to the safety of the little boys and girls, who want to be where mother is working—where most farm boys and girls learn the priceless lessons of thrift and industry that have made them the strength of the nation.

In my rearrangement, my work tables with the commodious drawers underneath are shelvings and drawers purchased from a closed grocery store at a cost of $7.50. With very little labor a carpenter divided the counters. Then we placed a sink in the center before a window, from which I have a beautiful ever-changing view of a ridge of mountains, at whose base winds a silvery stream and a railroad track, whose giants of steel roll by breathing to me of the busy world of commerce. The beautiful walnut plank which served as the top of the counter makes an ideal work table. On one part of this counter is room for my bread worker, food chopper, cake and egg beater while the large drawer beneath holds many necessary cooking utensils. The numerous other drawers serve as most convenient receptacles for kitchen linen, aprons, towels, etc., also for food supplies.

Under the sink I hang dishpans, pots, kettles and some of the larger cooking utensils, which can be concealed from view by a cretonne curtain. The high work stool and rocking chair I find most restful and convenient when washing dishes, peeling, etc.

The range is placed half within the large old fireplace, and all cooking odors, heat and smoke ascend the flue. The range is in close proximity to work table and sink. The entire floor is covered with linoleum. The room is lighted by three large windows from which we have a view of barn, outbuildings, poultry-houses, etc, and the beautiful landscape beyond them.

At night my kitchen is beautifully lighted by a 300-candlepower gasoline gas lamp, hung from the ceiling, which can be raised or lowered at will. It gives a safe and good light for the children to study and read by on winter evenings. To those who, like ourselves, cannot afford an entire house lighting plant of gas or electricity, I most heartily recommend these powerful gasoline lamps, now advertised in almost all farm papers. Their cost is little, and the cheer and hygiene of a brilliantly lighted room is beyond dispute.

We plan to reverse the stairs in the hall soon, so as to bring the inside cellarway almost at the kitchen door. Also we plan to build a large two-story porch over the rear hall door, the second floor to be used as sleeping porch. And perhaps the future holds a permanent real kitchen over the outside cellar door with swinging door to the present kitchen-dining room then to be used as only a diningroom, but if that never arrives every day makes me feel more surely that, thru my rearranged kitchen, my work has been lessened by half.—Mrs. Joe Donahoe, Bedford Co., Pa.

First Prize Kitchen Score

(Following is the way that Mrs. Donahoe's plan scored.—Editor.

Light on working quarters	12
Dish sink and cupboards relation	12
Water—	
Running cold	15
Running hot	13
Slop sink (none)	
Stove and cabinet relation	10
Fuel convenience (not given)	
Cellar—	
Stairway	3
Elevator (none)	
Size and shape of working quarters	3
Total	68

Second Prize Rearranged Kitchen

Our kitchen is large, being 14 feet wide and 20 feet long where the jog is, and 17 feet long where the jog is not. During the cold months it is diningroom as well, and we live in it a good part of the time anyway, so I had to take all these things into consideration when planning alterations. There is usually a baby's crib somewhere about the room, and quite often a rockinghorse or tool chest or a brace of dolls and always an easy chair for my husband to sit in when he comes in, but I suppose these things have no place in a kitchen plan.

Most kitchen improvements have to begin with a new floor, but we rented this farm for two years before we bought it, and the man who owned it put in a good hardwood floor just before we moved here. This, however, was made of mill ends, some light, some dark, some speckled and presented a very uneven appearance until treated with the following preparation, the formula for which was given by a speaker at our farmers' institute: One quart boiled linseed oil, 2 oz. rosin, and ½ cup of turpentine. Keep it hot by setting the dish containing it in a pan of hot water. I put mine on the floor at bedtime with an old broom, and it was dry in the morning. The floor does not show dirt nor grease spots so badly. A neighbor put it onto an old splintery pine floor with excellent results.

When I first began thinking about altering the kitchen I looked up all the good kitchen plans I could find and selected the different features which I thought would fit my kitchen circumstances. I had my plan all worked out before we began.

At a sale I bought an old-fashioned pine bureau with big, deep drawers and a kitchen cupboard, both for fifty cents. Whenever I had a little spare time I would work at them until I had the old ragged finish all off, then I re-covered them with a varnish stain to match my proposed woodwork. Then we got some zinc and lined the bureau drawers and had an excellent place for keeping food. Also I bought or begged a number of grocery boxes, took them apart carefully and stored away the lumber to use where needed.

Next we piped down the water from a good spring on the hill at a cost of about $60. We did the work ourselves—yes, I helped.

Then one winter my sister and her husband and two little girls stayed with us for a couple of months, and in return for their board and caring for my sister, who had a visit from the stork, my brother-in-law did my carpenter work for me.

I wanted the pantry done away with, so he tore out the partition and put in one window on each side of the resulting alcove and a double one in front, making a place where we can get the table much farther from the stove; by using a screen we can shut out the kitchen. There were enough pieces of the kitchen flooring left to floor the alcove and the part of the cellar hatchway which we made into a wash room. With plants on the broad window sills, the alcove is a nook of beauty and use, whereas the pantry had been damp, cold and unhandy.

Next we did away with the cellar hatchway, and ran a partition across the dark jog in the east end of the kitchen, making a little room for the men to wash in and take off dirty coats, etc. In the end of what was the hatchway they put a rough cupboard with a screen door; this cupboard runs down and up by pulleys and weights. I open the old cellarway door, set into the cupboard whatever wants to go down cellar, give the box a push and down the cellar it goes, and a smart pull brings it back when I want it. My grocery boxes came into use here.

In the northeast corner we put a big new sink and piped the cold water there, but we do not have hot water there yet. Over this is a window, and another over the old sink in the wash room lets some light into this corner.

Back of the stove, built in between kitchen and dining-sitting room and opening into both, is a cupboard with china cabinet top, and linen drawers in bottom. This was the most difficult and expensive of all. Along the wall from this cupboard to the sink, and as high up as I can comfortably reach, are shelves for holding my cooking utensils.

My little work table is on casters (well oiled) so it goes easily all over the kitchen. When baking I wheel it up beside the kitchen cupboard in which are all of my baking supplies, and it is as good as a kitchen cabinet. I usually clear my dining table with this wagon, putting the dishes into the dishpan on it, wheel it to the stove for hot water, then over to the sink in which is my wire dish drainer. Thus I can wash the dishes, put them into the drainer, scald them and leave them to dry themselves, without rising from my stool, for I set the teakettle of hot water on an asbestos pad on my lowest shelf.

The woodwork I repainted in a light oak finish, doing the work myself as I had time. We put on inexpensive paper for I like to change it often. (Painted walls are best for kitchens, we find.—Editor.)

We all like the room so well that we like to stay in it most of the time. My flower beds are all on this side of the house, and from the windows we see woods and fields and far hills.

I can't tell much about the cost, for most of the lumber we had about the place. The windows, glass for cupboard, sink, paint and paper were about all the expense aside from piping the water.—Mrs. E. P. Rich, Allegany Co., N. Y.

Second Prize Kitchen Score

Light on working quarters	8
Dish sink and cupboards relation	15
Water (running cold at sink)	15
Slop sink (none)	
Stove and cabinet relation	13
Fuel convenience	2
Cellar—	
Stairway (not given)	
Elevator	4
Size and shape of working quarters	5
Total	62

KITCHEN HINTS

A simple remedy for burns, easy to apply, consists of vaseline over which common soda is sprinkled. Bandage with a clean cloth, and immediate relief from the smarting will be experienced.

Baked Apple Dumplings.—These are practically individual pies. For the crust rich biscuit dough may be used, or regular pie crust with a smaller proportion of shortening. If winter apples are used for filling, be sure to give them time enough to cook. Prick with a fork to test for softness. When the dumplings are partly baked, baste the crusts with thick syrup of brown sugar and water. This gives a delicious brown flavor and appearance.

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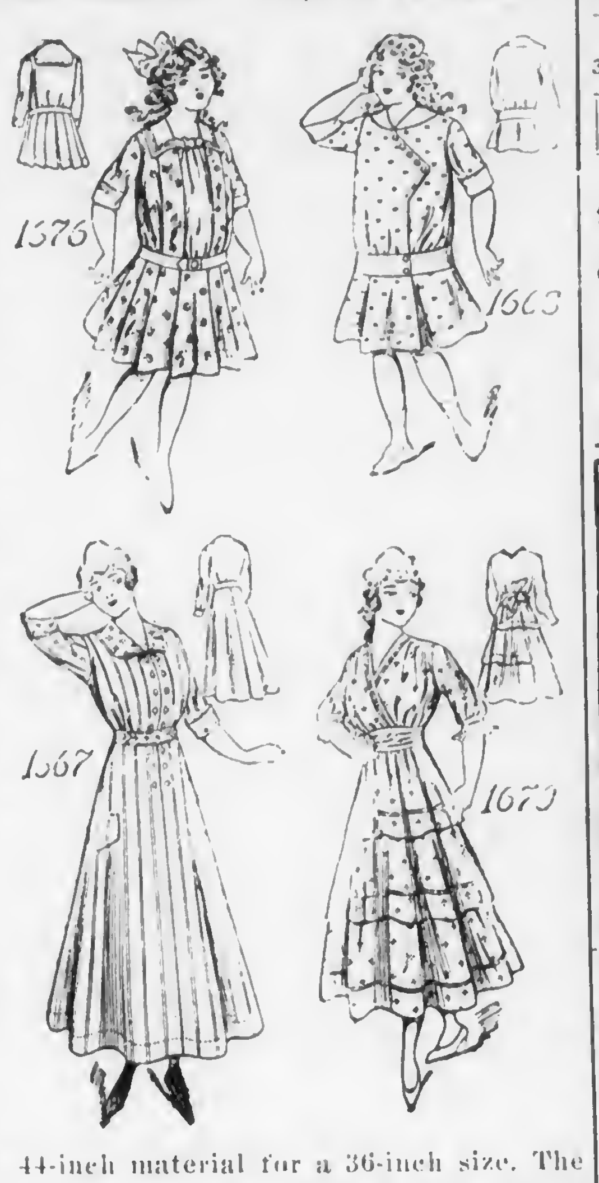

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The Fur Bringers

By Hulbert Footner

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SYNOPSIS OF PRECEDING CHAPTERS

Ambrose Doane is the junior partner of the firm of Minot and Doane, fur traders in competition with The Company in the fur country. The free traders have the friendship of the Indians and trappers, but the enmity of The Company officers. Doane falls in love with and becomes engaged to Colina Gaviller, daughter of The Company boss. Mr. Gaviller is decidely unfriendly to Ambrose and opposes his attention to Colina. While at The Company camp Ambrose is visited by three Indians, each giving some new phase of The Company's methods. Tole Grampierre tells of Company oppression and Ambrose promises to visit his father to learn more of the details. Gordon Strange, the Indian bookkeeper at the store, attempts to be friendly and arouses distrust and suspicion. Alexander Selkirk, the latest caller, comes to sell a wonderful black fox pelt.

CHAPTER XI (Concluded)

Pure black foxes are few and far between and Ambrose remembered the large sum they received for the last one.

Lustrous, silky, black as anthracite; every hair in place, and not a white hair showing except the tuft at the end of the brush.

''Where did you get it?'' Ambrose asked, amazed.

''I trap him, me, myself,'' said Alexander.

''When?' '

''Las' Februar'.''

''Are you offering it to me?'' asked Ambrose, eyeing it desirously.

'''Ow much?'' demanded Alexander, affecting a wall-eyed indifference.

Ambrose made a more careful examination. There was no doubt of it; the skin was perfect. He thrilled at the idea of returning with such a prize to his partner. He made a rapid calculation.

''Five hundred and fifty cash,'' he said. ''Seven hundred fifty in trade.''

''It is yours,'' he said.

''How can we make a trade?'' asked Ambrose, perplexed. ''John Gaviller would never honor any order of mine. I have no goods here to give you in trade.''

''All right,'' said Alexander imperturbably. ''I go to Moultrie to get goods.''

''You, too,'' said Ambrose. ''I can't import you all.''

''I go to Moultrie, me,'' said Alexander. ''I got trouble wit' Gaviller. He starve me and my children. They sick.''

''Starve you!''

''Gaviller say give no more debt 'til I bring him my black fox,'' Alexander went on apathetically. ''Give no flour, no sugar, no meat, no tea. My brot'er feed us some. Gaviller say to him better not. So now we have not'ing. We ongry.''

This promised difficulties. Ambrose frowned. ''Tell me the whole story,'' he said.

The little man was eying the grub-box wolfishly. Throwing back the cover, Ambrose offered him a cold bannock.

''Here,'' he said. ''Eat and tell me.''

Alexander without a word turned and scrambled up the bank and disappeared, clutching the loaf to his breast. The white man shouted after him without effect. He left the precious pelt behind him.

Ambrose shrugged philosophically. ''You never can tell.''

Presently Alexander came back, his seamy brown face as blank as ever. He vouchsafed no explanation. Ambrose affected not to notice him. He had long since found it to be the best way of getting what he wanted. The breed squatted on the stones, prepared to wait for the judgment-day it seemed.

After a while he said with the wary, defiant look of a child beggar who expects to be refused, perhaps cuffed: ''Give me 'not'er piece of bread.''

Ambrose without a word broke his remaining bannock in two and gave him half. Alexander bolted it with incredible rapidity and sat as before, waiting.

Ambrose, wearying of this, dropped the pelt on his knees, saying: ''Take your black fox. I cannot trade with you.''

It had the desired effect. Alexander arose and put the skin inside the tent. ''It is yours,'' he said. ''Give me tobacco.''

Ambrose tossed him his pouch.

When the little man got his pipe going, squatting on his heels as before, he told his tale. ''Me spik Anglish no good,'' he said, fingering his Adam's apple, as if the defect was there. ''Las' winter I ver' poor. All tam moch sick in my stummick. I catch him fine black fox Wa! I say. I rich now.

''I tak' him John Gaviller. Gaviller say: 'Three hunder twenty dollar in trade.' Wa! That is not'in'. I am sick to hear it. Already I owe that debt on the book. Then I am mad. Gaviller t'ink for because I poor and sick I tak' little price. I t'ink no!

''So I tak' her home. The men they look at her. Wa! they say, she is miwasan—what you say, beauty? They say, don' give Gaviller that black fox, Sandy. He got pay more. So I keep her. Gaviller laugh. He say: 'You got give me that black fox soon. I not pay so moch in summer.' ''

The pathetic way in which this was told affected Ambrose strongly. His face reddened with indignation. The story bore the hall-marks of truth.

Certainly the man's hunger was not feigned; likewise his eagerness to accept the moderate price Ambrose had offered him was significant. Ambrose scowled in perplexity.

''Hanged if I know what to do for you!'' he said. ''I'll give you a receipt for the skin. I'll give you a little grub. Then you go home and stay until I can arrange something.''

Alexander received this as if he had not heard it.

''You hear,'' said Ambrose. ''Is that all right?''

''I got go Moultrie,'' the little man said stolidly.

''You can't!'' cried Ambrose.

Alexander merely sat like an image.

This was highly exasperating to the white man. ''You've got to go home, I tell you,'' he cried.

''I not go home,'' the native said with strange apathy. ''Gaviller kill me now.''

''Nonsense!'' cried Ambrose. ''He has got to respect the law.''

Alexander was unmoved. ''He not give me no grub,'' he said. ''I starve here.''

This was unanswerable. Ambrose, divided between annoyance and compassion, fumed in silence. He himself had only enough food for a few days. The breed wore him out with his stolidity.

''Well, what do you want me to do?'' he asked at last.

''Give me little flour,'' said Alexander. ''I go to Moultrie.''

''What will you do with your family?''

''I tak' them.''

''How many?''

''My woman, my boy, my two girl, my baby.''

''Good Lord!'' cried Ambrose. ''Have you a boat?''

''Non! There is timber down the river. I mak' a raf', me.''

''It would take you two weeks to float down,'' cried Ambrose. ''I have only thirty pounds of flour.''

Alexander shrugged. ''We ongry, anyway,'' he said. ''We lak be ongry on the way.''

Ambrose swore savagely under his breath. This was nearly hopeless. He racked his brains for a solution.

Alexander, squatting on his heels, waited apathetically for the verdict. He had shifted his burden to the white man.

''Where is your family?'' demanded Ambrose.

Alexander looked over his shoulder and spoke a word in Cree. Instantly four heads appeared over the edge of the bank. Job barked once in startled and indignant protest, and went to Ambrose's heels.

Ambrose could not forbear a start of laughter at the suddenness of the apparition. It was like the genii in a pantomime bobbing up thru the trap-doors.

''Come down,'' he said.

A distressful little procession faced him; they were gaunt, ragged, appallingy dirty, and terrified amost into a state of idiocy. First came the mother, a travesty of womanhood, dehumanized except for her tragic, terrified eyes.

A boy of sixteen followed her, ugly and misshapen as a gargoyle; he carried the baby in a sling on his back. Two timorous little girls came last.

They lugged their pitiful belongings with them—a few rags of bedding and clothes, some traps and snow-shoes, and cooking utensils. The smaller girl bore a holy picture in a gaudy frame.

Ambrose's heart was wrung by the sight of so much misery. He stormed at Alexander. ''Good God! What a state to get into. What's the matter with you that you can't keep them better than that? You've no right to marry and have children!''

Somehow they apprehended the compassion that animated his anger, and were not afraid of him. They lined up before him, mutely bespeaking his assistance.

Their faith in his power to rescue them was implicit. That was what made it impossible for him to refuse.

''Here,'' he said roughly. ''You'll have to take my dugout. I'll get another from Grampierre. You can make Moultrie in six days in that if you work. That'll give you five pounds of flour a day—enough to keep you alive.''

The word ''dugout'' galvanized Alexander into action. Without a glance in Ambrose's direction, he ran to the craft and running it a little way into the water rocked it from side to side to satisfy himself there were no leaks.

Turning to his family he spoke a command in Cree, and forthwith they began to pitch their bundles in.

Ambrose was accustomed to the thanklessness of the humbler natives. They are like children, who look to the white man for everything, and take what they can get as a matter of course. Still he was a little nonplused by the excessive precipitation of this family.

It occurred to him there was something more in their desperate eagerness to get away than Alexander's tale explained. But having given his word, he could not take it back.

From father down to babe their faces expressed such relief and hope he had not the heart to rebuke them. Alexander came to him for the food, and he handed over all he had.

''Wait!'' he said. ''I will give you a letter for Peter Minot. Lord!'' he inwardly added. ''Peter won't thank me for dumping this on him!''

On a leaf of his note book he scribbled a few lines to his partner explaining the situation.

''You understand,'' he said to Alexander, ''out of your credit for the black fox, John Gaviller must be paid what you owe him.''

Alexander nodded indifferently, mad to get away.

As Alexander's squaw was about to get in the dugout she paused on the stones and looked at Ambrose, her ugly, dark face working with emotion. Her eyes were as piteous as a wounded animal's. She flung up her hands in a gesture expressing her powerlessness to speak.

It seemed there was some gratitude in the family. Moved by a sudden impulse she caught up Ambrose's hand and pressed it passionately to her lips. The white man fell back astonished and abashed. Alexander paid no attention at all.

In less than ten minutes after Ambrose had given them the dugout the distressed family pushed off for a new land. Father and son paddled as if the devil were behind them.

''I wonder if I did the right thing?'' mused Ambrose.

The Selkirks had not long disappeared down the river when Ambrose received another visitor. This was a surly native youth who, without greeting, handed him a note, and rode back to the fort. Ambrose's heart beat high as he examined the superscription.

He did not need to be told who had written it. But he was not prepared for the contents:

Dear:

Come to me at once. Come directly to the house. I am in great trouble.

Colina.

CHAPTER XII

Gathering Shadows

Ambrose, hastening back to Gaviller's house with a heart full of anxiety, came upon Gordon Strange as he rounded the corner of the company store. The breed was at the door. Evidently he harbored no resentment, for his face lighted up at the sight of an old friend.

''Well!'' he said. ''So you came to see us.''

Ambrose felt the same unregenerate impulse to punch the smooth face. However, with more circumspection than upon the previous occasion, he return a civil answer.

''Have you heard?'' asked Strange, with an expression of serious concern.

Ambrose reflected that Strange probably knew a message had been sent.

''Heard what?'' he asked non-committally.

''Mr. Gaviller was taken sick last night.''

''What's the matter with him?'' asked Ambrose quickly.

Strange shrugged. ''I do not know exactly. The doctor has not come out of the house since he was sent for. A stroke, I fancy.''

''I will go to the house and inquire,'' said Ambrose.

He proceeded, telling himself that Strange had not got any change out of him this time. He was relieved by the breed's news; he had feared worse.

To be sure, it was terribly hard on Colina, but on his own account he could not feel much pain of mind over a sickness of Gaviller's.

The half-breed girl who admitted him showed a scared yellow face. Evidently the case was a serious one. She ushered him into the library. The aspect, the very smell of the little room, brought back the scene of two days before and set Ambrose's heart to beating.

Presently Colina came swiftly in, closing the door behind her. She was very pale, and there were dark circles under her eyes. She showed the unnatural self-possession that a brave woman forces on herself in the presence of a great emergency. Her eyes were tragic.

She came straight to his arms. She

owered her head and partly broke down nd wept a little.

''Ah, it's so good to have some one to an on!'' she murmurmed.

''Your father—what is the matter ith him?'' asked Ambrose.

The look in her eyes and her piteous aking warned him to expect someing worse than the tale of an illness.

She lifted her white face.

''Father was shot last night,'' she id.

''Good God!'' said Ambrose. ''By hom?''

''We do not know.''

''He's not—he's not—'' Ambrose's ngue balked at the dreadful word.

She shook her head. ''A dangerous ound, not necessarily fatal. We can't ll yet.''

''You have no idea who did it?''

Colina schooled herself to give him coherent account. The sight of her rced calmness, with those eyes, was expressibly painful to Ambrose.

''No. He went out after dinner. He id he had to see a man. He did not ention his name. He came back at usk. I was on the veranda. He was alking as usual—perfectly straight. ut one hand was pressed to his side.

''He passed me without speaking. I ollowed him in. In the passage he said: am shot. Tell no one but Giddings.' Then he collapsed in my arms. He has ot spoken since.''

Ambrose heard this with mixed feelgs. His heart bled for Colina. Yet the im thought would not down that the yrannous old trader had received no ore than his deserts. He soothed her ith clumsy tenderness.

''Why do you want to keep it a seret!'' he asked after a while.

''Father wished it,'' said Colina. ''We ink he must have had a good reason. The doctor thinks it is best. There has een a good deal of trouble with the atives; many of them are ugly and reellious. And we whites are so few!

''Father could keep them in hand. They are in such awe of him; they reard him as something almost more than ortal. If they learn that he is vulneble—who knows what might happen!''

''I understand,'' said Ambrose grimy.

''So no one knows, not even the serants. I have hidden all the—things. f course, the man who did it will never ll.'' The calm voice suddenly broke a cry of agony. ''Oh, Ambrose!''

He comforted her mutely.

''It is so dreadful to think that any ne should hate him so!'' said poor olina. ''So unjust! They are like his hildren. He is severe with them only or their good!''

Ambrose concealed a grim smile at is partial view of John Gaviller.

''He lies there so white and still,'' e went on. ''It nearly breaks my eart to think how I have quarreled ith him and gone against his wishes. f waiting on him day and night will ver make it up to him, I'll do it!''

Ambrose's breast stirred a little with esentment, but he kept his mouth shut. e understood that it was good for olina to unburden her breast.

''Ah, thank God I have you!'' she urmured.

They heard the doctor coming, and olina drew away. She introduced the wo men.

''Mr. Doane is my friend,'' she said. He is one of us.''

The doctor favored Ambrose with a lance of astonishment before making is professional announcement. Ambrose aw the typical hanger-on of a tradingost, a white man of Gaviller's age, areless in dress, with a humorous, inlligent face, showing the ravages of weak will. At present, with the sole sponsibility of an important case on his shoulders, he looked something like the man he was meant to be.

It was no time for commonplaces.

''John is conscious,'' he said directly. ''He is showing remarkable resistance. There is no need for any immediate alarm. He wants to make a statement. I made the excuse of getting pencil and paper to come down. In a matter of such importance I think there should be another witness.''

''I will go,'' said Colina.

Giddings shook his head. ''Your father expressly forbade it,'' he said. ''He wishes to spare you.''

Colina made an impatient gesture, but seemed to acquiesce.

''You go,'' she said to Ambrose.

Giddings looked doubtful, but said nothing.

''I'm afraid the sight of me—'' Ambrose began.

''I don't mean that you should go in,'' said Colina. ''If you stand in the doorway he cannot see you the way he lies.''

Ambrose nodded and followed Giddings out.

''Where is the wound?'' he asked.

''Thru the left lung. He will not die of the shot. I can't tell yet what may develop.''

Ambrose halted at the open door of Gaviller's room. The windows looked out over the river, and the cooling northwest wind was wafted thru. The hospital-like bareness of the room evinced a simple taste in the owner. The gimracks he loved to make were all for the public rooms below.

The head of the bed was toward the door. On the pillow Ambrose could see the gray head, a little bald on the crown.

Giddings, after feeling his patient's pulse, sat down beside the bed with pad and pencil.

''I'm ready to take down what you say,'' he said.

The wounded man said in a weak but surprisingly clear voice:

''You understand this is not to be used unless the worst happens to me.''

Giddings nodded.

''You must give me your word that no proceedings will be taken against the man I name—unless I die. I will not die. When I get up I will attend to him.''

''I promise,'' said Giddings.

After a brief pause Gaviller said:

''I was shot by the breed known as Sandy Selkirk.''

Ambrose sharply caught his breath. A great light broke upon him.

Gaviller went on:

''He caught a black fox last winter that he has persistently refused to give up to me. Out of sheer obstinancy he preferred to starve his family. Yesterday Strange told me he thought it likely Selkirk would try to dispose of the skin to Ambrose Doane, the free-trader who is hanging around the fort.''

Giddings sent a startled glance toward the door.

''Strange said perhaps news of it had been carried down the river, and that was what Doane had come for. So I went to Selkirk's shack last night to get it. I consider it mine, because Selkirk already owes the company its value. Any attempt to dispose of it elsewhere would be the same as robbing me.

''Selkirk refused to give it up, and I took it. He shot me from behind. There were no witnesses but his family. That is all I want to say.''

''I have it,'' murmured Giddings.

The gray head rolled impatiently on the pillow. ''Giddings, don't let that skin get away. I rely on you. Be firm. Be secret.''

''I'll do my best,'' said the doctor.

He came to the door, ostensibly to close it, showing a scared face. ''I didn't know what was coming,'' his lips shaped.

Ambrose nodded to him reassuringly, meaning to convey that nothing he had heard would influence his actions.

Giddings closed the door, and Ambrose returned downstairs with a heart that sank lower at each step. What he had at first regarded calmly enough as Gaviller's tragedy he now clearly saw was likely to prove tragic for himself.

It was useless to try to put Colina off.

''I must know!'' she cried passionately. ''I'm the head here now. I must know where we all stand.''

Ambrose told her. To save her feelings he instinctively softened the harsher features. It did not do his own cause any good later.

''Oh, the wretch!'' breathed Colina between set teeth. ''I know him! A sneaking little scoundrel! Just the one to shoot from behind! To think we must let him go! That is the hardest.''

Ambrose was silent.

''We must get the skin,'' she went on eagerly. ''Giddings can't handle the natives. You do that for me.''

''It is too late,'' said Ambrose grimly. ''He is gone with it.''

''Gone?'' she exclaimed, with raised eyebrows. ''How do you know?''

''He came to my camp at dawn,'' said Ambrose. Honesty compelling him, he added with a touch of defiance: ''I gave him my dugout.''

Colina shrank from him.

''You helped him get away!'' she cried.

''I didn't know what had happened,'' he said indignantly.

''Of course not!'' said Colina, with quick penitence.

But she did not return to him. Presently the frown came back; she began to breathe quickly. ''You saw the skin; you must have talked with him. You took his part against father!''

Ambrose had nothing to say. He could have groaned aloud in his helplessness to avert the catastrophe that he saw coming.

It was as if a horrible, black-shrouded shape had stepped between him and Colina.

She, too, was aware of it. For an age-long moment they stared at each other with a kind of chilled terror.

Neither dared speak of what both were thinking.

At last Colina tried to wave the hideous fantom away.

''Ah, we mustn't quarrel now!'' she said tremulously. ''Couldn't the man be overtaken and the skin recovered?''

''Possibly,'' admitted Ambrose. ''I wouldn't advise it.''

Colina, freshly affronted, struggled with her anger.

''Let me explain,'' said Ambrose. ''I agreed to take the skin from him, but on the understanding that out of the price Mr. Gaviller must be paid every cent of what was owing him.''

His reasonable air suddenly failed him. ''Colina,'' he burst out imploringly, ''it was worth more than double what your father offered! That was the trouble! What is a skin to us? I pledge myself to transmit whatever price it brings to your father. Won't that do?''

''Don't say anything more about it,'' said Colina painfully. ''You're right; we mustn't quarrel about a thing like that.''

A wretched constraint fell upon them. For the moment the catastrophe had been averted, but both felt it was only for the moment.

They had nothing to say to each other.

Finally Colina moved toward the door.

''I must see if anything is wanted up-stairs,'' she murmured. ''Wait here for me.''

CHAPTER XIII

The Quarrel

When Colina returned she said immediately: ''Ambrose, can you stay at Fort Enterprise a little while longer?''

His heart leaped up. ''As long as I can help you!'' he cried.

They looked at each other wistfully. They wanted so much to be friends—but the black shape was still there in the room.

''I'd be glad to have you stay here in the house,'' said Colina.

Ambrose shook his head. ''I'd much better stay in camp.''

She acquiesced ''There are three white men here,'' she went on, ''Giddings, Macfarlane the policeman, and Mr. Pringle the missionary. Each is all right in his way, but—''

''They're all in love with you,'' suggested Ambrose.

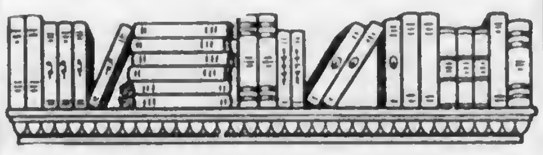
She smiled faintly. ''How did you know?''

Ambrose shrugged. ''Deduced it.''

''You see I cannot take any of them into my confidence.''

''Colina!'' he cried. ''If you would only let me—''

(To be continued.)



PIECES *to* SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

A TALE OF HARD TIMES

Two gay young frogs from inland bogs
Had spent the night in drinking,
As morning broke and they awoke,
While yet their eyes were blinking
A farmer's pail came to the swale,
And caught them quick as winking.
'Ere they could gather scattered senses
Or breathe a prayer for past offenses,
The granger grave—that guileless man
Had dumped them in the milkman's can.
The can filled up, the cover down,
They soon are started off to town.
The luckless frogs began to quake,
And sober up on cold milk shake.
They quickly find their breath will stop,
Unless they swim upon the top.
They swim for life and kick and swim,
Until their weary eyes grow dim,
Their muscles ache,
their breath grows short.
And, gasping, speaks one weary sport—
''Say, dear only boy, it's pretty tough
To die so young, but I've enough
Of kicks for life. No more I'll try it,
I was not raised on a milk diet.''
''Tut, tut, my lad,'' the other cries,
''A frog's not dead until he dies.
Let's keep on kicking, that's my plea,
We yet may see outside this can.''
''No use, no use,'' faint heart replied,
Turned up his toes and gently died.
The braver frog, undaunted still
Kept kicking with a right good will,
Until, with joy too great to utter,
He found he'd churned a lump of butter
And climbing on that chunk of grease,
He floated round with greatest ease.

Moral

When times are hard—no trade in town
Don't get discouraged and go down,
But struggle still—no murmur utter—
A few more kicks may bring the butter.

Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., April 25, 1916.

The markets thruout the country seem to suffer more from the holidays of the Jewish people than they do from the holidays of our own American people. During the past week the market has been unusually dull on account of the Jewish Passover. It is also between seasons, crops of the winter and fall having been cleaned up and the spring crops are just beginning to appear. The Southern states are furnishing practically all of the fruits and produce which now appear on the market.

Potatoes

Receipts of old potatoes have been much lighter with the principal shipments coming from Michigan. The market, however, is well supplied for the existing demand. About four more weeks and the market for old potatoes will be practically ended. Pennsylvania stock is selling at $1.15 to $1.20 per bushel; New York, $1.10 to $1.15 and Michigan at $1.10 and a few Green Mountain potatoes from the state of Maine were sold at $1.20 to $1.25 per bushel.

The new crop of potatoes from Florida is arriving in car lots and selling at higher figures than they did two weeks ago when smaller lots were being received by express. The better marks sold this morning at $7 to $7.50 per barrel; second grade stock sold at $6 to $6.50 per barrel. It is estimated in several sections of Florida that their potato crop is only 50 percent normal, which condition it is believed will prove helpful in moving the remaining Pennsylvania and near-by old potatoes.

Sweet potatoes are arriving in light supply and because of the general poor quality the demand is greatly reduced. Good stock is selling with better demand and bringing fair prices. Jersey sweets in five-eighth baskets are selling at 50 to 60 cents, with the second-grade bringing from 25 to 30 cents.

Vegetables

The market on onions has continued dull thru the last week with the demand very light. There are but 14 cars on the track today which ordinarily is a very light supply but at this time seems sufficient to satisfy the demand. One car of fancy yellow globe onions from the Connecticut Valley, brought from cold storage, was sold at prices ranging from $2.50 to $3.50 per 100-lb. bag. Thruout the entire season good prices have been paid for first grade stock but this has been a season when the general run of onions are extremely poor in quality.

Yellow Bermuda onions from Texas in standard crates are selling at $1.65 to $1.75, second grade onions at $1.10 to $1.25. The white onions from Texas are bringing about the same prices as the yellow, but the condition of receipts has been only fair.

Spinach is beginning to arrive from New Jersey, a large proportion of which is old and rather poor stock. Sales are being made at 35 to 40 cents per basket. Young spinach well cleaned and full package sold readily at 50 cents per basket on the present market. Spinach from Norfolk is arriving in good condition and selling at $1 to $1.50 per barrel. Kale is selling at 75 cents to $1.10 per barrel.

Receipts of cabbage from New York State are light and vary widely in quality. The price on Danish stock is ranging from $8 to $15 per ton, with the average sales at $12.

Southern Vegetables

Florida and Southern vegetables during the past week have been in very light supply which resulted in unusually high prices. At the opening of this week the receipts were heavier and quotations on several of the commodities have been revised to lower figures.

Out of the 32 cars of Florida tomatoes on the tracks this morning only 7 were unloaded. Receipts have been increasing and because of the irregular quality and light demand for this stock the fancy tomatoes sold this morning at $1.75 to $2 per crate. On some selected stock a premium of 25 cents per crate was paid. Choice tomatoes are moving out at $1.50 to $1.75. Asparagus is meeting with good demand. The stock from South Carolina is received in heavier quantities at the present time than from California. The sales range from $2 per dozen bunches for choice stock to $3.50 per dozen bunches for extra fancy marks. During the latter part of last week string beans sold from $3 to $3.50 per basket. This morning receipts are somewhat heavier and sales are being made at $2.50 to $3.50 per basket. Peas are also in heavier supply and selling at $2 to $3 per basket. Peppers are moving well at $2 to 2.50 per carrier and eggplants at $2.50 to $2.75 per crate.

The only celery arriving on the market at the present time is from Florida and is only of fair quality. The average sales are from $2 to $2.25 per crate. South Carolina beets and carrots are offered in large quantities at 3 to 5 cents per bunch.

Lettuce is another of the commodities which commanded unusually high prices during the latter part of last week, selling as high as $4 to $4.50 per hamper. This morning the receipts were from the Carolinas and sold at $2.50 to $3.50 per hamper. Hothouse lettuce from near-by farms is being received in small quantities and principal sales are at $5 to $6 per hundred heads.

Fruits

A special circular of information was forwarded from the office of markets at Washington in the last week calling attention to the seriousness of the apple situation. The holdings in cold storage were reported on April first as being 44 percent more than the holdings on the same date one year ago and also of the fact that only two-thirds of the season's crop had been marketed up to April first. Only continued cool weather and a backward spring would relieve the situation and allow the proper movement in storage stock.

Receipts during the past week have been very light and this morning there were only six cars on the tracks. Baldwins of first are being sold at $3 to $3.50; Greenings, free from scald sold at $3 to $3.25; Russetts, $2.50 to $3; Winesaps, $3 to $4 and Ben Davis, $2 to $2.50. Number two Baldwins sold at $1.75 to $2.25 and undergrade stock which was over-ripe sold at $1.50 to $2.25 per barrel and constituted a large portion of the receipts.

Poultry

While the live poultry market is still very high, it is quite a little easier than it was last week when the Jewish Passover Holidays were being observed. As the market, however, had been entirely cleaned up to meet the extra requirements for the proper observance of these holidays, all good stock found a ready market at the decline in prices. Fowl brought from 20 to 21 cents. Old roosters have been holding steady at 13 to 14 cents. There has been but a very limited number of ducks on the market and fancy heavy stock have cleaned up on arrival at 18 to 20 cents.

The dressed poultry market continues very active with supplies much less than the demand. The extremely high prices that have been prevailing in the live market for the past three weeks attracted all the supplies, so that the dressing plants had no stock to kill. With the holidays coming to an end prices will naturally ease off and the dressers will be able to get busy again, and be able to relieve the situation. Dressed fowl quickly bring 21 to 23 cents and chickens 24 to 28 cents. Broilers have been extremely scarce and brought 50 to 55 cents. There has also been a good inquiry for turkeys at 28 to 32 cents. Spring ducks are wanted at 25 to 28 cents.

Eggs

The egg market is showing a slight tendency towards lower prices. The receipts were quite heavy during the early part of the week and altho prices were unchanged, there was an undertone to the trading that pointed toward slightly lower prices. While large receivers say that values may be reduced, none of them believe that the reduction will be more than one-half to one cent per dozen. At this time selected eggs are bringing 28 cents; extra 24 cents and current receipts 22 cents. The demand for duck eggs still remains very strong and fancy clean stock has sold quickly at 35 cents to 38 cents per dozen. Goose eggs are also finding a ready market at 90 cents to $1 per dozen.

—Selmarad.

NEW YORK PRODUCE

New York City, April 24, 1916.

Butter is about one cent lower than last week. Supply was short on several of best grades. Not much trading in cheese but fancy colored flats held very firmly. Tone of egg market generally firm. Little change in prices from last week. All kinds of poultry in fair demand at steady prices. Fair demand for apples at steady prices. Old potatoes in fair supply at steady prices.

Butter. — Creamery extra, (92 score) per pound, 35½c; higher score, 36@36½c; thirds to firsts, 31@36c; state dairy, 31@35c; packing stock, 25@28c.

Cheese. — Whole milk specials, 18½c; daisies, 18@18½c; skims, 11@15c.

Eggs. — Fresh gathered, extra, 23@24c; dirties, 19c; nearby whites, fine to fancy, 24c dozen. Ordinary to good, 23@23½c; browns, 23@24c.

Dressed Poultry.—Philadelphia and Long Island, fancy, 3 to 4 pounds to pair, 45@50c; Philadelphia fancy roasters, 25@28c. Fowls, 16@19c; old roosters, 16c; squabs, $2.50@5.75 dozen. Spring ducks, per pound 30c. Turkeys, dry picked, 30@33c.

Hothouse Products.—Mushrooms in liberal supply today, about 1,400 baskets, and most of the stock more or less out of condition with sales generally from $1.25 down, tho a few fancy brought full outside quotations. Cucumbers plenty and weak with sales rare above $1.00. Cauliflowers $1 lower. Dandelion greens dull and weak. Lettuce in larger supply and showing very wide range in quality; sales from $2.00@5.00 per strap as to condition. Radishes steady. Rhubarb dull.

Apples.—These prices show the range from "B" to "A". Winesap bbl., $2.25@4.50 Greening, bbl., $2@3.50; King, bbl., $2@3.25; Northern Spy, $2@4; Baldwin, bbl., $2@3.25; Hubbarston, bbl., $2@2.50; Ben Davis and Gano, bbl., $1.50@2.25.

Country Dressed Veals—

Choice		@13
Prime	12	@12½
Coarse, heavy	11	@11½
Fair to good	11	@11½
Common	10	@10½
Buttermilks	9	@ 9½
Grassers	8½	@ 9

YORK PRODUCE MARKET

York, Pa., April 24, 1916.

There was lively buying at all the city markets the end of the week. The houses could not have been better filled. Country ham, eggs and flowers were the predominant features. Eggs reached a record price for April—25 cents per dozen. One farmer sliced 14 hams. Prices were unchanged for other produce.

Eggs.—23@25 cents per dozen.

Butter.—Country, 30@34c lb; separator, 32@35c lb. Milk, 6 cents quart.

Poultry.—Hens, 17@18½c lb.; dressed, 60c@$1.25 each.

Vegetables.—Potatoes, 14@20c ½-pk.; $1 @1.25 per bushel; new potatoes, 40c ½-pk. Cabbage, 6@10c a head. Lettuce, 5@10c a head. Beets, 4@5c a bunch. Radishes, 5 @6c bunch. Onions, 4@5c bunch; 10@12c ½ pk. Lima beans, 16@18c quart. Soup beans, 12@16c quart. Lard, 14@15c lb. Turnips, 8@10c ½-pk. Sauer kraut, 8@10c quart. Spinach, 8@15c ½-pk.

Fruit.—Apples, 18@40c ½-pk.; $1 to $2.50 per bushel. Pears, 15c ½-pk. Strawberries, 35@40c a box.

Retail Grain Market.—Wheat, $1.22; corn, 90c; oats, 65c; rye, 90c; bran, $1.40 cwt.; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.12; corn, 78c; oats, 50c; rye, 80c; bran, $27 per ton; middlings, $32 per ton.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., April 24, 1916.

Receipts for the week ending Saturday evening, April 22:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,038	4,496	6,729
Previous week	3,138	7,321	6,554

Calves. — Total receipts of calves for this week were 1,367 against 1,621 last week.

Beef Cattle.—The market could not be classified as active, but in a general way was steady all along the line at the prices. Maryland, Chicago and Lancaster County, Pennsylvania cattle were mostly on sale. Bulls, as well as cows and calves, commanded full rates, especially for the desirable sorts.

Best steers	$9.25@9.50
Choice	8.75@9.00
Good	8.50@8.75
Medium	8.00@8.25
Bulls	6.00@8.00
Common	7.50@7.75
Fat cows	5.00@7.50
Thin cows	3.25@4.50
Veal Calves—	
Exceptional lots	$11.00@11.50
Good to choice	10.00@10.50
Medium	8.50@ 9.00
Common	7.00@ 8.00
Southerns and barnyards	6.00@ 6.50

Sheep and Lambs.—Shipments were largely decreased, tho ample for present needs, under conservative trade conditions. Values in the main closed steady.

Wethers, extra,	$ 9.00@ 9.25
Choice	8.50@ 8.75
Good	7.75@ 8.00
Medium	7.00@ 7.25
Common	5.00@ 6.00
Ewes, heavy, fat	7.00@ 8.00
Lambs, extras,	12.00@12.25
Good to choice	11.50@11.75
Medium	10.50@11.00
Common	8.00@ 9.00
Hothouse, apiece	6.00@ 7.75

Hogs.—There was a downward revision of rates, with arrivals under good control. Quotations: Westerns, $11 gross weight; $13.75 net weight.

City Dressed Stock.—All varieties of high-grade meats realized firm and steady prices, hogs alone being a trifle easier.

Steers	11	@14½
Heifers	10½	@13½
Cows	8	@12
Veal calves	14	@15
Extra calves	16	@
Southerns and barnyards	10	@13
Country dressed	13	@14
Extras	15	@
Sheep	14	@15
Extra wethers	16	@
Lambs	16	@17
Extra lambs	18	@
Hogs	14	@

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., April 24, 1916.

Cattle.—The supply on sale Monday was 62 loads compared with 80 loads the week before. The market ruled fairly active with prices steady to strong on the choice grades of both tidy and weighty grades. Heifers in fair supply and sold stronger as did all grades of cows from bolognas to choice. Bulls higher on all grades. Best fresh cows sold stronger, while springers and medium grades were slow. There were 68 carloads of cattle received today; market about steady.

Good to choice	$9.35@9.70
Good, 1300 to 1400 lb.	9.00@9.25
Medium to good, 1200 to 1300 lb.	8.50@9.00
Tidy, 1050 to 1150 lb.	8.40@8.90
Fair to medium, 1000 to 1100 lb.	7.50@8.40
Fair, 900 to 1000 lb.	6.75@7.50
Common, 700 to 900 lb.	5.50@6.25
Rough, half-fat, 1000 to 1300 lb.	6.25@7.25
Common to good fat oxen	4.00@6.75
Common to good fat bulls	4.25@7.75
Common to good fat cws	4.25@7.25
Heifers, 700 to 1100 lb.	4.75@8.50
Bologna cows	3.75@4.40
Fresh cows and springers	$25@85

Calves.—Veal calves in liberal supply all week and market closed 25c per cwt. below Monday's prices. Receipts of calves today were 850 head; market slow and lower.

Veal calves	$7.50@10.00
Heavy and thin calves	5.00@ 7.00

Hogs.—The supply of hogs has been liberal all week and with lower prices at western points our market ruled draggy the latter part of the week and showed a decline of 30c per cwt. on all good weights and 15c lower on pigs and lights. Hog receipts today totaled 40 double-deck loads; market higher on all grades.

Prime heavy	$10.10@
Heavy mixed	10.10@
Prime medium weights	10.10@
Best heavy Yorkers	10.10@
Light Yorkers	9.65@
Good pigs	9.00@9.25
Common to good roughs	8.75@9.00
Stags	7.00@7.25

Sheep and Lambs.—The supply of sheep and lambs has been fair with a good demand for best sheep and handy weight lambs, while the heavy lambs have met with a poor demand. Today's receipts of sheep and lambs numbered 17 double-deck loads; market fairly active at steady prices. Supply of spring lambs light with market steady.

Prime wethers (clipped)	$7.80@ 8.00
Good mixed (clipped)	7.50@ 7.75
Fair mixed ewes and wethers	6.25@ 7.25
Culls and common (clipped)	3.50@ 5.50
Spring lambs	10.00@16.00
Clipped lambs	6.00@10.25
Culls to choice yearlings	6.00@ 9.50

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., April 24, 1916.

Hay and Straw.—Hay of fine quality is scarce. All arrivals are kept well cleaned up and prices on such stock are advanced. Lower grades are steady but firm. Straw is quiet but firm.

Grains.—The wheat market does not rally from its recent depression. Prices are fully 2 cents lower than last week and there is no evidence of strength in sight. Offerings of corn are moderate and the market rules steady. Trade is quiet. Oats are steady under moderate offerings but there is comparatively little trading.

Hay.—No. 1 timothy, medium bales, $24 @25; No. 2 do., $23@24; no grade, $11 @16. Light mixed clover, $22@23; No. 1 do., $22@22.50. No. 2 do., $19@20.

Straw.—No. 1 straight rye, $13.50@14; No. 2 do., $12.50@13; No. 1 tangled rye, $12@12.50; do., No. 2 $11@11.50. No 1 wheat straw, $10@10.50; No. 2 do., $9@9.50. No. 1 oat straw, $10@10.50; No. 2 do., $8.50@9.

Wheat.—No. 2 red, $1.10@1.13; No. 3 red, $1.10@1.13; rejected A, $1.07½ @ 1.10½; rejected B, $1.06@1.09.

Corn.—No. 2 yellow western, 82@82½c; steamer yellow, 80@81c; western, No. 3, 77 @78c; No. 4 yellow, 75@76c; ear corn, 79 @79½c per 70 pounds.

Oats.—No. 2 white, 51½@52c; No. 3 do., 49@50c; No. 4 do., 47½@48½c; standard white, 50@51c; sample oats, 43½@44½c.

Feed.—Winter bran, 100-lb. sacks, $26.00 @26.50; spring bran, do., $23.50@24.

Flour.—Car lots, winter clear, $4.85@5.10; straight, $5.15@5.50; patent, $5.60@5.80. City mills, choice to fancy patent, $6.50@6.75; do., regular grades, $4.85@5.10. Rye flour, $5@5.50 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., April 24, 1916.

Hay.—Receipts of hay increased slightly during the beginning of the week which caused a slight depression in the market but not enough to be scarce. At this writing receipts have eased up considerably, as have billings in transit and looks as if a strong market were to continue. No. 1 timothy, $22@23; No. 2 timothy, $20@21; No. 3 timothy, $15.50@16.50; No. 1 light mixed, $20@20.50; No. 1 clover mixed, $17@18; No. 2 clover mixed, $14.50@16; No. 1 clover, $15 @15.50; No. 2 clover, $10@12; No. 3 prairie, $12@12.50; No. 4 prairie, $9.50@10.

Straw.—Demand is excellent for straw; all arrivals find ready sale at prevalent market prices. No. 1 oat, $9.25@9.50; No. 2 oat, $8.75@9; No. 1 wheat, $9@9.25; No. 2 wheat, $8.50@8.75; No. 1 rye, $10@10.50; No. 2 rye, $8.50@9.

Ear Corn.—Demand lessening for ear corn with the near approach of warm weather. Looks as if the market on this commodity would rule quiet from now on. New stock. No. 2 yellow, 81@82c; No. 3 yellow, 76@78c; No. 2 high mixed, 79@80c; No. 3 mixed, 77@78c.

Oats.—Receipts light; market stronger; demand improving. No. 2 white, 49½@50c; standard, 48½@49c; No. 3 white, 47½@48c; No. 4 white, 45½@46½c; Rejected, [illegible]@45c.

NEW YORK HAY AND GRAIN

New York City, April 24, 1916.

Hay and Straw.—There is a steady demand for top grades of hay at the 33rd street terminal, but a weaker market on all grades at other points. Prices are quoted about steady but many sales are made at lower figures and the market is weaker. Rye straw is dull.

Grains.—Wheat is dull and lower. Interest in the speculative market hinges principally upon next season's crop. The foreign situation is uncertain and may show encouraging turns at any time, but nothing promises at present and a little moving. Oats are quiet and lower.

Hay.—Large bales.—No. 1 timothy, [illegible]@27. No. 2 $23@25; No. 3 $20@21; fancy clover, light mixed, $23@25; No. 1, $20@22; No. 1 clover, clear, $17@19.

Straw.—Per ton, No. 1 rye, $14.50@15; do., No. 2, $13@14.

Wheat.—No. 1 Northern, $1.30; No. 1 $1.28; No. 2 hard winter, $1.24¾.

Corn.—No. 2 Yellow, 89@90c; No. [illegible] yellow, 84¾@85¼c.

Oats.—No. 3 white, 50¼@50¾c; No. 4 49¼@49¾. Ordinary to fancy, 50¼@50¾.

Rye.—$1.05.

Mill Feed. — Coarse Western spring on hundred-pound sacks to arrive, $23. Standard middlings, $24; flour, do., $29 to arrive. Red dog, to arrive, 140-pound sacks $30@30.50. Oil meal, $32@32.50. City feed bulk bran, $23. Heavy feed in bulk, $23.50. Red dog, $32.50. Flour middlings, $32.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., April 24, 1916.

The local butter market is firm at a decline of 1 cent per pound from last week. Receipts of solid packed creamery are small and the demand is sufficient to keep supplies well cleaned up. Ladles are quiet but steady with light offerings. The near-by production is small and the limited receipts of prints are kept well cleaned up at firm prices. The cheese market rules firm and a shade higher under light receipts and a fair demand.

Butter.—Solid packed creamery, fancy specials, 38c; extras, 36c; extra firsts, 35½c; seconds, 34@35c; ladle packed, 27@28c; nearby prints fancy, 39c; average extra 38c; do., firsts, 36@37c; do., seconds, 34 @35c; special fancy brands of prints, [illegible] @45c.

Cheese.—New York, full cream fancy, [illegible] @19¼c; fair to good, held, 18@18½c; [illegible] part skims, 11@16c.

NEW YORK MILK MARKET

New York City, April 24, 1916.

The demand was greatly reduced last week owing to the Jewish holidays. The receipts were 6,726 cans of milk and 733 cans of cream less than in the previous week. The market value is a shade under 3½ cents a quart for Grade B in the so-called 26-cent zone.

The receipts of milk and cream in [illegible] quart cans for the week ending April 22 were as follows:

Railroad	Milk	Cream
Erie	41,954	[illegible]
Susquehanna	7,217	[illegible]
West Shore	14,321	[illegible]
Lackawanna	61,375	[illegible]
N. Y. Central (long haul)	93,628	[illegible]
N. Y. Central (short haul)	22,905	[illegible]
Ontario	42,901	[illegible]
Lehigh Valley	42,812	[illegible]
Homer Ramsdell Line	3,860	[illegible]
New Haven	5,551	[illegible]
Pennsylvania	7,190	[illegible]
Other sources	1,265	[illegible]
Totals	347,979	[illegible]
Same week last year	320,584	[illegible]

ELGIN BUTTER MARKET

Elgin, Ill., April 22, 1916.

Butter sales today were made at 33@34 cents per pound, a majority at 33 cents; a majority of bids at 34 cents. Eighty tubs sold at 33 cents; 69 tubs sold at 34 cents.

TOBACCO MARKET

The existing British censorship continues a noted feature in tobacco market circles. The apparently unnecessary severity of this is obnoxious to the tobacco trade of this country and those who are given power of negotiating international relations on such matters are being sorely criticised. The action is described as "impudent" and a "day of reckoning" is threatened. Of what this reckoning is to consist or upon whom is to be inflicted is not stated. In view of many momentous problems growing out of the great war it is not likely that such a comparatively unimportant matter altho probably deserving will receive very prompt attention. There are, however, so many bearish features in the situation that such disturbing influences do not have the weight that might be expected and as a result values were well sustained and in some instances higher than for some time.

Among the farmers nearly all interest is centered in the new crop. It is known that the heretofore small acreage of Havana tobacco will be greatly reduced and broadleaf will be grown instead. The latter variety seems best adapted to the section and it is probable that it is better to develop and improve this variety than to engage in growing others. The famous Slaughter variety seems to lead all others. It is noteworthy as indicating the probable acreage of the present year that seed dealers are selling much more tobacco seed than usual. Plant beds have now all been made and with a continuation of favorable growing weather we shall soon see the tiny plants which are to play so important a part in the season's activities.—H. E. Tweed, April 24, 1916.

Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the cause in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Sprained Tendons.—I have a 7-year-old mare that has been driven in deep snow during the past winter, causing her lameness in right fore leg. After a drive she stands with fore foot slightly raised, as if in pain. When the cords of leg are pressed she flinches. What can be done in line of treatment to help her? H. L. P., Troupsburg, N. Y.—Clip hair off back tendon and apply 1 part cantharides and 4 parts lard every two weeks. A high heeled shoe will afford some relief, and if you require her work, apply equal parts turpentine, aqua ammonia and olive oil to back tendons and avoid blistering.

Mange.—Will you please tell me what to do for a horse that has mange? A. R. D., Carbondale, Pa.—You will be much more successful in affecting a cure if you will first clip the horse. Then apply 1 part sulphur, ½ part carbonate of potash and 4 parts fresh lard to mangy parts of body, 2 or 3 times a week. You will also obtain fairly good results by applying 1 part coal-tar disinfectant and 30 parts water. Use any of the commercial coal-tar preparations regularly advertised in this paper. Give him a dessert spoonful Fowler's solution and a teaspoonful of sulphur at a dose in feed, twice a day.

Cow Fails to Come in Heat.—I have a large cow, 10 years old, that came fresh late last November. She came in heat a few times after calving, but since then has showed no indication of being in heat, and so far as I can tell she is healthy. What can be done for her? W. C. G., South Vineland, N. J.—Give her 1 dr. ground nux vomica, 2 dr. ground capsicum and 2 dr. of ginger at a dose in feed, 3 times a day. A forced service might have the desired effect in stimulating her generative organs into activity.

Influenza—Distemper.—I would like to know what sort of a disease it is that affects my kittens every spring. They seem healthy, fat and fur is as slick as a mink until about this time of year, then they begin to cough, eyes get sore and red, nose begins to run and a few days before they die they have a bad odor. We have lost every kitten for years in just this way and I would like to know if there is a remedy. I have kept them in different places, thinking perhaps the care they had might have something to do with making them sick. H. B., Harrisburg, Pa.—Your cats die of either influenza or distemper; there is no remedy for it.

Roarer.—I have a wind-broken horse and I believe the whole trouble is near the upper end of windpipe, but it only affects him when he breathes rapidly. R. A. W., Benfer, Pa.—A competent veterinarian who has had experience in operating on roarers and whistlers could perhaps effect a cure on your horse, but applying or giving drugs will not help him.

Cathartic for Horses.—Why do veterinarians prescribe raw linseed oil, instead of epsom salts to horses having impaction or acute indigestion? What would be the dose of epsom salts for a horse? M. A. K., Cains, Pa.—The common cathartic for a horse is aloes, raw linseed oil or salts. The salts do act more promptly but are inclined to produce a little more irritation. For a 1000- or 1200-lb. horse give about one pound of epsom salts.

Sore Foot.—I have a cow with a sore between her toes which causes lameness. E. M. N., Corry Pa.—Dissolve a teaspoonful of chloride of zinc in a pint of water and wet sores twice a day. Keep the foot dry and clean.

Barren Cow.—I have a cow eight years old that has not been in heat since she came fresh and that was four months ago. D. C. W., Center, Pa.—Give her 1 dr. ground nux vomica and 2 drs. of powdered capsicum at a dose in feed, 3 times a day.

Indigestion.—I have a fine cow that freshened three weeks ago, but fails to yield any milk. She is in good condition in every way; am feeding corn fodder and dairy food. Would like to know what I can do for her to increase milk flow. J. J. H., Ada, Pa.—Feed her silage, clover, or alfalfa, plenty of bran mash and roots. I do not believe this a case requiring drugs.

THE YEARBOOK 1915

The Yearbook of the U. S. Department of Agriculture for 1915 is now out. This annual report of the federal Secretary of Agriculture with complete statistics of farm production of crops, live stock, animal products, etc., is one of the most valuable reference books for farmers. The report of the Secretary covers 63 pages, and takes up crop production, agricultural exports, the meat supply, foot and mouth disease, hog cholera and serum, the potash supply, marketing and distribution, rural credits, county bureau organizations, etc. There are 180 pages in the statistical appendix covering statistics on all principal farm products. In addition, there are 332 pages of illustrated articles by Department authorities. Among these are articles on Co-operative Purchase of Farm Supplies, How Engineering May Help Farm Life, Unprofitable Acres, Animal Disease and Our Food Supply, Successful Co-operative Rural Laundry, How the Whole County Demonstrated, How Department of Agriculture Promotes Organization in Rural Life, How Seed Testing Helps Farmers. The entire report makes a volume of 616 pages, well-bound in the usual size. Copies may be secured free upon request to your representative in Congress.

COUNTY NOTES

Venango Co., Pa., (N.W.) April 10.—Snowstorm here yesterday. Live stock looking well. Prices much higher than at last reports. Excepting apples, the fruits are almost all killed. Meadows and grain not as good as one year ago. Butter, 35c; eggs, 22c; potatoes, $1.40 per bushel; veal (H.D.) 14c; chickens (dressed), 22c; hay, $23 ton. Very little plowing done. Farm work very late. General conditions not as good as we would like to see them.—W. J. Pringle.

York Co., Pa., (S.E.) April 10. — Weather warm with considerable rain until a few days ago we had the heaviest snow fall of the season. Cattle coming out in fine condition. Cows selling for $50@$100 per head. Beef cattle bringing $8 to $8.75 per cwt. Horses and mules selling for $400 to $600 per pair. Wheat $1.16 per bu; potatoes, $1.25; corn, 76c; butter, 34@40c lb; eggs, 21c dozen. Farmers are doing the regular seasonable work, such as plowing and hauling manure. The wheat and young grass are making good growth.—Clarence D. Emig.

Lancaster Co., Pa., (S.E.) April 10.—Clear at present; winter suddenly returned April 8th and surprised everybody with one of the heaviest snows of the season. Probably a foot of snow fell. It melted rapidly. Live stock is in good condition. Wheat has wintered well and is looking good, except the very late sown wheat which has not made much show yet. Clover and timothy fields are looking fine. Wheat $1.15; corn, 80c; oats, 50c; hay, $20 ton; straw, $10; fat cattle, 9c per lb. Some are being marketed at the present time. Roads had been in fairly good condition before this snow fell. Had been improved somewhat by the use of the King Drag. Owing to unfavorable weather conditions, thru March, the farm work is at least 10 days behind the average spring. Farmers are hauling out manure. Some plowing is done. Some farmers have their tobacco seed sown.—J. Henry Haverstick.

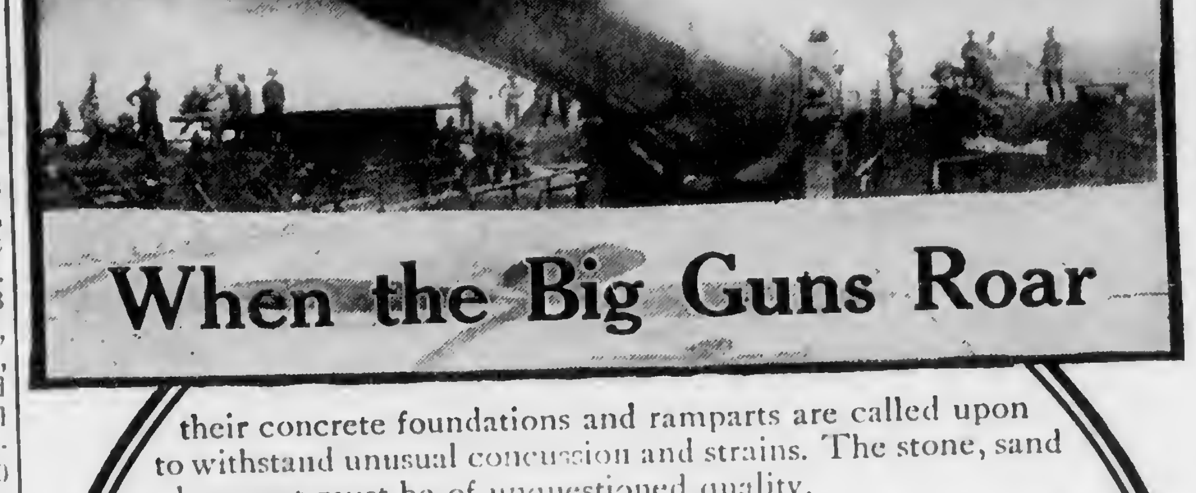
NEW BULLETINS

Dwarf Apples Not Commercially Profitable.—Bulletin No. 406, issued by the New York Experiment Station, Geneva N. Y., gives results of a ten-year test under different conditions in New York

Cottontail Rabbits in Relation to Trees and Farm Crops.—Farmers' Bulletin, No. 702 discusses habits, protection, means of repression, traps, poison ing, tree protectors, etc. Illustrated From U. S. Department of Agriculture

The Bagworm, Injurious Shade Tree Insect.—Farmers' Bulletin, No. 791. A well illustrated, descriptive treatise on this pest, giving life habits, food, and remedies. From U. S. Department of Agriculture.

Blueberry Culture.—Bulletin No. 334. Contains 16 pages and 22 plates made from photographs. Gives cultural directions, methods of propagation, planting yields and profits. From U. S. Department of Agriculture.



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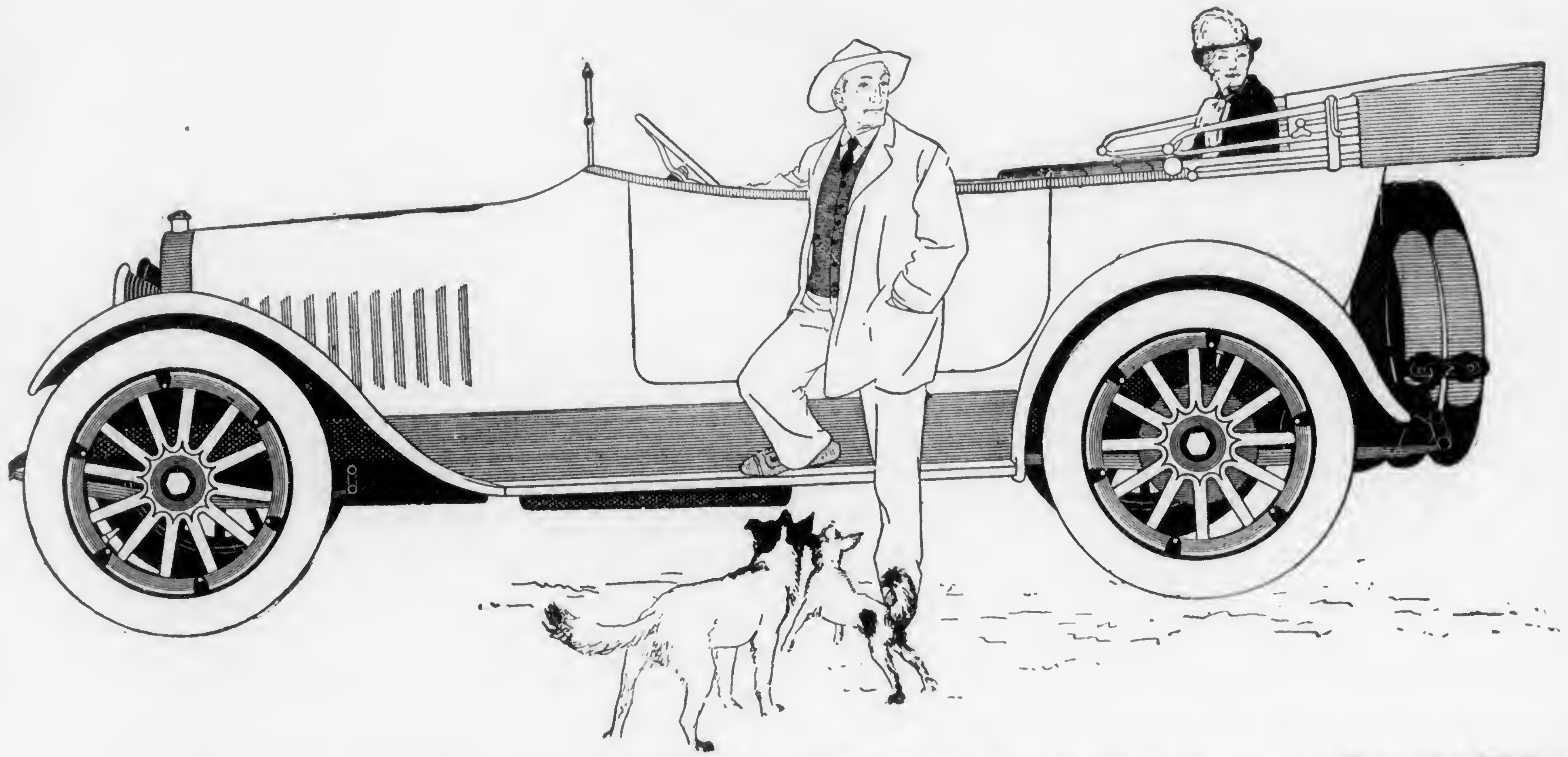

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An Eight-Hundred Acre Alfalfa Farm

The old Cottman plantation, on the north bank of Wicomico Creek, in Maryland, which contained 3,000 acres and where 500 slaves were kept before the war, is now being converted into an alfalfa farm. It is already one of the leading farms in the Eastern states. The owners, the Nelson, Dye, McCabe Company, plan to have 800 acres in alfalfa within a few years. Alfalfa will be the principal crop to be rotated with corn and cow peas. One hundred and fifty acres are now in alfalfa, 180 acres will be seeded in the fall of 1916 and about 100 acres per year will be added until the total of 800 acres is reached. The total acreage of the Cottman plantation and the Corn Jones farm adjoining, which the company purchased in 1912, is 1,060 acres.

Three of the men who are demonstrating that alfalfa can be raised profitably on the Eastern Shore are successful New Jersey farmers. Mr. John P. Nelson, president of the company, and his brother, Albert Nelson, have been raising alfalfa in New Jersey for 20 years. Professor Billings, alfalfa expert of the U. S. Department of Agriculture, several years ago declared that the former was the most successful grower of alfalfa in the East.

Located on the tidewater of the Chesapeake, the history of the Cottman farm extends back to the early days of this country. The rambling old mansion and the tenant houses tell of prosperous days "before the war". It was just before the Civil War that Colonel Cottman, the owner, died from smallpox, which he contracted thru nursing his body-guard slave, Henry Chase. With the death of Colonel Cottman ended the prosperous condition of the farm, and from that time until 1912, when the present owners purchased the land, it had passed thru the hands of 15 owners, none of whom had taken care of the farm properly. The fields were not badly run down or worn out thru bad management and excessive cropping, but had been neglected by the owners. Fields that had been in corn before the war were grown up in brush. Trees that had fallen had been left there, tops and trunks, and the farming carried on around them. Hedges, briers and bushes bordered the worn-out fences to the distance of ten feet on either side.

The first task of the present owners was to repair the buildings, remove the fallen trees, clear away the rubbish, cut out the brush and briers and renovate the farms thoroly. One field of five and one-quarter acres was seeded to alfalfa in the fall of 1912, and 21 tons and 1,370 pounds of cured hay was sold during the first season—an average of four tons and 261 pounds per acre. In 1913, fifty-five acres were seeded to alfalfa on land which had been in corn and which had been sowed with crimson clover in the fall of 1912. The clover was plowed under in the spring of 1913 and cow peas planted, which in turn were plowed under in August of that year, in time to seed to alfalfa.

The greatest need of the land when it was purchased, according to Albert Nelson, was humus, which is being supplied by growing and plowing under clover and cow peas. The land lays almost perfectly level, is only a few feet above tide water and is underlaid with a bed of fine gravel, providing excellent drainage. Burned oyster shells were used to provide lime which was applied at the rate of a ton to the acre. The seed was inoculated with a pure culture and the ground also inoculated with soil from the field seeded in 1912, which was found to be well supplied with the root nodules. One thousand pounds of fertilizer was applied per acre, which practice is being followed each year both in seeding new fields and in top dressing fields where stands of alfalfa have been secured.

On the Corn Jones farm, during the same season of 1913, ten acres were seeded to alfalfa following potatoes, which is the ideal method for starting the crop, according to Albert Nelson. An early variety of potatoes was planted, and after the potatoes were dug the land was harrowed thoroly but not plowed. This leaves the land in a firm condition, which is required for the alfalfa seed bed. The following year 12 more acres were seeded after potatoes and 15 acres after cow peas. There is a total of 50 acres now seeded in alfalfa on this farm. In raising the potatoes, 1,500 pounds of fertilizer per acre are used by Mr. Nelson. Except on a small patch, where lime had not been applied, the alfalfa thus seeded made a good stand the first year and has been cut to good crops each succeeding year.

"We are now preparing to seed 130 acres more to alfalfa in the fall of 1916, and are preparing the land by liming and plowing. About half of this acreage will be planted to cowpeas, and the vines harvested for hay, following which the ground will be disked and seeded to alfalfa without plowing. The remainder of the land will not be used for crops this spring, but will be harrowed all summer with the tractor, to conserve the moisture and get ready a perfect seed bed," explains Mr. Nelson. "We use one-thousand pounds of fertilizer per acre, inoculate all seed and soil and use lime in growing alfalfa.

"Two large disk plows and a tractor handle our plowing of new ground, and the preparation of the seed bed for alfalfa. Disk plows cut the roots and do better work than a regular plow, but on old fields we use a gang plow with three 14-inch bottoms and regular

AN EIGHT-HORSEPOWER TRACTOR ON TWO-BOTTOM PLOW PREPARING AN ALFALFA SEED BED.

JOHN P. NELSON (CENTRAL FIGURE) IN ONE OF HIS ALFALFA FIELDS.

mouldboards. In taking up new lands, we have been planting to corn and farming to that crop long enough to reclaim the land from the wild state. We propose to continue this plan until our total in alfalfa is 800 acres. The remainder of our farms will be reserved for growing corn, potatoes, cowpeas for hay and other crops to furnish feed for our horses and mules and to give employment for our men when they are not busy with alfalfa.

"Then, each year the poorest stands of alfalfa will be selected and after the first crop of hay, corn will be planted. The land will be left idle the following winter, and then cowpeas will be planted in the spring and the hay harvested before we seed to alfalfa again. To raise corn we allow 500 pounds of fertilizer per acre and get splendid yields. My experience on my New Jersey farms has been with farming that does not include the raising of live stock of any kind. On our Maryland farms we are not planning to keep any live stock, except the horses and mules that we use. Cover crops will supply the humus and fertilizers the plant food.

"After the first year the net revenue from alfalfa, according to our New Jersey farm records, is $50 or over per acre. Our experiences in Maryland show that it is equally profitable there. There is no longer any question as to whether alfalfa can be grown anywhere in the eastern states. If farmers will make the conditions right—proper drainage, soil sweetness, organic matter in the soil and plenty of plant food—they can grow alfalfa. Farmers who hesitate to spend the money necessary to seed a field properly to alfalfa should compare the profits, especially after the first year, with the profits from potatoes. They do not hesitate to spend $60 to $80 per acre in raising a crop of potatoes and after the first season, the cost of alfalfa will be very much less than the next crop of potatoes."

General Manager Nelson and the other men who own and are operating these alfalfa farms have been successful in their farming operations at least in part because they have kept accurate records of the costs of raising their crops, the profits derived per acre and because they have experimented with different methods of cultivation, rotation, fertilization, etc., and have profited by their experiences.

Eighteen men are now employed on their two farms in Wicomico County, Maryland, and more are hired at other times during the year. The alfalfa that they raise is of the highest market quality and brings about $23 per ton at present. The use of the tractor cuts down the cost of plowing and cultivating, and the use of a big hay press, capable of bailing 73 tons of hay in 10 hours, enables them to store their alfalfa without having the large barns that would be required if the hay was kept loose. Two barns do the work of three when the hay is baled.

The first cutting, after being cured, is placed in the barns and is baled before the third cutting is cured. Then the second cutting is placed in the barns, after curing in the fields for a week to ten days under hay caps, according to the weather, and is baled before next cutting is ready to be placed in the mows. This distributes the labor thruout the harvesting season, and permits of the best curing of the hay. Barns of the 36x140-foot size, with 20-foot posts are the kind favored as being the most economical. Their barns cost about $1,200 each.

Since the Nelson, Dye, McCabe Company bought the 1,060 acres in Wicomico County, they have been offered more than double the purchase price of their land, because of the success that they at once had with alfalfa and because of the improved condition of the farms thru their efforts in clearing and bringing the land under cultivation. The results of alfalfa farming are not alone found in the profits per acre that come from the large tonages of hay, but are also striking in the increased value that the crops give to the land and to the increased productive ability of the soil. Eight hundred acres in alfalfa in Maryland demonstrate in an enormous way the possibilities that are found in eastern agriculture when good farm management and good soil management are combined. Whether the type of farming be alfalfa farming, grain farming or dairy farming, the secret of success is the application of business principles to the farm operations and the best soil fertility principles to the management of the soil. Some may question the practicability of maintaining fertility on such an acreage and for such uses without manures. But Mr. Nelson points out that he has been farming upwards of 500 acres for almost 25 years and that he has never raised live stock. Thru the use of proper rotations and fertilizers he has not only maintained but increased the productive capacity and market value of his land. — Melvin Ryder.

Easy Lessons on Ropes----IV

By R. A. Andree,
Dept. Farm Mechanics, Penna. State College.

Halter Tie

For a knot that is easily tied and one that does not wear on the rope a great deal, the halter tie is hard to beat. It can be made very rapidly, and altho it is very secure, it can be untied very quickly. It is used by many in hitching and tying the animal in the stall.

Pass the end of the rope forward thru a ring or thru the hole in the stall. Then bring it backward and lay it over the top of the main part of the rope as shown in Fig. 17. Then bring it under the main part of the rope as shown by the arrow in Fig. 17 and hold it in this position with the right hand. The left hand now grasps the loop thus formed, as shown in Fig. 18. The end in the right hand is then brought over the loop and passed thru it from the bottom up, as indicated by the arrow in Fig. 18. The execution of this step is made clear in Fig. 19. Draw up the knot by pulling on the short end.

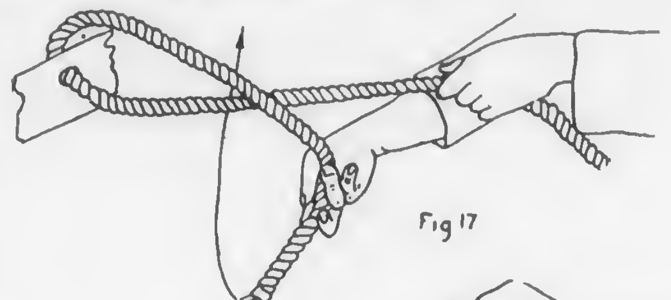
Fig 17

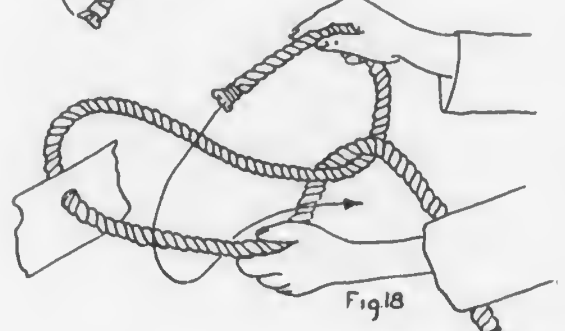
Fig 18

Fig. 20 shows the halter tie just as it is being drawn up. The tie should not slip if it is correctly drawn up, but it should never be used around a horse's neck, because it may form a slip knot and may result in considerable damage to the animal. For tying a rope around a horse's neck, use the bow line, as described in our next installment.

Farming at the Foot of the Blue Ridges

Out from Hagerstown, over the hills and thru the scenic valleys of Washington County, Maryland, the farms on either side of the excellent roads tell advance stories of good farming methods and profitable crops. Large straw stacks behind well-built barns tell of wheat fields of summer that have yielded good profits to the owners of the farms. The country round about is spread out within view for miles, and in the early morning the scenery is surprisingly beautiful to one who has never spent much time in the Blue Ridges.

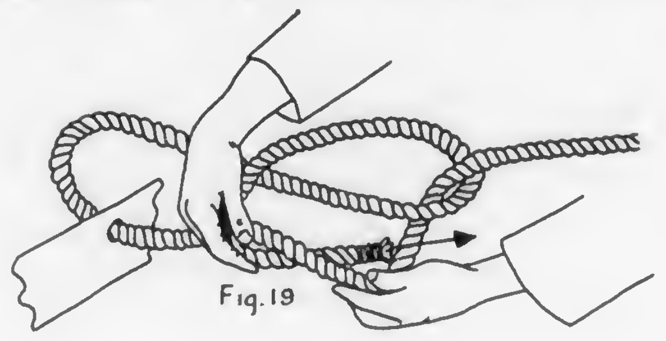
Fig. 19

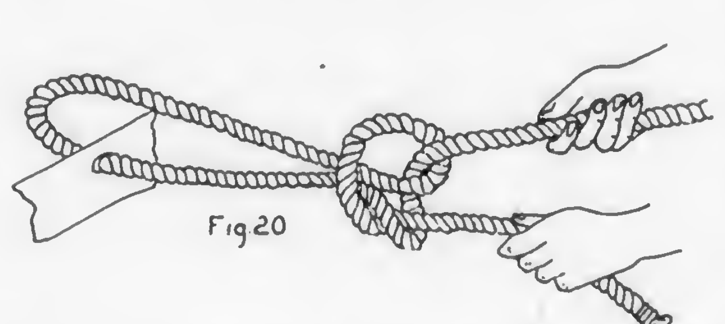
Fig 20

Crossing a long, flat bridge over the Conococheague Creek, where we are assured that the fishing is excellent, our destination, the farm of John I. Wishard, was reached. There we were advised to go to find two examples of well-managed farms,—for Mr. Wishard owns one farm of 220 acres and another of 150 acres, both of which were valued at $12 per acre 25 years ago, and there we found Mr. Wishard and from him heard the story of how the two farms have been built up since he bought the first in 1907 and the second in 1911, from owners who had discouraged him in parting with stories of the lack of productive powers of the "slate-lands" of that region. Mr. Wishard's records show that both farms are now paying interest on an investment of $75 per acre, and his yields are such that his farm might well be used as a model and his methods as examples for other farmers to follow.

When the farms in this community were selling at $12 per acre, 25 years ago, just three out of the score or more along the Conococheague Creek were making expenses and enabling the owners to pay their taxes and keep up their interest, according to Mr. Wishard. On a neighboring farm, 2000 bushels of wheat are now grown where 200 bushels were grown a score of years ago. The yields of wheat had been from 8 to 10 bushels per acre and other crops in the same proportion. The land was sour and clovers were unknown. The keeping of livestock was not considered profitable, and the lack of good meadows supported this view thruout.

Mr. Wishard, after telling in general of the changes that had been brought about, especially in the last few years, took up the story of his development of the home farm of 220 acres which he purchased in 1907. There were 65 acres of timber on the farm, which he is holding as a "bank account", but less than 50 acres in good, tillable condition. All the bottom lands were swampy, and for the most part covered with underbrush. Old fashioned "Virginia" rail fences were the only kind on the farm. The fields were cut up in every direction by ditches and gulleys. One of his present fields was then in seven distinct fields.

The first step taken by Mr. Wishard was to lime the fields, using from 40 to 50 bushels of burnt lime stone. Then, to take care of the organic matter need of the soil, he borrowed money enough to buy some live stock to feed thru the winter. He still keeps 20 head of steers thru the winter, buying them in Hagerstown, where they are obtained from Virginia. The use of feeders to market the roughages and grain feeds from the farm has been found profitable because it furnished manure for the soil.

At once after getting the first farm, Mr. Wishard proceeded to drain the fields that needed it, and to clear away the brush and rubbish. He was the original "tile man" in Washington County, and his example and success has led other farmers to take up tile draining on a large scale. He uses tile from 3 inches up to 8 inches in diameter and placed them from one to three rods apart. This season will complete the tiling of his two farms.

"My rotation system is corn, followed by wheat or oats for two seasons, followed by clover and timothy. The fertilizer is applied at the rate of 200 pounds up on the wheat and oats in the fall. I am planning to do top-dressing this year, but have not done so before because I first wanted to get the land in good condition," said Mr. Wishard in explaining his methods. "Complete fertilizers give the best results, according to my experience, and I believe in using high grade goods. I don't believe a farmer can get along without fertilizer, and I believe in taking care of the organic matter, drainage and liming so that fertilizers can do their best work. Now that I have drained, limed and provided organic matter for the soil, I plan to increase the applications of fertilizer because the results will then follow."

Before using the lime, draining the soil and providing manure, Mr. Wishard stated that the farms would not grow clover. On the farm which he bought in 1911, less than three loads of hay had been made in two years, and the land was covered with "sour grass" and sorrel. He pointed out a three acre plot that had never grown a stalk of tame grass before it was limed and fertilized. It was apparently thoroly exhausted. After a light dressing of lime and the application of fertilizer, he harvested two tons of hay per acre from it and three bushels of clover seed. Last fall it yielded over 65 bushels of corn per acre. This plot was cited as an instance of the quickness of results that he has been obtaining. Oats this season on land that had been in corn three years in succession yielded 71 bushels per acre. Seventy five bushels of shelled corn per acre is an average crop on the two Wishard farms now. Fields that formerly gave from 8 to 10 bushels per acre now yield three times as much grain of better quality.

Mr. Wishard has been growing 250 to 300 bushels of potatoes per acre on the average. He believes in using 1,000 pounds of fertilizer in growing potatoes, but insists that the land must be prepared by the addition of organic matter, by drainage and liming when necessary, for best results. Permanent pastures are being made of the hilly fields and more attention will be given to live stock in the future.

When Mr. Wishard bought his first farm in 1907, the man who then owned the other farm, which Mr. Wishard bought later, advised him to stay away from Washington County, as a "farmer couldn't make a living there." Mr. Wishard smiles now, after eight years at the advice which he did not follow, and points to his crop and farm records to show what can be done to build up a farm by the use of lime, drainage and plantfood, coupled with industry and the willingness to work.—R.

Lindenhurst Farm Notes

By R. P. Kester

In looking over a note book the other evening, I ran across some notes I made after a visit I had with an old farmer and his wife one winter evening. I was staying over night with this successful couple in their comfortable home in northern Pennsylvania. The farmer had shown me the good buildings, the full barn and fine stock, and we had eaten a real country supper prepared by the hands of the capable wife, altho both were near seventy years of age. He was one of the many philosophers in the rough one meets among farmers; one of the kind to whom it is wisest to say little—just listen; one who feels a just and but partially concealed pride in the success of his efforts. I had expressed appreciation of the things I saw about the farm and barn, and complimented them on their comfortable home. His face lighted up, and he straightened his bent shoulders and said:

"Yes, we have things tolerable comfortable. Good enough to end our days in, I guess. But I'll tell you, friend, we didn't always have it this way. We've seen the other side. Why, durin' the first years mother an' me lived here in our log cabin, there was times when we didn't have a cent for weeks at a stretch. We didn't have much in the way of fixin's in the house either. Just a few chairs, an old stove and a home-made table. But we had what is more important, good health and ambition. I tell you, we worked hard in them days. Mother didn't have much to do in the house, so she helped me in the fields when the children didn't interfere. Why, she helped some at clearin' more than half the fields on the place.

"Many's the time we would 'v' give up if we could 'v' let go. We had paid all we had, put in much hard work, and nobody wanted to buy; so we had to stay. And I am glad now we had to. I believe most folks would be better off if they couldn't quit so easy. Why, lots of folks won't stay by a job more'n a year 'till they want a change and they get the habit of movin' after while—regular rollin' stones. If you have to stay, stickin' gets to be a habit just the same as movin'.

"Folks can study agriculture 'till they're blind, but if they don't learn to begin at the bottom, work hard and stick, they'll never come to much. Young folks nowadays want to begin at the top of the pile, right where their parents are who have been forty years gettin' there.

"We hadn't much to spend in those days, so we got in the way of savin'. That's another habit, and one mighty few people learn. Mother used to make the clothes—what we had—and besides, all that was on our table for thirty years was growed on the farm and prepared in the kitchen, exceptin' a little sugar and coffee. For all that we were tolerable healthy and able to eat a lot of it.

"I always made it a pint to look ahead. One can avoid many losses and disappointments by keeping an eye open for what might happen. Of course, I didn't always see 'em and we got some hard jolts, but I guess it kind o' tended to keep us humble and diggin' to it."

I asked him if he had always raised beef animals, seeing that he had some fine Angus cattle in the yard and stables.

"No, time was when I kept a dairy, but after the young folks all scattered off, mother and me had to give it up. Anyway there wasn't much in it. It seemed that as fast as I got better cows the price of feed went up and the price of milk went down, and altho my cows were twice as good as when we started twenty years before, we didn't make no more money. There's something wrong somewhere. Same way with beef. Why, I used to get a good round price for beef from the local butcher. Now, he says people want western beef. I don't believe it. Folks I hear talkin' don't say that. Looks to me as if the local butcher had to buy from the big packers. Anyhow, I have to sell to buyers, and the buyers sell in carloads to big packers away off, and the packers ship it back to the local butchers—or, better say, meat-cutters."

BOUNTIFUL HARVEST.

"How about sheep raising," I asked him.

"Well, I have made some money raisin' sheep," he said. "Of course, lots of years I didn't make anything. They've always been foolin' with the tariff so much that you never could tell how the price would be. Some years it would be up, then they would tinker some more and down would go the price. The tariff tinkerers listen more to the manufacturers than they do to the farmers. Then, too, dogs have been an everlasting nuisance to sheep. Politicians make a big fuss about doin' something for the farmer, but when it comes right down to actions the sportsmen have the last say on the dog question.

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"For all that, I have made some money keepin' sheep, because that is another place where I stuck to it. Some men are always goin' into a business, and quickly goin' out; buying when prices are high and selling out at low prices. You never get any place doin' that way. I like sheep. They sort o' rest you like, and make you feel glad you are livin', yet not sorry you are goin' to die. Fact is, most all farm work makes you feel like that. I'd hate to have to live so hard and fast, take life so serious as some do, yet skeered to death for fear they won't live forever.

"But takin' it all in all, we've fared purty well. We have a good home all paid for; always had plenty to eat and wear, and enough to do to keep us out of mischief. We've seen the forest changed into cleared, fertile fields, and the log buildings into these you see. We've raised six children—no only five, one little fellow slipped away when he was fourteen years old."

Here the old man became thoughtful and quiet for a few moments, and the wife, sitting by, looked at him in loving sympathy.

"But the others are doin' well. Good, strong, healthy men and women with families of their own. Its a bit lonesome here sometimes for mother an' me. Jane sent us a volume of Riley's poems last Christmas, and there is a poem in it that fits us to a T. Here's a part of it:

'The old farm home is mother's yet, and mine;
And filled it is with plenty, and to spare;
But we are lonely here in life's decline,
Tho' fortune smiles around us everywhere.
We look across the gold of the harvest as of old—
The corn, the fragrant clover and the hay;
But most we turn our gaze, as with eyes of other days'
To the orchard where the children used to play.
Oh! from our life's full measure,
And rich hoard of golden treasure,
We often turn our weary eyes away;
And hand in hand we wander
Down the old path winding yonder,
To the orchard, where the children
used to play.' "

Lightning Rods Protect

Lightning rods of good material, if properly installed, are a real protection. The rod business got into disrepute in early days because manufacturers of lightning arresters knew little about electricity and because many swindles were worked on farmers in connection with the business. The farmer felt that his only safety lay in a shotgun and a bulldog when lightning rod agents were in his neighborhood.

Under modern conditions, however, rods have proved successful. In Iowa, 55 insurance companies report for eight years, 1905 to 1912, that about 50 percent of the buildings insured by them had rods. In the eight years, all these companies paid only $4,464 lightning claims on rodded buildings, an average of $10.15 per company per year. On unrodded buildings, they paid claims amounting to $341,000, an average of $775 per company year. By comparing $10.15 with $775, it is seen that for every $1 paid on rodded buildings, $76 was paid on unrodded ones, or that the rods save $75 out of an expected loss of $76 if the buildings were not rodded. This shows an efficiency of 98 percent, and as these rods were not subject to inspection it is probable that some improper rodding is included.

The installation is a very important part of lightning rod protection, but involves no more complex or secret work than building a fence or digging a well, and any professional lightning rod agent who insists that his system is the only one that is scientifically correct and reliable, and that no one but an expert, at a high price, should be allowed to install it, invites suspicion either of his honesty or of his knowledge.

The all-important thing is to have a continuous conductor from the highest points on the building to moist earth beneath. There must be no loose points or joints filled with rust or careless handling. A rod broken from any reason ceases to be a conductor and becomes an accumulator and a source of danger, rather than a protection.—C. E. Reid in Kansas Circular.

Wood ashes, since they contain lime, should be applied alone and not mixed with the various fertilizing materials. Certain commercial materials as basic slag, cyanamid and calcium nitrate, which contain an excess of lime, should be avoided in home mixing. The observance of these precautions will obviate the danger of lumping, the loss of plant food thru volatilization, or the changing of available into unavailable plant food thru chemical action.

Stable manure or other fresh organic matter should not be considered in the home-mixing of fertilizers. Manure in itself is a complete fertilizer but a poorly balanced one.

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COVER CROPS

Wm, A. Cassel, Maryland

A cover crop is one sown in the late summer or fall on land that would otherwise lay bare during the winter. In the part of Maryland north from Baltimore city to Mason and Dixon's line I consider rye, wheat, barley and crimson clover, in the order named the most dependable cover crops; but a mixture of these is best of all. Different latitudes demand different cover crops. Southern Maryland and thruout the south, crimson clover is one of the most valuable. Mr. J. T. Campbell, in Crawford Co., Pa., says the best for his soil and latitude is dwarf Essex rape.

As the object of a cover crop is to cover and occupy the soil with its roots during the fall, winter and spring months, it is imperative to sow enough seed that the roots fill the soil completely. To accomplish this end a mixture of one-half bushel each of rye, wheat and barley and 8 to 10 pounds of crimson clover seed is my favorite, and I want an early seeding that it may make a good growth before winter. By having a thick stand from an early seeding, millions of roots per acre fill the soil taking up plant food already made available by previous cultivation and amendments, which, if not used by some growing plant, has a tendency to leach away.

Nature is always engaged in breaking up the inorganic and organic matter composing the soil and at the same time her forces are at work locking up the mineral plant food so produced. Growing plant roots set free and use this available fertility and in addition act as soil binders against wind, and erosion by heavy rains. The Utah Station reports that a good stand of small grain crop requires from one and a half million to three million plants per acre, and we need all these in a cover crop.

Grown for a cover crop this mixture should not be allowed to stand until blossoming. The amount of water which these crops pump out of the soil for their growth is truly amazing. King states that red clover uses 452 tons of water per ton of dry matter produced; barley 392 tons; oats, 522 tons. Hellriegel, by his experiments in Prussia found it required a mean rate of 325 tons of water for each ton of dry matter produced. Defer plowing under these crops just a few days, and without succeeding rains, and the vast amount of vegetable matter buried may destroy the capillarity of the soil with a loss to the crop which follows. Turned down as the heads appear, the crop rots without danger and the plant food it gathered during its growth soon becomes available to the succeeding crop.

The vegetable matter produced by these crops when turned under assists in making the soil more permeable to water, its decay adds humus which helps hold water and heat—two most necessary things in crop production. It has been stated that one ton of humus will absorb two tons of water.

A legume cover crop traps large quantities of nitrogen from the air, particularly if the weather is warm early in the spring before plowing the crop under. The roots penetrate the subsoil bringing up the mineral plant food below the reach of wheat, rye or barley. These latter get no free nitrogen from the air and return to the soil in decaying only what they got from the soil.

Over twenty years ago I noticed the pigs running on the cover crops made as much gain up to the time the crop got eight or nine inches high as they did when pasturing red clover. Now, considering the low rating given wheat, rye and barley in the tables of the U. S. Department of Agriculture, the various state stations and, in fact, by all authorities, I considered this something remarkable. A few years ago, however, the Kentucky Station made analysis of a number of young legumes and grasses and report in Bulletin 175 the following average composition:

	Height	Water	Crude fibre	Protein	Carbohydrates	Fat	Ash
Rye, (green)	5 in.	81.90	1.99	6.50	6.54	0.90	2.17
Rye, (green)	27 in.	82.82	4.20	2.72	8.02	0.65	1.59
Wheat, (green)	5 in.	75.80	3.90	6.54	10.07	0.69	3.00
Wheat, (green)	24 in.	78.24	5.96	2.31	11.09	0.65	1.75
Red Clover (green) ...	11 in.	81.25	2.64	4.31	9.20	0.59	2.01

This shows the green rye and wheat at 5 inches contain more protein than red clover 11 inches high. The 5-inch rye and wheat compare favorable with clover in crude fiber and is ahead in carbohydrates and fat. It shows, too, that as the green crops grew they deteriorated in feeding value, and it is the opinion of the Kentucky Station that these crops ought to be classed as nitrogenous roughage when at this stage of growth. As the plants grew the protein content decreased and the crude fiber increased.

FARM NOTES

Adding acid phosphate in order to make manure more valuable has been advocated by the Ohio Experiment Station continually. The conservation of manure and the proper treatment of it has been shown by their experiments to more than double its value as a better crop producer. In the annual report of the county experiment farms of the state, Director C. E. Thorne explains how to make stall and yard manure more valuable by the addition of acid phosphate at the rate of 40 pounds per ton.

. . . . .

A. P. Sandles, formerly president of the Ohio Agricultural Commission tells a story on the farmers of one county who wanted better horses and who purchased a $2500 breeding sire and employed a caretaker at $70 per month and house rent. The caretaker was experienced. At the same time, the county school board wanted a teacher for their school. They employed a girl who was young and inexperienced and paid her $30 per month to teach 25 students. The same men hired both the girl and the caretaker. The joke was not on the teacher or the horse, says President Sandles.

. . . . .

Henry W. Grady classes Lancaster County, Pa., as the richest farming county in the United States. He attributes the prosperity to their diversified farming methods. Tobacco is the principal crop but the farmers also raise other cash crops and maintain the fertility of their soils by rotation. Mr. Grady says, "No one crop will make a people prosperous. Whenever the greed for a money crop outbalances the wisdom of husbandry, the money crop is a curse. When it stimulates the general economy of the farm, it is the profit of farming."

Horticulture

SUGAR CORN

From the Seed to the Table

I often wonder why sweet corn, as it is commonly called, is not more generally grown by farmers. I find in traveling about from place to place that this succulent food is more or less a luxury on many tables among our farming brethren, when almost every individual loves to eat it. It is a profitable crop to produce where there is a market for it. The writer has grown it for market for 30 years and during that time has had but one crop that failed to yield a profit and that was on account of low prices. Many seasons the sweet corn crop is very profitable.

Varieties

For home consumption varieties will differ from those for market, because earliness may be essential to good market in some localities, while in others it may be size of the ear, frequently so in mid season. House-wives do not seem to want a small or medium sized ear of corn—it must be large to sell well. Many of our best varieties are below medium in size but the quality is so much superior to many of the larger sorts that they should always be considered when selecting for home use. The early varieties in the main are not so sweet and succulent as the medium and late sorts, but coming early when our appetites for such food are at their best, the quality is not quite so noticeable, hence from the market growers' viewpoint such varieties often times yield more money value than better and later sorts. In the garden, too, they have their place, at least some of them; such varieties as "Corry" and "Peep-o'-day" are too small for practical purposes.

LETTUCE ON SASH BEING WASHED FOR MARKET.

The corn ear worm bothers these extra early sorts much more than it does the later varieties. The writer has grown many varieties and for early I find none superior to "Metropolitan." While not quite as early as the two above mentioned varieties, the size of the ear and volume of crop so far over-balances the 3 or 4 days that the producer has to wait that the odds are in favor of the latter variety. The quality of this variety is only fair. For main crop for market, plant some of the "evergreens" of which there are a number of strains like "Stowells," "Chicago Market", "Long Island Mammoth" and others. These varieties are all large and of good quality but mature rather late. For the epicurean, no variety will fill the bill so well as "Golden Bantam", "Shoe Peg" and "Country Gentlemen."

Planting

The sugar corns are all more or less tender in germ, hence will not stand as much cold and wet weather as Indian corn. It is important then that locations be selected where the soil warms up early and has natural drainage. On such soils in this latitude the early varieties can be planted with safety between April 20th and May 1.

Fertility

Sugar corn should be grown rapidly because: First, time is an important factor as to its value. Second, the faster and steadier it grows the more tender and succulent it will be and furthermore the yield will be greater. Therefore the question of fertilizers is important.

Sugar corn should always be planted on soils of good natural fertility. An application of composted animal manure broadcasted before plowing is of decided benefit except in cases where a clover or crimson clover sod is plowed down. In such instances the clover will take the place of manure.

Fertilizers

Some years ago in conducting experiments for the New Jersey Experiment Station, I had one on the different forms of nitrogenous materials for sugar corn. In that experiment I used nitrate of soda on one plot; sulphate of ammonia on another plot; dried blood on another; a combination of all three on another; the fifth plot being left without anything as a check. This experiment was run three times with practically the same results. The plot receiving nitrate of soda outyielded all others. The plot receiving sulphate of ammonia was a close second, the combination of soda and sulphate of ammonia and blood was third and the blood alone fourth. All plots were treated with an application of muriate of potash and acid phosphate broadcasted before harrowing.

What I want to show in this article is the most rational and economical method by which the grower can produce a maximum amount of crop at a minimum of expense for that costly element of fertility, nitrogen. Where this crop is planted on clover sod one application of nitrate can be disposed with but commonly speaking two applications of nitrate should be used, one of about 100 pounds per acre as soon as corn begins to grow and another when coming in tassel or possibly a little before. Watch the color of the blades. As long as they are a dark green and look as tho they were varnished, the grower is safe in waiting a while. But do not wait too long. When the ear begins to form the plant

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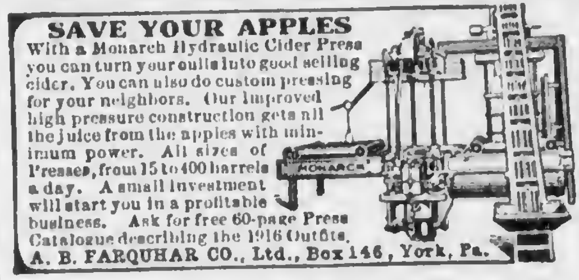
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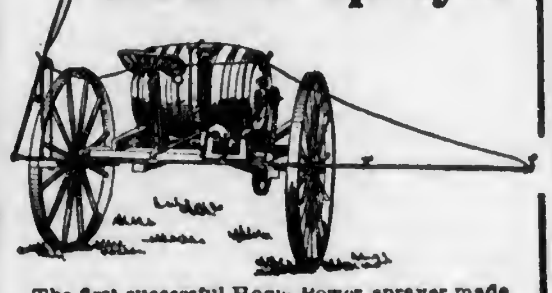

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Soy Beans Choice, clean high-germinating seed for sale at $2.50 per bushel. Wilson and Sable varieties, two of the very best for hay and grain. Order early as the demand is heavy.
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Strawberry Plants Sixteen varieties at $2.50 per 1000; descriptive catalog free. BASIL PERRY, Georgetown, Del

requires a considerable quantity of available nitrogen to help it make a nice green and good sized ear. This late application will materially increase the volume of the crop.

The writer has in mind an instance on his own farm where a poor knoll was treated with an extra application of nitrate when the corn was in silk just to see what the effect would be. While this knoll was the poorest part of that corn field at the time of making that application, and showed it decidedly by the color of the leaf, yet when it came to gathering the crop the odds were all in favor of the nitrate application. It could be seen to the very row. The ears were larger and greener and there were more of them; that is, practically everything that made a start finished in an ear of corn. There were no nubbins.

I have said practically nothing about cultivation. Any one who can grow field corn can grow sugar corn so far as mechanical work is concerned. One admonition is this: Don't plant too thickly. Four kernels to each hill, three and one-half feet apart is all that will stand for the early varieties, and the medium and late sorts should be four feet apart. The writer aims to produce seven to eight thousand ears per acre and we do it too, most of the time. Any one can do the same if they make up their mind to do it.—C. C. Hulsart, Monmouth Co., N. J.

Timely Fruit Notes

By Dr. J. P. Stewart

Aphis Control—Relation to Blight

''We have an old orchard of some 20 acres in apples, mostly York Imperial and Ben Davis. Have sprayed with lime-sulphur. The green aphis is very bad. Would spraying with a small portion of nicotine extract in lime-sulphur benefit the trees any? Have had considerable blight also. Perhaps the eradication of the aphis would help that. We would appreciate any advice or information on the subject.'' H. M., West Virginia.

Wherever the green aphis, or any of the others affecting the apple, become as abundant as here described, it is undoubtedly advisable to get after them as soon as possible. All present data indicate that the best time for controlling these insects is just as the buds are expanding, and that the best materials are lime-sulphur and nicotine extract, or nicotine extract and soap. Much benefit can yet be obtained, however, by proper spraying as late as the time of the appearance of pink in the blossoms, or even as late as the first codling spray.

Lime-sulphur can be used at a density of 1.03, which is the ordinary winter strength, at any time until the pink is showing distinctly in the blossoms, without any important injury either to trees or crop. In the later sprays, however, it should not be used stronger than 1.01, which is one-third of the winter strength. The nicotine solution is probably best applied at the rate of a pint or a pint and a half of the 40 percent solution in 100 gallons of spray material. It is well to try the lower rate first, and if it is not doing the work desired, then use the greater strength.

If soap is used in place of the lime-sulphur, it should be added at the rate of about 5 pounds to 100 gallons. Either fish oil soap, white laundry soap or their equivalents may be used. It is supposed that aphids have something to do with the transfer of blight, and hence their eradication should assist in reducing it. They also have been definitely reported to be the direct cause of most of the pitting or punky spotting that occurs especially in the York Imperial. Hence the importance of active measures against the aphids is evident, wherever this variety is involved.

Western Peaches, Loganberries, and Nectarines in the East

''I have a brother just back from California, who is very enthusiastic about the ''Strawberry peach'', ''Loganberries'' and ''Nectarines''. Will the three mentioned fruits do well in eastern Pennsylvania in the peach and apple belts about Pottstown? Do you know anything about the Strawbery peach? My brother described it as the best flavored peach he ever ate. I have a peach and apple orchard and would like to try out the above fruits, if practical for this location. The Loganberries are described as being fine served fresh or made into pies, being red fruit the size of cultivated blackberries. Any information will be appreciated. Have seen no nursery catalog listing the Strawberry peach.'' F. H. Y., Montgomery County, Pa.

In reply to the peach question, I would say that the Strawberry peach originated in New Jersey, and is considered very good in quality, but it has never attained any special prominence here in the East. It is only recommended for use in California and eastward to New Mexico. It is also recommended for trial in Colorado and Utah, but nowhere else, so far as our present data indicate. Its quality probably stands out simply in comparison with the average California peach, as judging from my own experience there, it was very difficult to find a peach that was really good to eat. We have many varieties here in the East that are known to do well and are also generally considered equal or better in quality than the Strawberry.

In regard to the Loganberry, would say that this fruit is a hybrid between a wild blackberry of California and the red Antwerp raspberry. It is considered a very excellent fruit over most of the Pacific coast, and is a very rank grower and producer there. It is not likely to gain much prominence here in the East, however, because of the fact that the canes are not sufficiently hardy. Zero weather will often kill them back to the ground. They therefore require winter protection, with straw or similar means, in order to survive in any regions where the weather reaches zero or lower.

Nectarines, as you doubtless know, are merely off-shoots of the peach, in which the fuzz is omitted on the skin of the fruit. They also have never attained much prominence in the East, altho there are several varieties that are partially recommended. Of those the Early Violet, Boston and Elruge are probably the best, and they are named in order of ripening.

GETTING MOST FROM THE GARDEN

The average amateur gardener is apt to be well satisfied if he succeeds in growing two crops of vegetables on the same ground in one season. Three crops would be looked upon as a distinct achievement, and four as being out of the range of probability. What, then, would he say to the assertion that five crops can be grown on the same ground in one season and that without the use of hot-bed or cold frame? Yet that is what we have accomplished several seasons when the weather of early spring was favorable. It can not be done every year, the late spring and early fall frosts sometimes upsetting calculations, but it is worth trying and will result in success more often than failure.

The last season we kept a record of planting dates, when the first vegetables were gathered, etc., and the

results were a surprise even to us. Planting operations began March 4th with Cincinnati Market radish and Crimson Globe beet sown together, in rows 18 inches apart. We had set aside a strip of garden five feet wide and 150 feet long for this experiment in intensive gardening. Three rows on the five-foot strip gave a total of 450 feet of row. Ample space was left on either side of the row for cultivation with a wheel hoe. Favored with warm, sunshiny weather the radishes germinated quickly and in a few days the plants were up sufficiently to mark the rows. With a weeder attachment on the wheel hoe the soil was stirred frequently to discourage the sprouting of weeds and keep the surface soil loose. The beet seed, which require much warmer weather to germinate, were slow in starting. It was three weeks before the plants broke thru the ground. For a while they grew fine; but a cold snap came early in April. Anticipating a freeze we set up boards on each side of the rows and stretched muslin over them. The freeze did not come but the temperature was low and the muslin probably saved the plants.

The first radishes were pulled the second week in April; long, crisp, tender roots that were delicious. With a supply that far exceeded our home needs we tied the surplus in bunches and offered them for sale to the village grocers. They offered the market price, 10 cents a dozen bunches, which seemed a very small price; but at the end of two weeks when most of the radishes had been used we checked up and found that the amount used, sold and given away was approximately 32 dozen bunches, worth at wholesale price over $3. The result was something of a surprise and we began figuring what the succeeding crops would yield. But paper profits usually ''pan out'' better than actual results, as we found out later.

The cabbage plants, Early Drumhead, had thrived in the kitchen window and when set out April 16th were strong and stocky. They were set in the two outside rows of beets, two feet apart in the row; beets being pulled up to make room for them. The muslin covering was used every night to guard against sudden cold. A freeze on April 23 and cool weather following retarded the growth of the beets, so it was the 25th of May when the first ones were pulled. They were small, perhaps an inch and a half in diameter, but smooth and tender, and we found ready sale for our surplus among the neighbors and at the grocers. As we wanted the ground cleared as quickly as possible the beets were all pulled while small.

As those next the cabbage were pulled, poultry manure was worked into the soil about the cabbage plant. In the middle row enough beets had been removed by the middle of June to make room for 24 hills of White Spine cucumber, spaced six feet apart. Twelve seeds were placed in each hill but only four strong plants were allowed to grow. The plants soon pushed thru the ground and at the same time the striped beetle made its appearance. We began by using arsenate of lead, also spraying the cabbage, which were heading nicely but suffering more or less from the depredations of the green cabbage worm. The arsenate of lead kept the worm well in check but was less successful against the striped beetle.

On July 7th a few fine, solid heads of cabbage were cut. Some plants failed to head up and these we fed to the poultry; but from the 150 plants we obtained 122 marketable heads. As sold at retail these would have been worth close to $10. The ravages of blight added to attacks of the striped beetle damaged the cucumber vines so badly that we pulled them up and burned them after they had been bearing for a few days, the net results from 24 hills being about 250 pickles worth 30 cents per 100.

Having the ground clear earlier than we anticipated we decided to try a late planting of bush beans instead of lettuce or spinach. After stirring the ground with the wheel hoe the beans, Round Pod Speckled Valentine, were planted August 20th. With favorable weather and frequent cultivation they grew rapidly until the cool weather of early October checked them. Coverings were placed over the vines every night to protect from possible frost, and this kept them growing until the last week in October, when a freeze killed them. A few beans were picked on October 22, and by the time the vines were killed we had gathered 3½ pecks. The freeze ended our experiment, the net result of which greatly pleased us, and also convinced us that with a little extra care and planning our gardens can be made to produce several times the amount of vegetables usually grown.—Nat. S. Green, Clearmont Co., O.

FIGHTING APPLE APHIS

Each year the apple growers experience much loss and difficulty from aphis. Last year in our orchard section of the Appalachian district, there was hardly an orchard coming under my observation in which the grower did not feel the loss from aphis injury. You can read many discussions in the various farm papers about the San Jose scale and codling moth, but scarcely any mention about aphis, since fruit growers have not been inclined to think of it as a serious enemy. Because little has been done to control this pest, on account of the growers' lack of interest, last year the fruit growers had larger losses from aphis than from the scale or codling moth.

These little insects not only sap vitality from the tree, but, from their ravenous work on the tender fruit buds, cause considerable damage to the fruit, since the apples effected with aphis are little knotty things which never develop to maturity. It is absolutely necessary for the fruit grower to pick these undeveloped apples from the tree during the early summer, because they take practically as much vitality and strength from the tree if left to remain as the large fancy apples. As an experiment last year we left check trees on different varieties of apples we grow, letting the aphis apples remain until picking time, and found that in every case where the aphis apples were allowed to remain on these check trees, the good apples were reduced in size.

Some varieties are more susceptible to injury than others. Our Grimes Golden seem to be their pet eating variety and were effected worse than any other variety in our orchards. However, no variety we have seems to be immune to them and the fruit grower will do well to use effective means to combat these pests if he would protect his trees.

Since aphids do there worst damage to a bearing orchard just at the time when the buds are developing and opening, up it is necessary to catch them just after they hatch and before they put their hard knocks in on the tender fruit buds. In spraying for aphids, therefore it must be done while the tree is in a dormant state. We have proven to our own satisfaction that lime and sulphur used while the tree is dormant gives only partial control of this insect, and we therefore use a 40 percent tobacco solution mixed with lime and sulphur at the rate of one pint to every one hundred gallons, making a complete spray for both aphids and scale.—J. Andrew Cohill, Washington Co., Md.

Top Dress your wheat

The Rural New-Yorker says: "This is a Season when top-dressing for the winter grain will pay good dividends. By 'top-dressing' we mean spreading a moderate quantity of soluble plant food over the grain fields. There are some seasons when the grain comes through the Winter in such shape that this top-dressing would hardly pay, but this year, the sudden cleanup of Winter reveals the need of a little stimulant to start the grain off quickly. Much of the wheat was late seeded last Fall, and did not have a good chance before Winter set in. Then came a season of cold weather with bare ground and then ice and snow. Now comes a quick thaw with a hot sun on the plants as they are uncovered. Add to this condition the fact that prices will be high, demand heavier than ever, and the total crop a little short, and we have every argument in favor of using available fertilizer this Spring. It will be impossible to obtain potash economically this year, *but nitrogen and phosphoric acid will pay now if they ever did.*"

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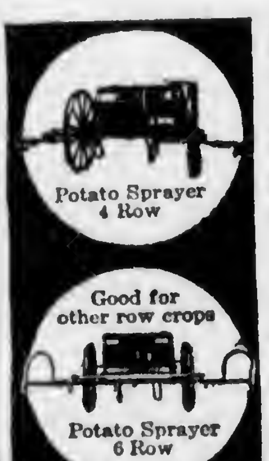

Make Potato Crop Safe

THE 1915 crop was short nearly sixty million bushels, in spite of a much larger acreage. A large part of the loss was due to blight which proper spraying would have prevented. Properly sprayed crops are always safe and always yield better because of the spraying, sometimes enough to pay for the machine first year in increased profits.

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Potato sprayers are made in four and six row sizes, 55 or 100 gallons, double or single acting pumps. Easy to get at packing and valves. High pressure. Tank, wheels and frame are wood. Can't corrode. Wind shift and nozzle strainers with each machine.

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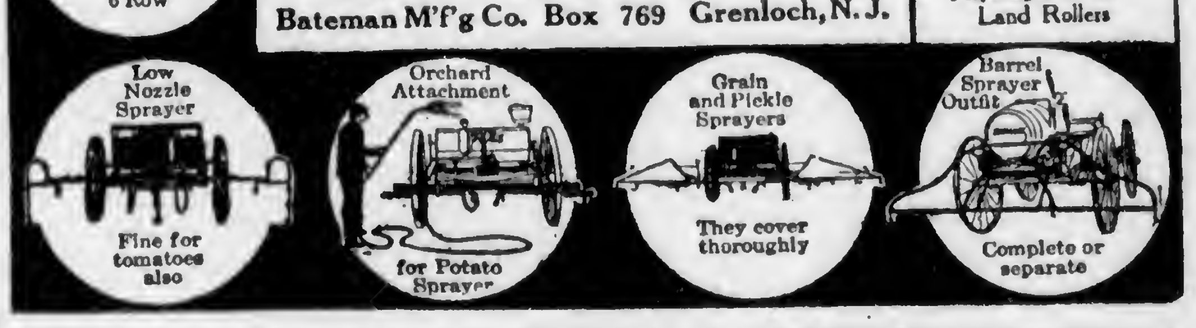

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Philadelphia, Pa., May 6, 1916.

DAIRY CONFERENCE

A conference of representatives of all the dairy interests of the country will be held at the Raleigh Hotel, Washington, D. C., May 5 and 6. The conference is called by the National Dairy Union and the National Dairy Council and the program will present discussion of all phases of regulations governing production and care of dairy products. The widely varying and often contradictory requirements of the departments of health of various cities make such a conference most timely. The newspaper agitation of various phases of dairy production are so frequently misleading and unfair to the dairy industry that there is need of taking these matters up in national bodies in open conferences.

GOOD SEED

The late spring means a rush of work later. That means that time will be money when the rush is on; not only time of labor but time of getting crops started. Good clean seed, true to name, free from weeds and foul matter, and strong in vitality are always an insurance against delay and poor stands. A late season always demands extra attention to seeds. There will be less time for replanting and replanting that must be done will have a shorter season for maturity. The value of testing seed corn has been well demonstrated by experience of practical farmers. Every farmer knows he ought to test corn. This year his loss will be greater than in normal years if he does not make sure that his seeds will grow as soon as put into the ground.

GRADING UP THE HERD

The question in breeding presented by the Montgomery County dairyman on page 10 of this issue, describes a discouraging feature in grading up a herd. The case is an unusual one, but one likely to happen with any class of live stock. It attracts attention because it is unusual. We breed scrub stock and are satisfied to take scrub products because we expect nothing better. We may get a really good animal and are mildly surprised at the result. If we get a particularly poor animal, we accept it as a matter of course. But when we breed purebreds or even a scrub to a purebred, we expect improvement. If we get it, as we usually do, we accept that animal as a matter of course. But if we are disappointed in a single instance we are inclined to question the theory as well as the practice of pure breeding. A single exception neither makes nor breaks a rule, and such a case as described in this instance should not shake confidence in the law of breeding. We must accept these laws as they are: Not infallible but the surest means to steady and permanent improvement.

THE SISAL MONOPOLY

The Senate committee on agriculture in its investigation of causes of increased prices of sisal has found what it terms as a new kind of monopoly. The testimony before the committee is reported to show that American financiers combined with an organization of Yucatan planters to monopolize the sisal crop, under the sanction of the military government of Mexico. This combination, as soon as control was gained, began to raise prices and are still raising them, until the increased cost to farmers of this country is estimated at over $3,000,000 for the coming harvest. The monopoly presents a new problem for our legislators in that it was organized in a foreign country even tho it is apparently financed with American capital and will derive its profits from American farmers. The Federal Trade Commission has been asked to supervise the marketing of the present sisal crop and secure equitable treatment for manufacturers, but actual control or remedy will require new legislation or a revision of our anti-trust laws. It seems likely that such a trust is out of reach of control unless it can be gained thru the local capitalists said to be financially interested. The Mexicans appear to have adopted an American principle in business organization, and our farmers are certain to be the unfortunate victims for one season at least, and much longer unless a substitute material is developed.

MILK PRICES

Already is heard the complaint by farmers that the price of milk is below the cost of production. This year the protest begins earlier than usual and there are good reasons for it. First, because the cost of production is unusually high, and secondly the cry of ''surplus'', and the reduction of price comes earlier. Many local and spasmodic efforts have been made by farmers to insure stable and paying prices. These have taken the form of boycotts, demands and ''combines'', but all to no purpose. They have been threatened with prosecution under the Sherman Anti-Trust law; some members of organizations have been inveigled into personal and special agreements, thus breaking mutual agreements with fellow farmers to stand together. But whatever the cause of failure the result has always been the same—dealers fix the prices without regard to the cost of production or the welfare of the farmer. The one supreme interest in his direction is that he produce more milk. Federal and state governments lend every encouragement to this end, and to this end alone. The big dealers employ experts to go among farmers and teach gratuitously methods of increasing the output. City ordinances and boards of health are making closer restrictions and exacting more costly methods of production. Two things have gone on all the time. Efforts to increase the surplus, and increase in the cost of production. As long as farmers fall for all these plans, and the individual dreams that he can succeed by producing more milk at less cost than his neighbor does, there is no help. This idea is as ruinous as would be an unlimited price-cutting campaign among manufacturers or merchants. If, as we are told, the price of farm commodities is fixed by the law of supply and demand, then one of two things must be done, either increase the demand, or reduce the supply. Since farmers cannot do the former, there is only the one thing left. Get together and let the government and dealers' ''experts'' know that you are not interested in the question of increasing production just now. Turn your attention to the unit-cost of production, and away from quantity for the time being.

NATIONAL CHAMBER OF AGRICULTURE

Announcement is made of the creation of a National Chamber of Agriculture, with headquarters at Washington. It is understood that this Chamber will assume the duties of dealing with subjects of agricultural finance, production, distribution and organization; also absorb the work of the United States agricultural commission appointed by President Wilson. It is reported that an effort will be made to secure a law providing for the federal organization of the new body. This chamber is to be purely official, representative of governmental functions affecting agriculture and closely allied with administrative affairs Such a body will no doubt facilitate the work of the various commissions and serve a worthy purpose. But a national chamber much more needed at this time is one organized and maintained by farmers themselves. Agriculture is practically the only nation-wide industry or interest that does not maintain permanent headquarters at the national capital. Other industries have elaborate equipment and personal representatives always on the ground, not only to seek representation in legislative affairs, but to act as a clearing house for news and information of value to the industry they represent. Agriculture needs just such headquarters for similar purposes. The National Grange, The Farmers' Congress, the American Society of Equity, together with such bodies as the National Dairy Union and similar trade organizations have interests sufficiently broad to warrant the establishment and permanent support of such headquarters with ample equipment. These bodies are now working for the same or similar purposes. They are similar in composition but they have no common meeting ground and all are too far from the work they are attempting to do. A national headquarters would combine all forces in a common cause. This is not the kind of a National Chamber that has just been organized, but it is the kind that ought to be; and the farmers should take the initiative in its establishment.

RURAL CREDITS

Are the people of this country ready for the adoption of a national rural credit system? The subject has been the most popular and widely discussed of any proposed rural legislation since our free delivery system was adopted. This wide spread interest would seem to be an evidence of the need of a credit system. Yet the loudest demands come from sources that can not agree upon the form that such legislation should assume. We believe that a safe and efficient system of personal and land credit is needed in this country for the broadest development of our agricultural resources. And we do not agree that the development of such systems is objectionable as class legislation. A system to meet the broadest needs could not be framed primarily for the farmer as an individual or for the farmers as a class, but for the development and complete utilization of the country's agricultural lands in the production of food products for all people of all classes. There can never be a thoroly safe credit system based upon the special class idea. The greatest need from an economic point of view is a personal credit system that will enable that class of men well suited by training and personal qualifications to operate farms to secure a sufficient loan to enable them to establish themselves in business; also a land credit system that will enable those farmers who have demonstrated their ability and capacity on small farms to enlarge their holdings and their operations. Such assistance to these two classes is not individual privilege or class privilege if properly safe guarded, but a step toward the building up of our agricultural industry where it is now weak. This we believe is the only logical excuse for rural credit legislation, and it has not been reached in any of the bills yet proposed. There is no crystalized sentiment in favor of any one plan as yet. The bills now before Congress have not inspired a definite or general demand either for or against. We believe that it would be better to postpone action than to force a system upon the people before they are ready for it. There is still room for the development of the building and loan association principle in farm communities.

AGRICULTURAL DEPARTMENTS

These are stormy times for state departments of agriculture. Farmers are apparently awakening to the fact that their particular division of the state government needs to be brought closer to the actual needs and conditions of the producers; that a mere cog in a state organization maintained and operated by politics will not do; that politics in the make-up and administration of their department is a drag on progress and a hindrance to good government of agricultural affairs. Ohio reorganized its department of agriculture during the past year. Pennsylvania made an effort to take its department out of politics. The effort met the attacks of the politicians and lost its teeth in the scuffle. New York considered a similar measure in the session of legislature just closed, but there the politicians appear to have succeeded in suppressing it before it got well started. New Jersey came thru with the most ambitious and thoroly reorganizing reorganization bill of any of the eastern states. It required a stiff fight in which the governor and his friends were subjected to the humiliation of having the law passed over his veto. But the farmers won and have a law providing for a real farmers' department. The new State Board of Agriculture is to be elected by representatives of the various agricultural organizations of the state in convention to be held May 17. This Board will elect a Secretary of the Department of Agriculture who in turn will be the actual head of the Department, making his appointments and administering the affairs of the Department by and with the advice of the State Board. There is no place for politics in this plan. The Secretary is under no obligations to political party or party officials. He answers only to the Board which in turn answers only to the representatives of the farmers of the state thru their organizations. New Jersey may be expected to have a real Agricultural Department under this plan. It may well be called the Farmers' Department. Pennsylvania farmers will watch the operation of this plan with interest. We do not believe that farmers of this state are satisfied with the strangulated reorganization of last year. They will come back next year.

HARRISBURG NOTES

Board of Agriculture Meeting.—Late this month representatives of the State Department of Agriculture and affiliated branches will gather at Reading for the annual spring ''round-up'', and a series of addresses on pertinent topics is to be presented. In view of the attention given to agriculture in the addresses of the governor it is possible that this conference may have considerable bearing upon next winter's legislative program. The conference program will contain some speeches on roads, soil conservation, marketing, sanitation and the like and the sense of the meeting will probably indicate what the people in the rural districts have said they desire. This spring conference can be made of much more influence than has been the case in the past if the opportunity is seized right after the primary elections are held.

Government and Politics. — It has been some years since the State Capitol has been treated to as much mingling of politics and administration as at present. The last three administrations were in politics, but nothing as compared with the present. It must be admitted, however, that the state government has not been much upset by the absenteeism of officials from the governor down and things have not been dislocated the way one might expect. Thus far only one or two departments have put politics to the front, but if there are orders given out to line up for the governor, or the example of the auditor general's department in raising contributions for delegate campaigns for department heads there will be plenty to talk about on the Hill. This campaign is not going to be any Sunday school parade.

Necessity Makes Good Again.—Judging from what has been heard here the cutting off of the foreign supply of potash and the inability of American manufacturers to meet the demand for fertilizer ingredients to which farmers have been accustomed has been having excellent results. Farmers have found good supplies of substitutes at home and have been developing them to an extent which would not have been likely for years to come solely because of the disturbance in Europe. Numerous letters have been received telling that farmers have concreted barn yards and are utilizing manure and that lime kilns which were abandoned, marl pits and other places which were used in the early days are being called upon. More lime is being used now, according to the reports to the Capitol, than known for a long time and the Pennsylvania farmer may find that between himself and his manufacturing brother things may be better off in the end.

Road Administration. — Death of Highway Commissioner Robert J. Cunningham, who gave an example of energetic attention to duty during the year he administered the State Highway department, has demonstrated the effectiveness of the organization he built up and the work is going right ahead this week just as it did last. The situation is not likely to change owing to the system in vogue until a new commissioner is named, and then it will change according to the will of the man named. It is reported that the governor plans to make an early appointment. Commissioner Cunningham attracted state wide attention by his declaration to his subordinates that they should attend to roads and leave politics alone.

Poultry Bureau Next.—It is believed to be part of the plans of people connected with the state to have the next legislature authorize the creation of a bureau devoted to poultry interests along lines of that devoted to live stock. The State Live Stock Sanitary board has authority in some respects regarding poultry and it would not be difficult to enlarge its scope. Efforts to put thru $25,000 items for such a bureau met with disaster at the hands of governors in recent years. It is also reported that a bureau of soil conservation is to be urged. The success of the bureau of statistics is to be used as an indication of what can be done by more bureaus.

Plans for Corn Show.—The general plans for the corn and apple show to be held next January on the occasion of the meeting of the legislature and the various agricultural bodies are being worked out by Secretary of Agiculture Patton. In a general way it may be said that there will be classification which will take care not only of winners at the county fairs and similar exhibitions this summer and fall, but also encourage individuals and corn clubs. The apples will be kept in cold storage after exhibitions are ended.

Bankers Helping. — Substantial aid from bankers in the encouragement of various lines of agriculture is reported as being extended in some counties where keen business men are finding chances to build up at home. A number of corn clubs have been backed by men who handle money and it is said that instances have come to notice at the Capitol wherein bankers have agreed to either donate money toward experiments or to give liberal accomodations for raising of crops and live stock. The State Commission of Agriculture recently held a meeting with some Philadelphia bankers and will meet others in a plan to obtain greater interest in farming and its branches. The position taken here is that agricultural expansion is now at the point where closer co-operation between the farmer and the business man must come.

Milk Rates Again.—The complaints about the rates charged by the railroads for hauling milk are again to the front and the Public Service commission, which recently settled those in the western half of the state, has now to wrestle with those in the section of Pennsylvania east of the Mountains. The Interstate Commerce Commission is also discussing the problem and the chances are that when it acts the state commission will do something and things will be put on a basis that will remove sources of complaint.—Hamilton, Harrisburg, May 1.

NEW JERSEY FARM NOTES

Forest Fire Suits.—Actions have been brought by Harry S. Davis, Ambrose M. Gordon and Alfred C. Ernst against the New York Telephone Company to recover compensation for property in Sayreville and Madison Townships alleged to have been destroyed by forest fires. The cases are being tried in the Circuit Court at New Brunswick. The persons mentioned aver that their properties were destroyed or damaged by fires kindled in the woods by employes of the defendant company April 20, 1915. The property involves timber on several tracts of lands situated in the townships mentioned.

Game Law Changes.—This is the first time in 22 years that decided changes have not been made in the fish and game laws by the legislature. In fact, the records show that less bills were introduced and fewer passed than ever in the history of fish and game legislation. Of the 29 bills introduced, 5 in the Senate and 24 in the House of Assembly, only 7 were made laws. In addition to the seven news laws, a joint resolution was passed creating a committee to revise and codify the fish and game laws. One of the most important bills passed was one that makes it unlawful for any intoxicated person to enter the woods or fields with a gun of any description. Many complaints have been made of intoxicated hunters in the woods and several fatalities have been traced to men in this condition.

The Primary Vote. — Returns from every section of New Jersey for the presidential primary election, held during the past week, show that the Democratic voters unanimously endorsed President Wilson as the party's nominee for President in 1916; that the Republican ''regulars'' favor Theodore Roosevelt by a vote of two to one over Justice Hughes as the Republican nominee for President, and that the ''slates'' of the Republican and Democratic organizations for delegates-at-large and district delegates and alternates to the national political conventions were elected in all but one district, the Ninth, where a Roosevelt Republican nosed out one of the regular Republican and anti-Roosevelt candidates for district delegate. Thruout the state about 15 percent of the total vote was polled.

War Against Mosquitoes.—The Mosquito Commission of Passaic County filed its budget with the clerk of the county board of freeholders during the past week. Instead of asking for $30,000 as they intended, they asked for only $15,000. This, it is explained, will barely cover expenses but the commissioners expect to make it reach. In the letter accompanying the budget Jacob B. Lipman, dean and director of the New Jersey Experiment Station, explains that the commission intends to work as carefully and economically as possible. The $15,000 is $500 less than they received last year, and is the smallest amount with which even a limited amount of work can be accomplished. They will cover as much territory as possible, examining every two weeks during breeding season.

To Visit Truckers.—Wm. H. Hamilton, assistant Farm Demonstrator of Mercer County, and Roscoe W. DeBaun, Vegetable Garden Specialist of the N. J. Experiment Station, will visit the truck demonstrations during the coming week. They will also visit many truck growers who have experienced difficulty in securing onions from seed because of damage due to root maggots. —L.

NEW YORK LETTER

National Agricultural Society.—Another ''new thing under the sun'' came into existence in New York City on April 27, to be known as the National Agricultural Society. Hon. James Wilson, formerly secretary of Agriculture, was chosen president and Theodore N. Vail, vice-president. The purpose of the organization is to improve agricultural conditions thruout the country. It will be non-partisan and will work for such improvements as uniform agricultural laws, rural credit, improved methods of marketing and distribution, and for legislation affecting the conservation of our agricultural resources. A few names will give the reader an idea of the character of the men who make up the society's directorate. John A. Spoor, of the Union Stock yards of Chicago; R. V. Lindabury, president of the North Jersey Agricultural society; Gov. Henry V. Stewart, of Virginia; Chas. A. Otis, of Cleveland; N. H. Gentry, of Missouri; Peter Jansen, of Nebraska; J. J. Hill, W. K. Vanderbilt, William DuPont, Mortimer Schiff, W. Averill Harriman and many others. G. Howard Davidson, of New York, is chairman of the executive committee and P. C. Long is secretary. Later on the headquarters of the society will be established in Washington but at present they are at 2 West 45th St., New York City.

Kill 200 Deer.—The chief state game protector of this state will kill 200 deer on Shelter Island, L. I. That decree has gone forth. Farmers have been complaining of the depredations of the deer and their injury to crops so the game protector (?) with 20 deputies and others will corral the animals somewhere and butcher them all and their carcasses will go to the state hospital for food. The deer are not native to the Island but some years ago deer were brought to the estate of S. M. Smith and some escaped and their progeny have been living wild on the Island. Many have urged that the deer be captured and taken to the forest preserves but the suggestion has not met with the approval of the state conservation commission as it is physically impossible, they say, to transfer the animals so far.

Holstein Breeders in Convention.—The quarterly meeting of the Southwestern New York Holstein Breeders' association was held at Kennedy on April 22. It was decided to hold several summer meetings at different places beginning in June. The question of pasteurization of skimmilk and whey was discussed and it was voted to press to a successful issue in the next legislature a bill making pasteurization compulsory. Such a bill failed to pass the last legislature. A resolution was also adopted expressing the sentiment of the association in favor of any investigation of the dairy business that would tend to steady public confidence in the business and condemning the activities of the oleo men against the strictly dairy interests. It was the sense of the convention that there should be no lowering of the qualifications for veterinary practice. Mr. C. M. Dow gave an interesting address on his trip to Cuba and Central America.

Chautauqua Milk Producers Organize. —Chautauqua county will soon have its full quota of farmers' organizations. The last one is the Milk Producers' Association which begins business with about 130 members. This number will be increased to 200 before long. W. B. Enos is president; Herbert Hart secretary and Herbert Buss, treasurer. The object of the association is to get better prices for milk and to promote the interests of the industry in every way possible.

Some New Laws.—Gov. Whitman is getting rid of his 30-day bills and among others has given his approval of the following: Prohibiting the driving or use of disabled horses which cannot be worked without violating the law against cruelty to animals; extending the action of the lien law to the service of bulls the same as to that of stallions; requiring that stallions that stand for public service shall be registered with the commissioner of agriculture; placing the Saratoga Reservation under the jurisdiction of the state conservation commission and appropriating $152,000 for the maintenance and improvement of the reservation.—D.

MAKING AN ARTESIAN WELL PUMP ITSELF

The field men of the United States Geological Survey, in their investigations of the ground-water resources of the Virginia Coastal Plain, have observed that the flows from many artesian wells in that region are utilized to drive hydralic rams for the purpose of lifting the water to higher levels. Along the lower courses of the Potomac and Rappahannock and along the shores of the many inlets that run back from Chesapeake Bay above the James there are hundreds of artesian wells that supply a perennial flow of beautifully clear water which is, as a rule, excellently adapted to all domestic uses and is largely utilized by the canning factories and other industrial establishments that abound in that part of the country. Tho the pressure of the water from the wells is ample at the shore level, the head diminishes so quickly with increase in elevation that no flow can be obtained along the higher banks above the shores where the water is most needed. One method of obtaining it at these higher levels is to use the force developed by the artesian flow to operate hydraulic rams, which in turn raise the water to the heights desired along the bluffs above the river and inlets. Thus it may be said that the artesian wells pump themselves. Many small streams and farm springs may be utilized in exactly the same way, supplying water to farm buildings.

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The Dairy

A DAIRY QUESTION

In 1912 I bred a heifer (black and white) to a stunted mongrel black and white bull. On March 15, 1913, she dropped a very small black and white heifer. Since the calf was so small I raised it, giving it cow's milk for four weeks. Then I gradually weaned it to a gruel of oat meal and wheat middlings, giving it whole oats as soon as it would eat them. The dam was tested for butter fat at intervals of two months. During her first lactation period she tested from 3.8 to 4.4 percent butter fat.

In May, 1913, this dam was bred to a registered Holstein-Friesian sire, some of whose ancestors have A. R. O. records. One is credited with 20.78 lbs. butter at 10 years of age for 7 days and another with 30.64 lbs. butter for 7 days. The sire is from the fourth generation of dams with records. On January 22, 1914, my cow gave birth to a second calf. This was raised by same method as calf No. 1, but fed more freely on whole oats, wheat bran and middlings with some gluten and roots.

Now, calf No. 1 became a cow on March 3, 1915. The quarantine for foot and mouth disease being in force then, the calf was not marketed until eight weeks old, when it weighed 197 lbs. This cow gave 4,825 lbs. of milk, testing 3.6 to 4 percent butter fat in first lactation period. Her highest daily production of milk was 28 lbs.

Calf No. 2 became a cow October 22, 1915. Her calf was marketed at nine weeks of age, weighing 180 lbs. But imagine my surprise when testing her for butter fat to find that she was testing as low as 2.5 percent. Her average so far is 2.8. Her highest daily milk production is 27 lbs. Here is a summary: Mongrel calf No. 1, from cow No. 1, giving 28 lbs. milk daily, testing 3.6 to 4 percent; grade calf, No. 2 giving 27 lbs. milk daily testing 2.5 to 3 percent. Why this? Calf No. 1, cow No. 1, no concern about breeding. Calf No. 2, cow No. 2, a registered sire. Both from the same dam (they being her first and second calves).

Agricultural colleges say, grade up your herd. This is grading down. Am thinking of selling No. 2 when she freshens in September or turning her to beef then. Would like to see this discussed in the Pennsylvania Farmer. Can furnish amount of feed consumed since January 1, and also amount of milk produced.—J. Franklin Fretz, Bucks County, Pa.

Note.—This experience presents a phase of live stock breeding that is difficult to explain and is most discouraging to the man who attempts to breed up his herd. We believe the case an exceptional one, but one that may be duplicated at any time. The theory that like produces like is borne out in practice regularly enough to become a law in breeding, but it is by no means infallible. The progeny should be, and in the majority of cases is, like its immediate parents or their nearest ancestors. But occasionally the progeny may revert back or "throw back" to the characteristics of a more distant ancestor.

In the above example, the young heifer from the scrub cow and scrub bull is undoubtedly a better animal than the half sister from the registered sire. The first heifer may be better because of qualities inherited from some ancestor back of either the sire or the dam. In the same way the poorer cow may show the poor qualities of an ancestor similarly removed from either parent. Following the laws of breeding, the second heifer, altho a poorer producer in herself, should and probably would, produce a better calf if bred to a good purebred sire than the first heifer who in herself is the better producer. It is only by continued breeding within the blood of a single breed, that these "reversions" are avoided. That is why purebred stock, while not all better producers or better individuals, is more likely to run true to a standard than is scrub stock.

A point to be considered in all breeding work, however, is that all purebred animals are not good breeders simply because they are of pure breeding. The dam as well as the sire should be selected according to the records of her ancestory. That is what makes the pedigree valuable, and particularly the pedigrees of dairy animals showing the production records of the ancestors. In this particular case the sire's pedigree would seem to have been most encouraging. The question is whether the second heifer inherited her poor qualities from the dam or the sire. We would say, more likely from the dam. We shall be glad to hear from readers of experience on this case.—The Editors.

VARIATIONS IN THE CREAM TEST

One of the most common causes of dissatisfaction on the part of the man who sells cream on the butter fat basis, rises from variations in the test. This is especially true if each can is tested separately, and the best way for the seller to convince himself that the tester is neither careless nor dishonest is to secure a little outfit for himself. A well made, accurate, and satisfactory tester can now be bought for five dollars, and its use will not only satisfy the seller that he is getting honest treatment but will enable him to detect the boarders in his herd. The general interest in this subject is compelling the Missouri Experiment Station to reprint a circular for general distribution, but a little discussion of the principal causes of variation in this briefer form may assist many farmers.

Speed of Separator.—A change in the speed of the separator immediately causes a change in the tests of the cream. The higher the speed, the greater the amount of skim-milk thrown out, and so the higher the test of the cream secured. Putting it in another way, a low speed results in a larger quantity of thinner cream.

Rate of Inflow.—The use of the float does not always insure a uniform flow of milk into the separator, because the faucet may not always be opened equally wide and the flow will be more rapid when the tank is full than when it is nearly empty. Anything which makes the inflow more rapid will increase the proportion of skimmilk which goes thru, and lower the test of the cream secured.

Flushing the Bowl.—The amount of water used in flushing may easily be varied a pint or more and this without any other cause or variation may change the test by 2, 3 or even 4 or 5 percent.

Variations in the Milk Itself.—The milk of an entire herd may rise or fall in its test from day to day because of excitement or change in the weather. If the milk of a herd, whose average test is 4 percent, is ordinarily so separated that the cream tests 40 percent fat, the test will suddenly rise to 42.5 percent if the milk of the herd is suddenly raised to 4.25 percent without any change in method of separating.

Cream Screw.—The test is, of course, readily controlled by means of the cream screw, but as it is seldom changed in this way, on the average farm, there should be no trouble because of variation from this source.

Feed of the Cow. — Variations in cream tests are practically never caused by changes in the feed of the cow, as every well-informed cream seller is now aware.

Mistakes and Dishonesty.—Mistakes are most likely to result from carelessness in taking samples, as they must be very carefully and skillfully taken if they are to tell the truth and result in a fair payment, but actual dishonesty is probably much more rare than many sellers believe. A clever thief would manipulate the reported test in such a way as not to arouse the suspicion that an honest report sometimes brings up in the mind of the man who does not consider all the possible hidden causes of variation.—Prof. C. H. Eckles, in Mo. Circular.

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There is an occasional farmer and dairyman who still talks of the experiment of feeding silage. With the great majority, however, the silo has long since passed the experimental stage and has established itself as a necessary part of the equipment of the dairy farm. The two silos shown on this page are but two of seven similar silos on the Glen Gable Farms, Chester Co., Pa. Each of the seven silos is 32 by 14 feet, holding approximately 100 tons each. Mr. Gable declares that he greatly prefers a number of moderate sized silos to one or two very large ones.

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NATIONAL DAIRY SHOW

The National Dairy Show being held this year in Springfield, Mass., upon the grounds of the Eastern States Agricultural and Industrial Exposition Association, is an event of national moment.

A group of energetic bankers, manufacturers, merchants and professional men of New England have for two years been leading up to a great agricultural movement for their section of the country. This movement culminated a year ago in the organization of the Eastern States Agricultural and Industrial Exposition Association, and as the group of men forming this Association, having agreed among themselves that dairying seemed to offer the best mode of procedure with which to resuscitate agriculture, they came to the National Dairy Show for help, and urged the directors so strongly to come to their aid that it was decided to hold the 1916 Show in the buildings upon the grounds of the Eastern Association. There is possibly an impression that there was a combination of interest between the National Dairy Show and the Exposition Association. This is the point we want to set square in every man's mind: The National Dairy Show Association, with headquarters in Chicago, will hold its own show this year under its own management, at Springfield, Mass., to start off the great work which the men of New England have undertaken for agriculture. Each year thereafter the New England men will go forward with a big Exposition of their own, under their own management, on their own grounds.—W. E. Skinner, Gen. Manager.

SILAGE AS CALF FEED

Too great emphasis cannot be placed upon the proper attention to the early feeding of the young calf. The young animal should receive whole milk from the pail the first 8 to 15 days after it is weaned, when a gradual change to skim-milk or milk substitute is advisable. When this change is made and perhaps a little earlier the calf should be offered a small amount of grain and some good, bright, clean hay.

The Pennsylvania College of Agriculture is using the following grain ration with good results: Eight pounds of blood meal, 100 pounds corn meal, 100 pounds oats, 100 pounds wheat bran, 50 pounds linseed meal. Ten pound of skim-milk is allowed the calf in the beginning and that amount is gradually increased up to 20 pounds.

The college supplements its grain ration with silage. The grain is fed at the rate of two-tenths pound twice daily, to start with. This amount is increased until the calf receives about one pound twice daily at the age of 8 to 12 weeks. About the same amount of hay or whatever the cow will clean up is usually fed. The silage is fed at the rate of two tenths pounds twice daily at first.

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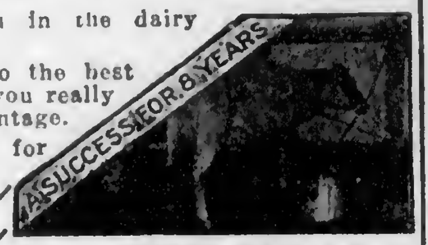

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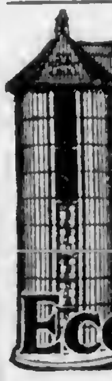

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Have four pure blood bull calves for sale from persistent Dams whose records are:

	Milk 1 yr.	7 day A. R. O. Butter Record	Price.
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Delivered any R. R. Station in Penna Sires two nearest Dams average 30.22. No Tuberculosis. No Abortion

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⅞ grade Holstein heifer calves 10 days old, $10 to 15. Express paid in lots of 5 to your station. Buy them shipped in warm light crates without danger of exposure. Now is the time to buy and start them on low priced milk and watch them grow into money. Just as nice individuals as registered ones. Remarkable bargains in grade and registered bull calves.

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Spot Farm Holsteins $15.00 ⅞Holstein heifer calves $15 each, express paid in lots of 5. 9 reg. 2 yr. old heifers $135 ea. 9-2 year olds bred to 31 lb bull due in Sept. $175 ea. 12 reg. heifer calves will be sold cheap Reg. bulls $25 to $60 ea. 2 carloads of 1 & 2 yr. old heifers $35 ea. for the lot. Reg. and high grade cows and reg. Berkshire pigs

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Pure Bred Holstein Friesian bull born Feb. 21st, 1916. Dam is a 20-lb. cow strong in Paul De Kol blood. Sire is a 30-lb. son of Pontiac Korndyke, in fact he derives 75 percent of his blood from this sire.

STEVENS BROTHERS CO. Liverpool, N. Y.

Guernsey Bull for sale. Delza's Governor, by Imp. Raymond's Governor, 22003, owned by the President of the American Guernsey Cattle Club; dam by Reiberts Golden Noble, 16143. Ready for service. Extra good individual. Also 3 good grade Guernsey heifers. CHAS. A. GROFF, Creamery, Mont. Co., Pa.

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Registered bulls 1 and 2 months old, $30 and up. Grade heifer and bull calves from 2 weeks to 1 month old, $10 to $15. J. A. LEACH, - - Cortland, N. Y.

Holstein Herd of 20 head of the highest grade Holsteins. Each cow has a complete cow testing association record. Registered Pure Bred Bull calves for sale at all times. PLUMLYN FARM, Fairview Village, Pa. near Norristown

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Registered Holstein and Guernsey bulls from calves to serviceable age. 250 animals in the herd. BONNYMEADS FARMS, R. D. 1, Harrisburg, Pa.

This amount is increased gradually until the calf is eight to twelve weeks old, when it receives from one and one-half pounds of silage twice daily or such an amount as it will clean up.

THE ANNUAL GUERNSEY GATHERINGS

The annual meeting of The American Guernsey Cattle Club will be held at the Hotel Imperial, New York City, on May 10th. Aside from the executive and business session to be held Wednesday, May 10th, at 10.30 A. M., there will be gatherings on Tuesday, May 9th. At 3 P. M., there will be a meeting of the New York State Guernsey Breeders' Association. At this time announcement will be made of the winners of the trophies offered by that association in the Advanced Register work. Breeders should notify Wm. H. Caldwell, Secretary, Peterboro, N. H., of their intention to be present at these meetings. On Thursday, following the annual meeting, there will be the large sale of Guernseys at Florham Farms, Madison, N. J., twenty miles from the Hotel.

K. P. CLORINDA, DAM OF KING SEGIS PONTIAC CLORINDA, OWNED BY AURAY FARMS, SUSSEX COUNTY, N. J.

BITTER MILK

Milk is especially likely to be bitter in the spring, but this trouble may appear at any time. It is almost sure to result from (1) eating the last remaining weeds in closely grazed pastures, (2) bad health of the cow, or (3) the growth of bacteria in milk. The cure in each case consists in finding and removing the cause and suggestions for doing this are made by the Missouri College of Agriculture.

If the milk becomes bitter after standing it is not the cow's fault, but results from the growth of bacteria brought in by particles of dirt or manure or left in improperly cleaned vessels. If the milk of all the cows in the herd is bitter when drawn the feed is probably at fault, and the bitter taste will probably disappear if the cows are kept in a lot where they cannot get at weeds. This will give the pastures a better chance to get a good start. If only one or a few of the cows give bitter milk it is probably because they are in bad health or going dry, and their milk should be kept away from the rest so that it will not spoil the whole milking.

PREVENT WHITE SCOURS IN CALVES

White scours is a germ disease, hence its suppression lies in the prevention of infection. The Pennsylvania Experiment Station outlines the following suggestions for the prevention of this disease.

The cow should be permitted to drop her calf upon a clean bed of straw in a thoroly disinfected stall. Immediately after birth of the calf, the umbilical cord should be soaked in a 2 percent solution of some standard dip. A wide-mouthed vessel will be the most convenient for the solution as it may be held close to the body and the cord folded down into the solution.

To prevent contamination the cord should not be touched with the fingers. After soaking, both the cord and an area three inches in diameter surrounding it should be painted with iodine, by means of a small piece of absorbent cotton. A drying powder of equal parts boric acid, powdered alum and flowers of sulphur should then be dusted on the cord twice daily until it has dried off. The powder should be applied with a dusting can.

Additional precautions include the rinsing of the cow's udder with a dip solution, to destroy germs on these parts before the calf is suckled, and the thoro cleaning of the stable, including disinfection of the walls and floors. If the calf is very valuable, dairymen are advised to inject a serum prepared from a number of organisms found in calves with white scours, as a preventive. This should be done as soon as the calf is dropped.

KEEP MILK SWEET

The approaching warm weather will make it necessary for dairymen and housewives to take extra precautions to prevent loss thru souring of milk and cream. As milk is an ideal food for both babies and bacteria, it frequently happens that in warm weather the bacteria are the first to enjoy this delicate food. Tho the acid developed in the milk during souring is not harmful to the health of adults, it is injurious to infants, and distasteful to many older people, and will surely cause dairymen to lose money.

The problem of keeping milk sweet is best solved by removing the causes. Since dirt is loaded with bacteria, first keep both dirt and bacteria out of the milk, by using a small-top milk pail, by keeping pails, cans, strainers, and other milk utensils clean, and by keeping cows free from dirt and filth. This can be cheaply and efficiently done by thoroly washing the utensils with hot water as soon after using as possible and setting them in a clean protected place to drain until used, by brushing the cows daily and preventing them from becoming dirty, by using plenty of bedding, and by keeping the barnyard clean.

Since bacteria will not sour milk unless they grow in it, prevent their growth by cooling the milk as soon as produced and keeping it cool until delivered. The best of dairymen cannot furnish milk so free from bacteria that it will not sour if left for hours in a warm place. Both dairymen and housewives will do well to remember that cleanliness and low temperatures (50 degrees Fahrenheit) will prevent this loss.

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Registered A. R. O. Holstein Bull

CALF, born January 30, 1916, more white than black. Average A. R. O. record of dam, sire's dam and sire's granddam, 7 days, 537.3 lb milk, 26.28 lb butter; 30 days, 2,354.3 lb milk, 105.9 lb butter; semi-official, 1 year, 19,991.9 lb. milk, 953.52 lb. butter; average fat per cent for the year, 3.8 percent. First check for $125 takes him. Catalogue for stamp.

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Garden Spot Guernseys

Two heifers 5 months old, dams producing 375 lbs. butterfat a year, sired by our herd sire who carries 50 percent Langwater Dorothy Blood, record 781 lbs. butterfat. LOCUST LAWN FARM, Bird-in-Hand, Box 2, Lancaster Co., Pa.

Aurav Farms Offer a few Registered Holstein Bull Calves by their well known sire, King Segis Pontiac Clorinde, and bred from full list of A. R. O. dams, at Dairy Farmers' prices — $75; $100; etc. Delivered safely by express. Write your wants — will send pedigree, particulars and make best offer. IRVING M. AVERY, Sparta, N. J.

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Holsteins Improve your herd. The Bull is half. Superior Holstein bull calves of excellent ancestry offered at attractive prices. IDEAL FARM, Conyngham, Penna.

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CELEBRATED MERIDALE JERSEYS Exceptional lot of youngsters now available. Write for detailed information. Ayer & McKinney, 300 Chestnut St., Phila.

Ayrshire Bull Calves from heifers whose dams and sire are A. R. stock. R. TEMPLETON & SON, Ulster, Pa

Jersey Calves both sexes. Fine stock, of the most noted pedigrees in the world. FRED G. W. RUNK, Allentown, Pa.

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FARMERS' ORGANIZATIONS

Among the Granges

Harford Co., Md. — Harford Co. Pomona Grange held their regular quarterly meeting at Jarrettsville, Saturday, April 15, with a very large attendance and interest shown speak well for it to be one of the leading Pomona Granges in the State. The meeting was called to order by Master D. G. Harry and after that the reading of the minutes of the last meeting and hearing the reports of the different committees.

State Lecturer Reuben Brigham was introduced and gave a very interesting address on "The Advantage of the Pomona Grange", telling some of the advantages derived in Montgomery County, Md.

A very delightful lunch was then served by the ladies of the Jarrettsville Grange and a real sociable time was indulged in until 2 o'clock when the meeting was reconvened. The resolution committee offered resolutions favoring the use of the King Road drag on dirt roads. After some discussion in which it was shown the advantage of using the drag on roads after a rain, and illustrating some of the roads so worked, a committee of three from each grange represented was appointed to have the roads in their immediate vicinity dragged at the proper time, having assurance that the County Commissioner would pay for same. Also a resolution favoring a plan whereby the price of milk could be raised. It was pointed out that while concentrated feed and labor had increased, in some cases almost double, the price of milk to the farmer remained the same. A committee from each grange was appointed to form a plan.

The literary program was then rendered as follows: Music by the Grange; paper by D. G. Harry, "Organization and Co-operation;" paper by a member of the Forest Hill Grange, "The Advantages of Legumes;" a recitation by Stewart Day, "Columbus;" a paper by Mrs. Edgar Cairnes, "Keeping the Girl on the Farm;" paper by W. S. Walker,

Indiana Co., Pa. — Pomona Grange met with Purchase Line Grange on March 24 and 25. The usual custom was changed and the open meeting was held on Friday evening, and the business sessions on Saturday.

Indiana county voted resolutions against any increase in the weight of parcels post packages, and one in favor of the bill prohibiting the manufacture and sale of alcoholic liquors in the United States.

We had with us Rev. Geo. W. Hatch, of Clearfield County, who gave us a lecture entitled, Landmarks. Bro. Hatch's address was highly appreciated, as was also his talk on the Aims and Objects of the grange which made outsiders sit up and take notice. The speaker's great interest and activity in the grange, and the fact that he is a popular and successful minister of the gospel, made him a strong candidate for Chaplain of the State Grange at the last election. He owns a beautiful little farm along the Susquehanna and enjoys nothing better than rolling up his sleeves and doing more than a man's work in the fields.

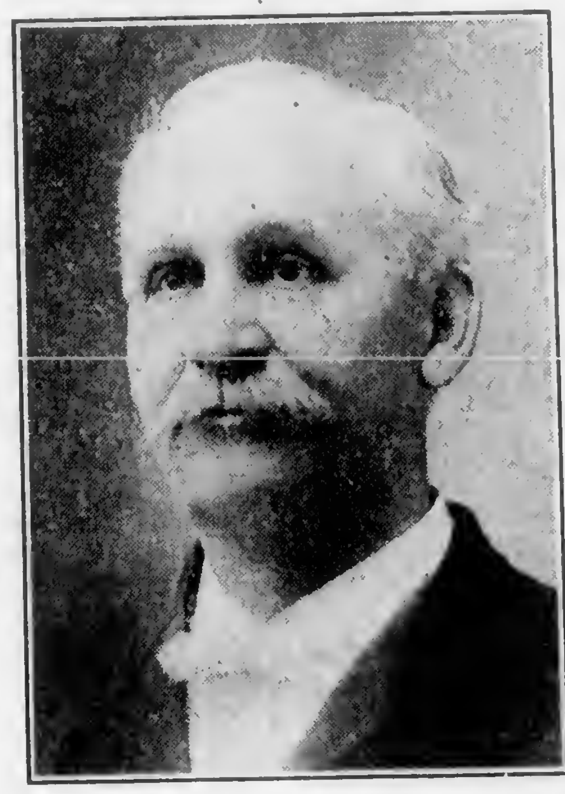
"DO YOUR SCHOOLS SUIT YOU"

The above question is being answered in various ways. I would like to relate a pleasant change that has taken place in our district the past year. Our district is about 4 miles from the county seat and was selected as one of the demonstration places for the work of our science teacher of the Farm Life school.

The county agent organized an agricultural club, consisting of the members of the corn club, the pig, the poultry and the tomato club members, to which he gives valuable instruction each visit. Miss Mather, the domestic science teacher, organized a sewing class of 22 members and taught them the very things they will need in later life—instruction that would have cost considerable if secured from a private source. The county demonstrator, however, would not rest content until he secured many of the fathers and mothers of the district to meet at the school every other Friday afternoon in a community betterment club. He first brought a fireless cooker along and the next time he built one for a member so that all might see how it was done and construct one for themselves. Then he arranged a pruning demonstration in the orchard of one of the members which was well attended. A member was heard to remark: "I learned today just what I wanted to know about pruning and just why it is done that way. Heretofore I simply pruned by guess, now I see my mistake."

At another time the meeting of our club was devoted to the discussion of "Sanitation in General and the Fly in Particular." Much interest was manifest in hearing all that could be done to avoid the spreading of typhoid. Mr. Mask then arranged a Saturday for the boys to meet him at the school house and he assisted them in making a dozen large fly traps so as to catch thousands of flies outside the house, while the fly is on the way from the barn to the house, so to speak. We have used such an outside fly trap for two seasons and would no longer be without one. Flies are quickly caught by the hundred thousands. I bait this trap with milk poured over small pieces of light bread, and add a few drops of molasses. The flies pass up into the box trap thru the funnel and then forget where they entered. After a few days they perish. A small opening is made in the side of the box to empty the dead flies every 5 or 6 days.

I believe the public school can be made of much greater service to the community than it has been made use of during the past, if all the people will only show an active community spirit and try to make the community in which they live the best one in the whole county.—Mrs. P. C. Henry, Catawba Co., N. C.



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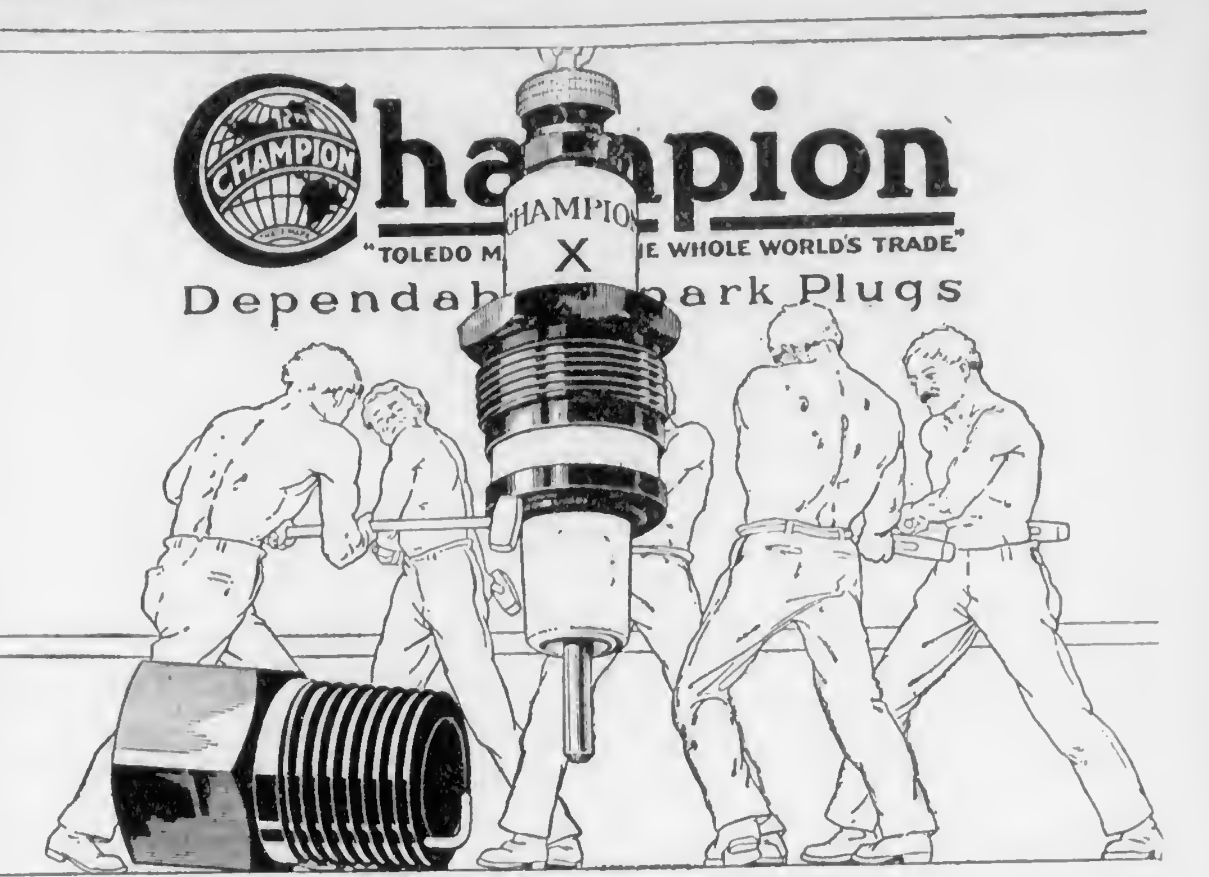

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And the Porcelain Doesn't Break

The rapid succession of explosions in your cylinders beat upon the porcelain insulators of your spark plugs like the blows of a trip hammer.

Champion "X" porcelains are double cushioned against breakage.

At both shoulders of the porcelain there is an asbestos cushioned copper gasket to ease the force of the explosions and absolutely hold the compression in your cylinders.

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Remember to specify Champion "X" when you go to your dealer for new plugs for your Ford.

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The Farquhar principle of separation has stood the test of nearly fifty years' service. 1916 Thresher Catalogue, telling the complete story of our success, mailed free to grain growers on request. Write today.

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If you want to take advantage of my special 90-day proposition and buy Galloway Spreaders, Cream Separators or Gasoline Engines at the lowest prices they've ever been offered you must act quickly. 30 days are all you have left. May 31st is positively the last day. I repeat the offer briefly. For a limited time—until May 31st—I am making a special proposition to the first ten or more men in each township, as a special advertising proposition.

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10,000 GALLOWAY MANURE SPREADERS

$64.75 UP

I have also included my New No. 8 LOW DOWN Manure Spreader in this 90-day offer. Even at the regular price this spreader is WORTH $65 MORE than any other spreader made on account of these special patented features, exclusive on Galloway. All-steel beater and V-rake; positive roller feed; patented automatic push board; double chain drive; cut-under front trucks and pressed steel unbreakable tongue. It has no equal at any price. Order one on trial.

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GLOVES OVERALL UNIFORMS AND PANTS.
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1 Pair Indigo Blue Carhartt Farmer Overalls $1.50
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1 Vest Pocket Memorandum Book .... .05
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Write today enclosing **$2** and your leg and waist measurements for all sizes up to and including 42 inch waist measure. For larger waist measure add 10c for each additional two inches.

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White Turkeys; Emden Ganders, Colored Muscovy, Pekin and Mallard Ducks, Barred Rock and Hamburg Cockerels send for prices B. F Kahler Hughesville, Pa

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Poultry

POULTRY YARD GATES

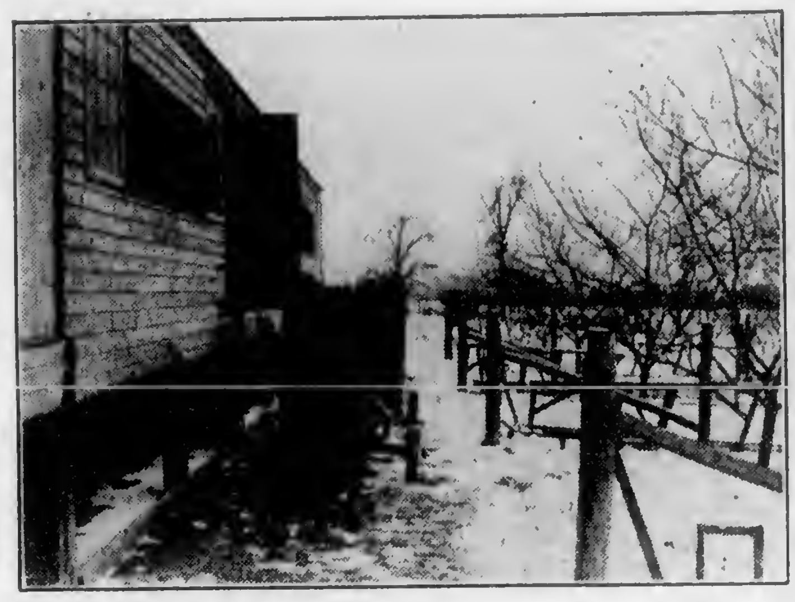
Hinged gates in the poultry yard, especially those of a size to allow a team to enter, are always a source of trouble owing to the necessity of having them fit close to the ground to prevent the fowls from crawling under.

One poultry plant found the best way out of the difficulty was to make large lift-out panels instead of the usual hinged gate. These were cheaper to build and as they were only opened once a month when cleaning the houses or cultivating the yards, there was no objection to the little extra work of opening them.

The panels were built ten feet long and as high as the fence, usually five feet. Two ten foot lengths and four five foot lengths of two by three stuff were used in constructing each gate. The ten foot pieces formed the top and bottom, while the short pieces were used for uprights. The two end uprights were placed four inches in from the ends of the top and bottom lengths, thus leaving a four-inch extension top and bottom at each end of the gate. Those extensions were made to fit into notches on the posts. The other two uprights were placed in the center with a two-foot space between them. In this space was placed a small hinged gate to give access to the yards without removing the large gates, following the same idea as the small door in the large barn doors. The frame was then covered with the poultry fencing.

In the case of continuous houses the gates were set at the front of the house so that when removed an unobstructed road would be had for a team to pass along the front of the house to remove the dirty litter. It was also found a good plan to place one of these gates in the end of each yard and in the case of ten-foot wide yards the whole end fence was made one panel.

Cultivation of the yards was thus made quite easy. for by removing both the end panels and those at the front of the house, a plow team could be driven up one yard, turned thru the gate at the house and down the next yard. Even in the case of small brooder yards five feet wide, with the fence arranged in this manner, the cultivating was done with one horse using a small plow and then a cultivator.—J. Raymond Kessler, Chester Co., Pa.



GATES REMOVED TO PERMIT PASSAGE OF WAGON.

DUCKS FOR MARKET

The number of commercial duck farms in the country is increasing somewhat, it is said, but the production of ducks on general farms is decreasing, especially in the Middle West. The last census reports show that ducks were kept on only 7.9 percent of the farms in the country. The demand for ducks' eggs is more limited than for hens' eggs, and the demand for table ducks at good prices is, to a great extent, confined to the large cities and is not nearly as general as the demand for chickens or fowls. For this reason it is advisable to study the market conditions before making any large investment in ducks.

On the other hand, in a new publication of the department, Farmers' Bulletin 697, it is said that intensive duck farming on a large scale has been more successful than intensive chicken raising. The Pekin ducks which are kept extensively by commercial growers are less subject to disease than chickens, and artificial methods of hatching and rearing have been used very successfully with them. On general farms ducks can be raised with success and at a profit, tho as a source of income they do not appear to be as well adapted to average farm conditions as fowls. Hitherto farmers have rarely given the necessary care to the feeding and marketing of their ducklings to secure any large share of the trade in fancy green ducks.

It is this trade which attracts the commercial duck farmer. A green duck is a duckling which is grown rapidly and marketed when from 8 to 12 weeks old, weighing at that time from 4½ to 6 pounds. This rapid growth is made possible by an abundance of care and good feeding. The highest prices are paid early in the spring, but, as has already been said, the demand is chiefly from the large cities in the East and on the Pacific coast. As a matter of fact, many farmers market their ducks in the fall at a lower price per bird than green ducks bring in the spring.

The Pekin breed of duck is kept almost exclusively by producers of green ducks. It is estimated that the cost of raising a 10-weeks-old Pekin duck is from 5 to 6 cents a pound. In the wholesale market, when marketed from April to November, they bring between 12 and 30 cents a pound. The cost of picking them is placed at from 5 to 6 cents each, but this is practically covered by the value of the feathers, which bring from 40 to 50 cents a pound when cured. Each duck yields about 2 ounces of marketable feathers.

Ducks may be fed on the rations recommended for fowl and chickens, but better results are usually secured by feeding more green and vegetable feeds and a larger proportion of mash. Ducklings do not need feed until they are from 24 to 36 hours old. After this they should be fed for the first week five times a day; after that, four times a day until they are 2 or 3 weeks old, and thereafter three times daily until they are marketed. The first ration should consist of a mixture which contains equal parts by measure of rolled oats and bread crumbs, with 3 percent of sharp sand mixed in the feed. When about 3 days old, this feed is changed to equal parts of bread, rolled oats, bran and corn meal. After the first week the ration should be changed again to three parts of bran, one part each of low-grade wheat flour and corn meal, 10 percent of green feed, and 5 percent of beef scrap, with about 3 percent of sand or grit. The amount of beef scrap is gradually increased until it reaches 15 percent by the end of the third week. The proportion of corn meal is increased for the ducklings to be marketed and the bran decreased as the time for marketing the ducklings approaches.

The fattening ration, which should be consists of 3 parts, by weight, of corn meal, 2 parts of low-grade flour or middlings, 1 part of bran, ½ part of beef scrap, used for two weeks before killing, con- 10 percent green feed, and 3 percent grit. This mash is fed three times daily. The green feed is sometimes left out of the ration during the last week of fattening, as it tends to color the meat, but it is easier to keep the ducklings in good feeding condition if it is included. Boiled fish is sometimes used in place of the beef scrap, but this should be discontinued two weeks before the ducklings are killed, in order not to impart a fishy taste. Where milk is available at a sufficiently low price, the rations recommended for milk-fattened chickens would produce a well-bleached milk-fed green duck. Celery seed is also used, as this is said to flavor the flesh.

For the general farmer who is more interested in obtaining eggs than in producing green ducks for the market, the Indian Runner is a good breed. This duck holds the same relative position in the duck family that the Leghorn does in the chicken family. It lays a good-sized white egg, considerably larger than a hen's egg, and is declared to be a small eater, a good forager, and hardy

At the present time the keeping of ducks for eggs is an industry which appears to be growing more rapidly in the South than elsewhere. A good demand for these eggs exists at Easter time, when the prices are usually several cents a dozen higher than for hens' eggs, but during the balance of the year the average price for the two has been about the same Recently, however, the introduction of the Indian Runner has helped in building up a trade in first-class ducks' eggs. These eggs should be marketed frequently, as they depreciate in quality more rapidly than hen's eggs. The possibilities of securing a market, moreover, should be carefully investigated, for it is only in certain places that good prices can be secured for fancy ducks' eggs.

On commercial duck farms most of the hatching is done in incubators, for the Pekin and Indian Runner rarely sit. On farms where no incubator is available, the eggs are usually hatched under hens. The period of incubation is a week longer than that of hens' eggs, and, for this reason, the hen must be well cared for. While ducks are easier to brood artificially than chickens, they may also be successfully raised under hens. In the latter case it is better to confine the hens and to allow the ducklings free range. Birds that are intended for sale as green ducks, however, are not usually allowed much range, but are fed heavily and forced for rapid growth. The brooders and brooding systems used for chickens give good results in rearing ducklings, altho the latter do not require as high a temperature.—D. N. L.

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HATCHING AND BROODING CHICKS

The reports from people who have a knowledge of hatching chicks are that eggs in general are very fertile for this time of year and the hatches are good.

So many persons do not know that eggs kept over a week or ten days do not hatch as well in an incubator as fresh ones and they should be kept in a cool place of even temperature, not a warm room, and if kept ten days should be turned once every day, the same as when in the machine.

Eggs 3 or 4 weeks old will hatch under a hen but this is natural while the incubator is artificial and we must make allowance for this in hatching. Moisture must be supplied in some form to produce a good, big, healthy chick. Chicks should not be fed for at least 48 hours after hatched as the yolk of the egg is not absorbed by the chick and furnishes sufficient nourishment for a week for a newly hatched chick. It is more essential to furnish heat for a newly hatched chick the first week than to feed it and this heat should be about the temperature at which the chick was produced in the incubator, 100 to 103 degrees. Chicks that are hovered over this temperature can get away from the heat but when you try to raise them with a lack of heat in cold weather they get chilled and contract diarrhea which kills them by the thousand every season.

With the proper temperature, chicks from good eggs layed by healthy stock can be raised without diarrhea; yet many persons do not give any water the first 10 days, only sour milk to drink and such milk as you would take yourself—that is, clean milk that has soured naturally and this fed in clean drinking dishes or fountains and these scalded and cleaned daily.

A little chick requires clean feed and drink the same as a person.

For diarrhea, some people boil sweet milk and when cool drop a few drops of laudanum in it. Others cover with black pepper and give it to the chick. Some people boil rice in milk and feed this; also grated white potato, raw.

Now take your choice of the remedies, but keep your chicks warm during cold days. Be sure your chick feed is made from grains that are not mouldy and spoiled and if commercial chick feed is bought be sure it is fresh and not left over from last season as this old stock is poisonous and sure death to little chicks.

Plenty of green feed in the shape of tender new grass, sprouted oats or wheat all cut fine is very important to balance the ration for brooder chicks.

There is no economy in trying to grow chicks on poor, cheap feeds as the percentage of loss is far greater than the amount saved in the feed bill. Endeavor to have your brooder chicks run out on the earth after they are two weeks old as this contact with mother earth is the best of medicine for them and helps to make them strong on their legs. We so often hear people complain about their little chicks having rheumatism and can't walk. This is often blamed on the damp ground but we more often find this trouble with brooder chicks that are kept on board floors.

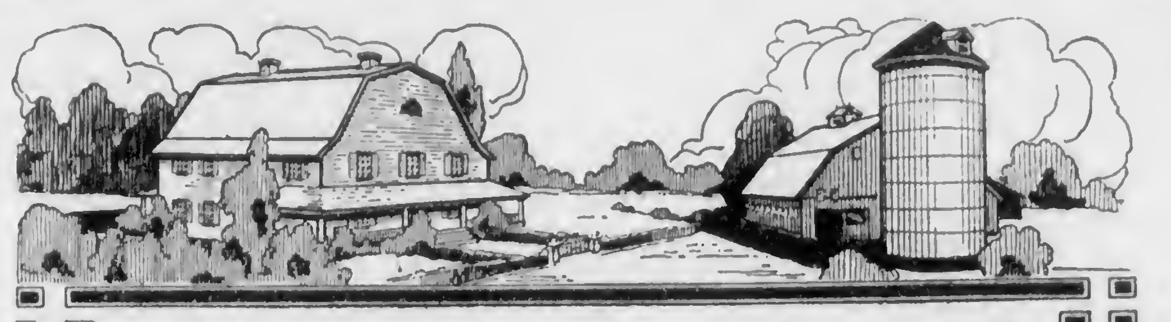
This is not the disease so often mentioned, but the common chick disease —leg weakness. This is caused by being fed a feed that is too high in protein, mostly too much beef scrap or milk and beef which is too much for a chick as it causes his body to grow too heavy for his legs and he is obliged to go down. Milk is the best of feed for chicks but don't feed other feeds high in protein when feeding milk, especially animal feeds as the milk is sufficient.

To remedy this leg weakness cut out the feed for several days and give them only bran and very little grain and plenty of water and green feed.

In this case you remove the cause and get the remedy. We will give our feed mixture for chicks in some future issue of this paper.—Frank Kline, Chester Co., Pa.

QUARANTINING NEW STOCK

When new stock arrives it is advisable to keep the birds in a pen to themselves for ten days or two weeks. The birds may have been all right when shipped, but there is no telling what disease they may have contracted on the way. Besides, the birds will likely be nervous, poor and run-down, and they need rest to get back in shape again.



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Household

COOKING VEGETABLES

Next in importance to having fresh vegetables from the garden is the knowledge of cooking them. A large amount of mineral salts, as well as the characteristic flavor, is often lost thru wrong ways of cooking. And since at this season vegetables in storage have lost a considerable part of their water, which makes them crisp and good flavored, it is well to know that this can be remedied to a large extent by soaking them in cold water (with the skins on) to plump them up.

Since the main purpose of crisp, tender vegetables in the diet is to stimulate the appetite and get all their mineral salts, they should often be eaten raw. They will be much more crisp and tender if freshened in cold water after being pulled from the garden.

From the standpoint of cooking, vegetables may be divided into three classes: The sweet juiced, as green peas, beans and young carrots; the strong juiced, as onions, cabbage and turnips; and the starchy, as potatoes. Vegetables of the first class are best prepared for the table thru stewing; that is, by placing in a stew-pan or kettle and adding only enough water to prevent their cooking dry, along with a bit of salt and butter. Any liquid remaining in the pan at the end of the cooking process should be served with the vegetable, preferably in a white sauce. Thus, all the nutrients are saved for eating. Slow, gentle cooking, with the stew-pan covered, will retain the desirable flavor and give the vegetable a much nicer appearance than will be given by rapid cooking.

Strong juiced vegetables are usually better boiled, rather than stewed; that is, cooked briskly in a large amount of boiling salted water. Flavor of the strong juiced vegetables is usually improved by blanching or parboiling. This consists of boiling the vegetables rapidly 5 to 20 minutes in salted water, at the end of which operation the boiling water is poured off and replaced with fresh water, and seasoning of salt and butter added. Boiling is continued in this water until the vegetables are tender. Very tough or fibrous vegetables will cook more quickly if a pinch of soda is added to the water during the blanching. Brisk boiling, with the kettle uncovered, from start to finish will eliminate strong flavors and give the vegetables a much nicer appearance thruout when cooked.

Starchy vegetables need no blanching or parboiling. If potatoes are started in boiling salted water and kept at a gentle boil until the operation is finished, the starch will become more thoroly cooked thruout the potatoes, giving them a white mealy appearance. Boiling water should be poured off as soon as the cooking is finished, the pan or kettle placed on the stove for a few moments to drive off the surplus moisture and thus prevent the potatoes from becoming soggy.

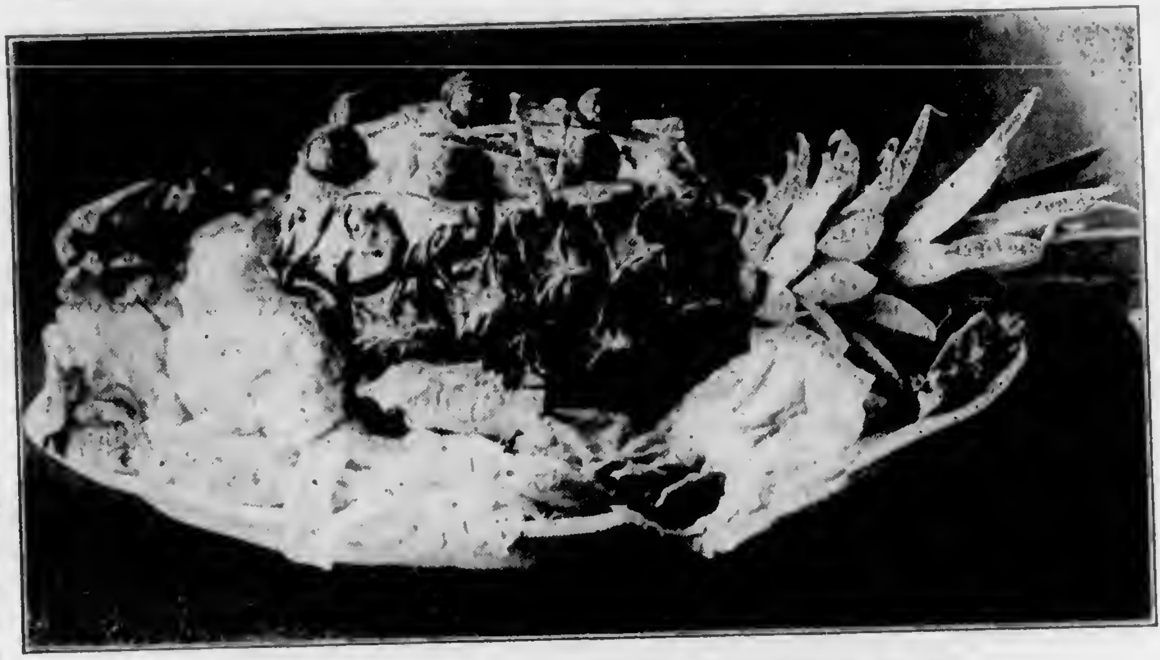
Baking and steaming are methods which should be used occasionally with vegetables. In baking, all nutritive materials are conserved and the flavor is unimpaired. Potatoes, sweet potatoes, winter squash and often beets, parsnips, onions, dried beans and peas may be baked to advantage.

In steaming, less nutritive materials are lost than in boiling, the fibers are separated, and the vegetables are made very tender. Steamed vegetables have less flavor than those which are baked. Cabbage, cauliflower, summer squash and pumpkin are more satisfactory if steamed instead of baked.

The time required for cooking various kinds of vegetables depends upon their size and quality. The larger the vegetable or the more fibrous the texture, the more time will be needed to cook them thoroly. Testing may be done at times during the cooking process by gently sticking one of the large vegetables with a sharp fork. The following table will be found useful, altho one must learn from practice the actual time required to boil, bake, or stew the various sizes of the various kinds of vegetables:

Stewed Vegetables	
New Cabbage	15 to 20 min.
Tender sweet corn	15 to 20 min.
Spinach	15 to 20 min.
Asparagus (tender)	20 to 25 min.
Peas	20 to 25 min.
Tomatoes	20 to 25 min.
Boiled Vegetables	
Potatoes, average size	30 min.
Summer squash	30 min.
Young beets	45 min.
Young carrots	45 min.
Young parsnips	45 min.
Onions	45 min.
String beans (young)	1 hr.
Shell beans	1 hr.
Cauliflower	1 hr.
Young turnips	1 hr.
Old beets	2 hr
Old carrots	2 hr
Old turnips	2 hr
Baked Vegetables	
Potatoes	45 to 60 min.
Sweet potatoes	45 to 60 min.
Winter squash	45 to 60 min.
Dried beans	6 hr.
Dried peas	6 hr.
Steamed Vegetables	
Cabbage	45 min.
Cauliflower	45 min.
Potatoes	45 min.
Summer squash	45 min.

All vegetables should be cooked immediately after being gathered from the garden to be at their best. In case they must be kept after being gathered, they should be spread on the floor of a cool, well ventilated cellar. Lettuce, spinach and other leafy vegetables will keep best if sprinkled with cold water, placed in a tin pail and covered. All vegetables which have become wilted from exposure or thru improper storage will freshen and resume their original shape and appearance if placed in cold water (with skins on) for several hours. Since vegetables containing a large amount of sugar, as sweet corn and peas, lose their sweetness when allowed to wilt, they should go direct from the garden to the kettle on the stove.—Mrs. E. L. Kirkpatrick, Tompkins Co., N. Y.



THE WAY MRS. McCABE SERVES PINEAPPLE SALAD.

PINEAPPLE SALAD

Cut a small piece from the side of a pineapple, then with silver fork shred out the inside of the pineapple, leaving the outside whole. Dice one large eating apple and mix with the pineapple pulp. Marinate thoroly with a good mayonnaise dressing, then replace in the pineapple shell, and place on ice until ready to serve. Garnish with small strips of red apple peeling and Maraschino cherries, and serve on a bed of lettuce.—Mrs. Minnie McCabe, Baltimore Co., Md.

DANDELIONS AND OTHER "GREENS"

Among the earliest green growths available are the tender young dandelions. They are valuable as a spring tonic chiefly because of their iron content, and they are relished by nearly everyone when properly cooked. There are several ways of serving them in appetizing forms. They should always be thoroly washed to remove all dirt and sand, after being carefully looked over and all poor leaves, seed-stalks, etc., removed. The large "fat" buds and freshly opened blossoms add considerable to the bulk and medicinal value of the dish and should not be rejected. Have the water boiling and well salted, 1 tablespoonful salt to a large-sized pot, when the greens are put on to cook, let boil rapidly until tender, having only enough water to cover them.

Other wild plants used as "greens" are mustard, purslane or "pusley", pigweed, cowslips, horseradish, etc.; the latter makes rather a lean dish unless combined with some of the more succulent sorts. A few young and tender leaves of rhubarb or "pieplant" added to the mess of greens gives a sprightly and delicious flavor. (But do not use many or you will get an excess of oxalic acid, the chief acid of rhubarb. —Editor.) Greens may be had all summer by growing spinach, Swiss chard, beets, etc., to come into use after the wild growth has passed its tenderness. If you have more lettuce than is wanted for salad, add it to the greens; also the large leaves too tough for the salad, for they are tender and delicate when cooked.

Plain Boiled Greens.—Boil the greens rapidly in a small quantity of water, well salted. When done, drain well, chop fine, add butter, salt and pepper to suit the taste; a tablespoonful or two of cream is a great improvement. Return to the fire until thoroly hot, and serve at once.

Dandelion Soup. — Boil, drain and chop the dandelions quite fine. Melt 1 tablespoonful of butter in a double boiler, stir in 1 tablespoonful of flour until smooth, add gradually 1 quart of hot milk, the minced dandelions, and salt and pepper to taste. Simmer 15 minutes.

Grandmother's Greens. — Pick over carefully and wash the greens, boil until tender in a small quantity of water (a little soda added to the water in which they are boiled will preserve the color of greens) drain well, cut thru and thru with a sharp knife, or chop coarsely. Into 1 tablespoonful of hot butter stir 1 of flour until smooth, add salt and pepper, ¼ cupful vinegar, and hotwater to make 1 pint. Pour over the greens, stir well and serve hot.

Beet Greens.—Beets are usually sowed thicker than they are to stand, and the extra ones thinned out and used for greens, cooking both leaves and young tender roots. Boil in salted water until the roots are done, drain, cut coarsely with a sharp knife, season with butter and serve with vinegar or lemon juice, whichever is preferable.

Turkish Stew.—In Turkey, purslane or "pusley" that is such a pest with us is cultivated in their gardens, and is cooked in this way: After carefully looking over and washing, ½ peck of it is put into a sauce pan with a little cold water, and cooked 30 minutes, or until tender. Meantime cut 3 or 4 onions into dice and brown in a frying pan with a little olive oil, add this to the cooked purslane, let cook 5 minutes longer, add salt and pepper to taste, and serve hot at the beginning of dinner instead of soup.

Wilted Dandelions.—Beat 1 egg until light, add ½ cup cream and stir over the fire until it thickens, then add a small piece of butter, 2 tablespoonfuls of vinegar, salt and pepper. Wash very young and tender dandelion leaves and cut rather coarsely, pour the hot dressing over them and stir over the fire until they are wilted and tender.

Dandelion Salad.—Select the tenderest leaves of young dandelions, wash well and drain, and lay them on ice to crisp, then put into a salad bowl, dress with salt, pepper, oil and lemon juice, and garnish with hard-boiled eggs.

Dandelion and Watercress Salad. — Take equal quantities of tender young dandelion leaves and watercress, wash, drain and cut fine, add a little salt, and dress thoroly with a cream or oil dressing.

Dandelion and Pepper Salad.—Wash and drain very young and tender leaves of dandelion, and lay them on ice for an hour of so to crisp. Also crisp some tiny radishes and sweet green peppers. When ready to serve place the dandelions in a salad bowl, slice over them very thinly the radishes and seeded green peppers, and serve with French dressing.

Dandelion Sandwiches. — Cut thin slices of bread (whole wheat bread is best), spread with butter, then with mayonnaise salad dressing, cover with very young, tender and crisp dandelion leaves, and press two slices together. The leaves may be minced if so preferred.

Egg Dressing for Greens.—A good dressing for boiled greens is made by rubbing the yolks of several hard-boiled eggs until smooth, adding 2 tablespoonfuls of cream, salt and pepper to season, then beating in gradually 1 small cupful of vinegar, and continuing to beat until the mixture is smooth and of the consistency of thick cream. Serve with the hot boiled dandelions.

SOUTHERN GINGERBREAD

The combination of gingerbread with a flavored whipped cream dressing proved to be one of the most popular desserts at a certain college dormitory in the east last summer. Here is the way it was made:

Ingredients.—I cup molasses, ½ cup butter or ¼ cup lard and ¼ cup butter, 1 teaspoon powdered ginger, ½ teaspoon powdered cloves, 2 teaspoons powdered cinnamon, ½ teaspoon powdered allspice, 2 teaspoons baking soda, 3 cups flour, 2 eggs, 1 cup boiling water, 1 teaspoon baking powder. All measurements level.

Method.—Beat the butter and sugar to a cream, stir in spices, beat thoroly. Then add the molasses and the hot water, to which the soda has been added. Add the flour and the baking powder and lastly the well beaten eggs. Turn into a greased and floured tin and bake in a moderate oven until it shrinks from the sides of the pan. Divide the gingerbread into blocks while

warm and serve with a whipped cream dressing. — Miriam M. Haynes, Colo. Agricultural College.

CHICKEN FAT

Often after cooking chicken there is more fat than one wishes to use in gravies. If this is skimmed off and used while fresh and sweet it makes a good substitute for butter in cake-making. Where the chicken fat is used a small amount of salt should be added.—Charlotte E. Carpenter, Colorado Agricultural College.

The majority of students in Pennsylvania State College Home Economics Courses are preparing to teach. They are doing some rural work about the college by going into farm homes and teaching cooking and sewing. Tested recipes are neatly written out on cards, taken to the homes, and the dishes are there prepared and served.—Julia C. Cray.

Borax breaks the thin film of soap left in and over the pores of the skin in the bath. It permits quick and perfect rinsing of the hands and face.

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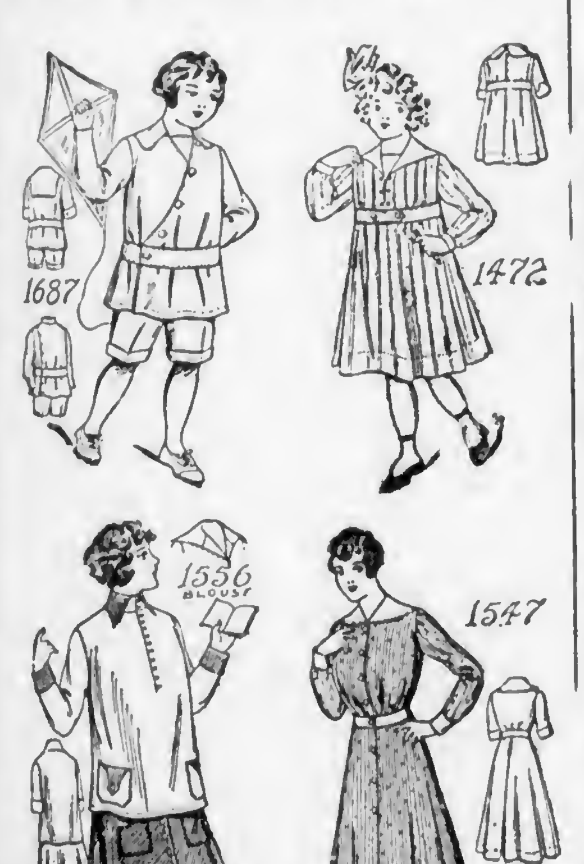
Be sure to give the figures and letters of each pattern exactly as printed at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-263 So. Third Street, Philadelphia, Pa.

1687. — Boys' Blouse Suit, with Straight Side or Diagonal Closing. — Cut in 4 sizes: 3, 4, 5, and 6 years. It requires 2¾ yards of 44-inch material for a 4-year size. Price of pattern, 10 cents.

1472.—Girls' Dress.—Cut in 4 sizes: 4, 6, 8 and 10 years. It requires 3 yards of 36-inch material for a 6-year size. Price, 10 cents

1556—1558.—Middy Suit for Misses and Small Women.—Blouse 1556 cut in 4 sizes: 14, 16, 18 and 20 years. Skirt 1558 is cut in the same sizes. It requires 3½ yards of 36-inch material without the cuff. The cuff requires 1¼ yards for a 16-year size. The blouse requires 2⅝ yards of 44-inch material. This calls for two separate patterns, 10 cents for each pattern.



1547—Ladies' House Dress.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 5¾ yards of 44-inch material for a 36-inch size. The skirt measures about 3¼ yards at the lower edge. Price, 10 cents.

ENJOY your MEALS

Can't, if you're too done up to eat. And you're bound to tire, after a morning in the kitchen, over a coal range. For it's wearing, beyond a woman's strength, to carry wood and haul coal from bin to kitchen.

And you can't control the heat of a coal range. Most times you've far more heat than you need—a waste of fuel—that turns the kitchen into a nerve-racking furnace.

A **New Perfection Oil Cook Stove** offers you a way to end kitchen drudgery and at the same time to economize, for the **Perfection** burns kerosene, the cheapest fuel. Think—no coal, no wood, no shaking, no ashes, no fear of the fire going cold. Instead, heat when you want it and exactly as much as you want.

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Live Stock

STEER FEEDING EXPERIMENTS

The Pennsylvania State College 1915-16

The steer feeding experiments conducted during the last winter at the Pennsylvania State College closed April 5th. The Cattle Feeders' Convention was held April 12th at the College. At this time the cattle in the various lots were valued by Mr. H. C. Wood, of Pittsburgh. Discussion of the importance of the livestock industry, the market requirements for steers and the results of the experiments were discussed at this meeting. During the afternoon the cattle were viewed in their lots. The experiments were conducted to compare the efficiency and economy of different feeds in fattening steers.

THE SECOND LOT, VALUED AT $9.25 ON BASIS OF PITTSBURG MARKET.

Lot 1 was fed a ration commonly used by Pennsylvania steer feeders, composed of ear corn or corn and cob meal, three parts; bran, one part with corn stover and mixed hay, during the entire experiment.

Lot 2 was fed a ration composed of corn silage and cottonseed meal for the first 56 days of the experiment, with ear corn added during the last 84 days. The cottonseed meal was fed at the rate of 2½ pounds per 1,000 pounds live weight. Corn silage was fed in such amounts as the steers would eat and the ear corn was fed at the rate of 15 pounds per 1,000 pounds live weight.

THE TOP LOT VALUED AT $9.30 PER CWT. ON SAME BASIS.

Lot 3 was fed similar to Lot 2, with the exception that alfalfa hay was used as a substitute for cottonseed meal. Alfalfa was fed at the rate of 5 pounds per 1,000 pounds live weight.

Lot 4 was limited to 20 pounds of corn silage per day, with mixed hay in such amounts as the steers would consume, and cottonseed meal at the rate of 2½ pounds per 1,000 pounds live weight. During the last 84 days ear corn was added at the same rate as to other lots.

Lot 6 was fed a ration of corn silage, all they would consume, and cottonseed meal thruout the entire period. The cottonseed meal was fed during the first 84 days at the rate of 2½ pounds per 1,000 pounds live weight. This last lot of cattle has been watched with particular interest during the experiment because of this being the first time it has been tried in the north, so far as we know.

The results of the entire feeding experiment are shown by the table on next page. The gains during the first 56 days show that silage and cottonseed meal produce a much larger daily gain than ear corn, bran, mixed hay and stover. The average daily gain in the lots receiving corn silage was in the same order as the amount of silage consumed per lot; the lots getting the larger amounts of silage making the greater gains. The cost of the gains for the first 56 days was in the same order as the amount of silage consumed. Lot 1 getting no silage was much more expensive than any of the lots receiving silage, and Lot 4, with a limited amount of silage, was more expensive than the lots getting all they would consume.

During the last 84 days, corn and cob meal was substituted for ear corn in Lot 1, and ear corn was added to Lots 2, 3 and 4. The average daily gain by lots during the last 84 days was exactly opposite in order as compared to the first period. This shows that during a long period the tendency of the feeds is to even up so far as daily gains are concerned. The cost of gains during the last period is much greater in all lots than during the first period, showing that the longer the feeding period the greater the expense of producing gains.

The total gain for the 140 days was greatest in Lot 6 which received no grain. This is a very strong point in favor of silage. The cost of producing 100 pounds gain was almost $2 cheaper in Lot 6 than in any other lot, and almost $4 per 100 pounds cheaper than Lot 1, fed the common Pennsylvania ration.

Valuation of Steers

The valuation of the lots was made on the basis of the Pittsburgh market and showed little difference in value between Lots 2 and 6, Lot 2 being valued at $9.30 per cwt. and Lot 6 $9.25 per cwt. Lot 3 was valued at $8.90 per cwt. This was the lowest valuation placed on the lots, the criticism being lack of finish. Lot 1 was valued at $9.00, there being lack of finish and quality in this lot. Lots 2, 4 and 6 showed more quality, being shedded out and carrying a sleeker appearance. Lot 2 showed a trifle more finish than

Lot 6, but this difference was scarcely noticeable.

This experiment shows strongly the value of corn silage as a feed for fattening steers. The more silage fed the cheaper the cost of producing gains and the more profit from feeding. Lot 6 shows a profit of $15.57 per steer. This is greater than any other lot by far. Lot 2 was second as to profit, Lot 3 third, and Lot 4 fourth, with Lot 1 a poor fifth. Perhaps the most forceful lesson is in the low standing of Lot 1.

As to the amount of pork produced by the different lots it was very noticeable that less pork was produced in Lots 1 and 6, with Lot 1 being much below Lot 6. This is due to ground corn being fed in Lot 1 most of the time, while ear corn was fed to the Lots 2, 3 and 4. In all lots it was necessary to feed grain to the hogs during the first period. Corn was fed at the rate of 1 pound per 100 pounds live weight of hog, and tankage 1 pound to 8 pounds of corn.

SUMMARY OF RESULTS

Project No. 504—Testing Different Rations

(Feeding Period 140 days)

	Lot 1	Lot 2	Lot 3	Lot 4	Lot 6
Initial weight per steer, lbs.	877.8	908	913.5	893.7	899.7
Value per cwt. in lot	$ 7.50	7.50	7.25	7.25	7.35
Cost per steer	65.83	68.10	66.23	64.79	66.13
Feeds consumed daily per steer (1st 56 days) lbs.					
Ear corn	9				
Corn silage		66	58	20	66
Cottonseed meal		2.5		2.4	2.4
Bran	3				
Alfalfa hay			5.0		
Corn stover	4				
Mixed hay	8.5			14	
Average daily gain (1st period)	1.74	2.62	2.00	1.70	2.48
Cost per 100 lbs. gain (1st period)	$ 9.73	5.60	6.64	8.80	5.90
Feed consumed daily per steer (last 84 days) lbs.					
Ear corn		17	16.5	16.4	
Corn and cob meal	12				
Bran	4				
Cottonseed meal		2.8		2.7	3.5
Silage		25	21	20	66
Mixed hay	10			6	
Alfalfa hay			6.4		
Corn stover	4				
Average daily gain (2d period)	1.86	1.68	1.85	1.98	1.79
Cost per 100 pounds gain	$13.10	14.23	12.03	12.90	9.85
Average weight at close of experiment	1,132	1,196	1,181.6	1,155	1,189.5
Gain for entire period	254	288	268	261	290
Average daily gain entire period	1.81	2.05	1.91	1.86	2.07
Total cost of feed	$30.04	28.31	26.20	29.17	23.07
Total cost of steer	$95.87	96.41	92.43	93.96	89.20
Cost per cwt. gain	$11.81	9.83	9.77	11.18	7.99
Final cost per cwt.	$ 8.47	8.06	7.83	8.14	7.49
Margin necessary in lot excluding pork	$ .97	.56	.58	.89	.14
Value per cwt. on basis of Pittsburgh market (allowing 35c for shipping)	$ 9.00	9.20	8.90	9.15	9.25
Pork produced (lbs.)	147	358	402	345	313
Cost of feed to hogs per lot	$25.25	18.64	18.64	18.64	29.44
Profit per steer not including pork	$ 1.06	9.44	6.84	7.48	15.57

Price of feeds.—Silage, $3.50 per ton; stover, $3 per ton; mixed hay, $13 per ton; alfalfa, $15 per ton; cottonseed meal, $34 per ton; ear corn, 65 cents per bushel; shelled corn, 70 cents per bushel; corn and cob meal, $20 per ton.

SCOURS IN YOUNG PIGS

Cure scours in pigs by finding and removing the cause of the trouble. If pigs are kept free from scours and thumps they have escaped the most common troubles of the pig pen. The ailment is really a symptom of indigestion caused by (1) changing the feed of sow; (2) too much feed; (3) dirty pens and troughs, or (4) chilling the sow or pigs in cold rain or winds.

Changing the feed of either sow or pigs from sweet to sour milk will often cause scours, and so will the improper use of feeds like bloodmeal, tankage, and oil meal which contain more protein than the other feeds which the animal has been eating. It is usually well to feed both sow and pigs all they will eat, but if this should result in stimulating the milk flow so that the youngsters get more than they can digest, scours will result, and the sow's feed must be cut down.

Clean, dry quarters and clean troughs will do much to prevent scours by preventing the pigs from swallowing filth which contains germs which multiply in the stomach and intestines and cause digestive trouble. If the sows have been wading thru mud and filth before being suckled by the pigs, the same results are likely to follow, so they should all be kept in clean dry lots where the sun has a chance to get in and kill the germs, and good ventilation makes the air pure and helps to keep the floors and lots so dry that any germs that are present are less likely to be taken by the young pig when it sucks or eats. This can be arranged by opening up trap doors in the roofs of these sheds during warm sunny days, and closing them when the cool nights make protection necessary, or rains threaten to come in thru the open doors and chill the sows and pigs or soak their beds.

If scours appear in spite of all precautions, the following treatment has proved valuable. Reduce the sow's feed, clean up more thoroly than before, and give the sow a tablespoonful of sulphur in each feed for several days. It is also well to give the sow a good dose of Epsom salts. If practical each pig may be given a teaspoonful of castor oil, or Epsom salts, and charcoal should be provided in any convenient way. If no cheaper charcoal can be secured, it can be supplied by starting fires of cobs, and then putting the fires out before they burn out.

Thumps in young pigs result from too much feed, or too little sunshine or exercise, or both. The remedy is to reduce the sow's feed and compel the pigs to take plenty of exercise in the open air and sunshine. This treatment is only effective for pigs that have not been weaned, since thumps in older pigs are usually caused by trouble in the lungs or bronchial tubes.—L. A. Weaver, in Mo. Circular.

QUOTES PENNSYLVANIA FARMER

"Enclosed find 50 cents in payment for your valuable paper for one year. I am much pleased with the paper and I think my wife has commenced to appreciate it as much as I do. She is constantly quoting some information she states she found in 'my Farm Paper'." Chas. W. Adams, Sykeville, Md.

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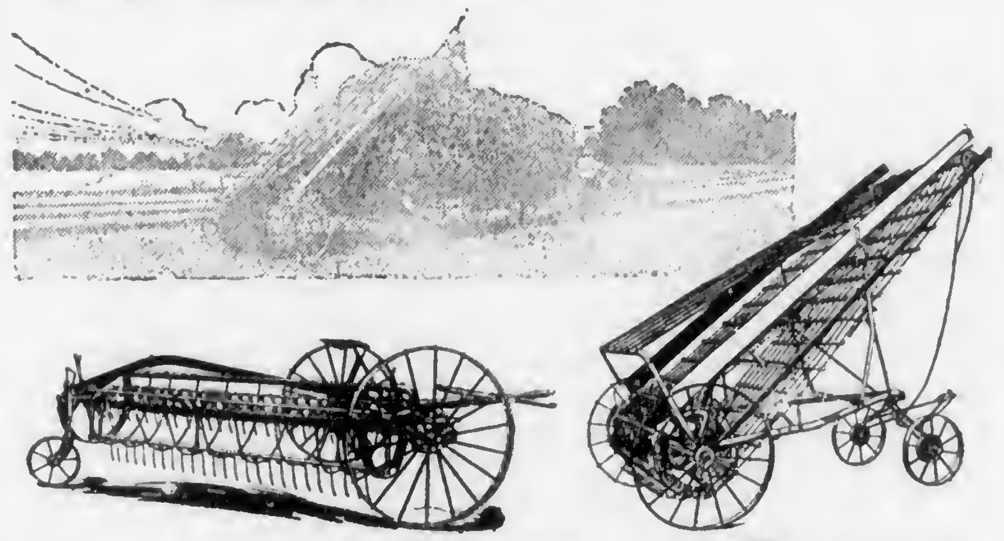
New and Better Side Delivery Rakes
BY all means see the 1916 International, Osborne and Keystone side delivery rakes and hay loaders before your haying season starts.
All Left-Hand Side Delivery Rakes
These new side delivery rakes are all left-hand rakes. Taking the stems as the mower drops them, they pick them up broadside on and slide the hay into light, airy windrows without threshing off leaves and blossoms. They form the windrow on the raked stubble, where the hay lies untouched until the loader comes along to pick it up.
All Steel
International Harvester side delivery rakes are all steel, strong and durable.
Adjustments at Both Ends
The cylinder can be raised or lowered at both ends, giving perfect adjustment under all conditions.
Made in two widths—7 foot 3 inches and 8 foot (bean special). Sold by I H C local dealers.



International, Osborne, and Keystone Hay Loaders
The Windrow Loaders
If you use a side delivery rake to throw the hay up into windrows, you will need an **International, Osborne, or Keystone windrow loader.** These good loaders are 6 feet wide and elevate the hay to a height of 10 feet 3 inches. They gather the hay with a gentle hand-pitching movement that does not thresh or break leaves, so are especially good for loading alfalfa and clover. These loaders are easily hitched to the hay rack and are unhitched by the man on the load, who simply pulls a rope and drives off. A forecarriage (regular equipment) holds the loaders upright when unhitched, ready to be hitched at once behind another rack. Two horses can pull them easily.
The Rake Loader
If you ted your hay after mowing and do not throw it up in windrows, use a rake loader which takes in 8 feet of swath, elevates the hay to a height of 9 feet, and is handled by one man on the load. It gets in close to the fences; it handles the hay as gently as any good farmer could wish, and it rakes clean.
International, Osborne, and Keystone side delivery rakes, tedders, rake loaders, windrow loaders, sweep rakes and stackers, are sold by I H C dealers wherever farmers use these machines. If you want to get your hay in with the least trouble and expense, in the least time, and in the best condition, buy International Harvester hay tools. Write us for catalogues.
International Harvester Company of America
(Incorporated)
CHICAGO USA
Champion Deering McCormick Milwaukee Osborne Plano

Bellevue Farm Durocs Best blood lines of the breed, all ages. Can furnish pigs not akin of Jan. - Feb. farrow.
WALTER T. WOOD, Route D, Coatesville, Pa.

Berkshires 4 litters (51 pigs) for May delivery Priced to sell. Guaranteed to please Sussex bred. Ship C. O. D. if desired.
L. T. DAVIS, R. F. D., Dagsboro, Del.

Jersey Red Pigs All ages. Service boars and bred sows.
C. BUDD, R. D. 3, Medford, N. J.

Berkshires Large young sows for sale, due April and May. From large litters. Prize winning strains. RAY BOWER, Oxford, Pa.

O. I. C. Pigs Silver Strain for May delivery Pedigrees furnished. Write for prices
A. O. BRUBAKER, R. 2, Mifflintown, Pa.

Chester Whites & O. I. C's. Either sex, any age. Reg. free. Satisfaction and safe delivery guaranteed. Enterprise Dairy Farm, John L. Van Horn, Prop. Troy, Pa.

MULEFOOT HOGS Oldest breeder in the state. Pedigreed stock for sale.
SAMUEL JOHNS, Wilmington, Ohio, Sec. D.

Duroc-Jersey Pigs Distinctly high class in blood and individuality, write
GROVER O. ANDREWS, Conneaut Lake, Pa.

Hillcrest O. I. C. March pigs, pairs & trios. Bred Sows. Reg. free. Prices low.
F. S. MURDOCK, Hartstown, Pa.

Registered Berkshires farrowed March 3, 1916. Boars $8. Sows $10.
EDWIN B. MAULE, Coatesville, Pa.

Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., May 2, 1916.

New crop potatoes from Florida are arriving in very limited quantity. Two thousand barrels on Monday and 700 barrels on Tuesday was the total offered. Sales are principally at $5.75 to $5 per barrel for first grades, and $4.50 to $5.25 for second grades. About half of the crop is reported to have been shipped from that state with the crop far below earlier estimates. Reports are now current that Carolina and the Eastern Shore acreage is geatly reduced as compared with last year, due, it is claimed, to the low prices secured in the past two seasons, the high price of seed and the extraordinarily high prices of fertilizers.

These factors it is believed will contribute much toward a favorable conclusion to the season for old potatoes. Fancy Pennsylvania stock met with fair demand last week at $1.15 to $1.20 per bushel. The market this week is starting dull but no break in price is expected unless the receipts are greatly increased. York State and western stock sells at $1.05 to $1.10 per bushel.

Sweet potatoes continue to arrive in light supply and poor quality. Primes are selling at 50 to 60 cents per basket; seconds at 25 to 30 cents.

Vegetables

The demand for onions has improved over the last week and the market is stronger with receipts light. Nine cars were on the track this morning, all Texas stock. Yellow Bermudas in the standard crate sold at $1.50 to $1.75; second grades at $1.25 to $1.35. The white stock was in poor demand at $1.35 to $1.50; seconds at $1.25 to $1.40.

Jersey spinach is here in sufficient quantity to satisfy the demand. The new crop is very desirable and selling at 35 to 40 cents per basket. Old spinach is found in surprising quantity on the market but will not sell for expenses. Norfolk spinach is light and poor.

Asparagus is here from California, South Carolina and New Jersey. The first Jersey grass is selling at $4 to $5.25 per dozen bunches, according to quality. California and Carorina grass is selling at $4 to $5 per dozen. Before another week it is expected that near-by grass will be in adequate supply for the demand.

Cabbage from York State is arriving largely unattractive and selling from $12 to $16 per ton, the price generally made to suit the buyer. New cabbage from South Carolina maintains the high figure of $2.25 to $2.50 per crate.

Rhubarb is quite plentiful from near-by and at this early date in the season is selling at $2 to $2.25 per 100 bunches. A higher price is generally maintained until about the middle of May.

Hot-bed lettuce from the Pennsylvania farms when fancy sells promptly at $5 to $6 per barrel, about 100 heads to the barrel. Much of the stock, however, is poor in quality and sells at $2 to $3.

Southern Vegetables

The market is active in nearly all lines of southern vegetables with receipts somewhat increased over a week ago. Beans maintain the high figure at $2.50 to $3.50 per hamper; peas, $1.50 to $2.50 per basket; peppers, $2.50 to $3.50 per carrier. Radishes packed in hampers containing about 100 bunches are selling at $1 to $1.50. Eggplant are selling at $2.25 to $2.75 per crate; lettuce, $2.50 to $3.50 per hamper.

Twenty-three cars of Florida tomatoes were on the tracks Monday morning, 11 of which were unloaded and sold at $2 to $2.35 for fancy stock and $1.50 to $1.75 for choice. Receipts are only running moderate and the demand for good stock is strong.

Fruits

Receipts of apples have been light and good grades are meeting with better demand. Apples of poor quality are still in heavy receipt and sales drag. York State Greenings are selling at $2.50 to $3; Baldwins, $2.75 to $3.25; Ben Davis, $2 to $2.50; Russetts, $3 to $3.25. Western boxed stock is selling from $1.40 to $1.65.

Strawberries are arriving from Florida and North Carolina, the latter being far the superior in quality. Florida stock is in poor condition on arrival and generally with considerable mold and soft. Eight cars of Carolina berries were unloaded on Monday and sold at 14 to 15 cents. On Tuesday morning only one car was received. The Klondyke variety sold for 20 cents and Missionaries for 18 cents.

Poultry

The live poultry market was quiet during the last week and fowl were a shade easier. Offerings were only moderate at the beginning of this week and sales were made as follows: Fowl, 19 to 20 cents; old roosters, 12 to 13 cents; spring chickens weighing one to two pounds apiece, 34 to 38 cents; ducks, 18 to 20 cents; geese, 17 to 19 cents.

Fresh killed, dry-picked and dry-packed fowls of the finest quality sold at 22½ cents. Smaller sizes weighing from 3½ to 5 pounds apiece sold at 21 to 22 cents. Dry-picked old roosters sold at 16 cents. Fancy Jersey broilers sold at 50 to 55 cents and other near-by broilers at 40 to 45 cents.

Eggs

Strictly fresh eggs have been in liberal receipts but supplies have been kept well cleaned up. Pennsylvania and near-by extras sold at 26 cents per dozen, firsts at 23 cents and current receipts at 22 cents. Western extras sold at 24 to 25 cents per dozen; extra firsts, 23½ cents; firsts, 22 cents and seconds at 19½ to 20½ cents.

Fancy selected candled fresh eggs jobbed at 27 to 29 cents per dozen.

—Selmsrad.

NEW YORK PRODUCE

New York City, May 1, 1916.

Butter prices have declined about 2 cents during the past week, but stock is pretty well cleaned up. Tone of cheese market is slightly firmer. Little or no change in poultry market. There is a great deal of poor fruit on the market. Fine apples sell readily but in small supply. Old potatoes extemely dull.

Butter. — Creamery extra, (92 score) per pound, 33½@34c; higher score, 34½@35c, thirds to firsts, 30@33½c; state dairy, 30@33c, packing stock, 25@28c.

Cheese. — Whole milk specials, 18½@19c; daisies, 18@18½c; skims, 11½@14¼c.

Eggs. — Fresh gathered, extra, 23@24c; dirties, 19c; nearby whites, fine to fancy, 24@25c dozen. Ordinary to good, 23@23½c; browns, 23@24c.

Dresed Poultry.—Philadelphia and Long Island fancy 3 to 4 pounds to pair, 50@55c; Philadelphia fancy roasters, 26@30c. Fowls, 19@22c; old roosters, 16c; squabs, $2.50@5.75 dozen. Spring ducks, per pound 28c. Turkeys, dry picked, 30@33c.

Hothouse Products.—Mushrooms in light receipt today, only about 300 bas., but trade dull, much of the stock below fancy and market weak at former prices. Cucumbers continue plenty, dull and weak. Cauliflowers in light supply and firm. Lettuce scarce. Radishes held steady. Rhubarb neglected. Mushrooms white, per 4-lb. basket, $1@1.50; cream, $1@1.35; brown, $1@1.25; buttons, 60@90c; flats and opens, 50@75c. Radishes, 100 bunches, $2@3. Rhubarb, doz. small bunches, 25@40c. Tomatoes, lb. 10@20c.

Apples.—These prices show the range from "B" to "A". Winesap bbl., $2@4.00; Greening, bbl., $2@3.50; Northern Spy, $2@4; Baldwin, bbl., $2@3.25; Ben Davis and Gano, bbl., $1.50@2.

Country Dressed Veals.—

Choice	@13½
Prime	12½@13
Fair to good	11½@12
Course, heavy	11½@12
Common	10½@11
Buttermilks	9½@10
Grassers	9 @ 9½

YORK PRODUCE MARKET

York, Pa., May 1, 1916.

The egg market has dropped 2 to 4 cents per dozen below the Easter prices. Butter is firm. Potatoes move slowly, yet there does not seem to be any concession in the price. All the early greens were plentiful at reasonable prices.

Egggs.—20@24 cents per dozen.

Butter.—Country, 30@34c lb; separator, 32@35c lb. Milk, 6c quart.

Poultry.—Hens, 17@18c lb; dressed, 50c @$1.25 each.

Vegetables.—Potatoes, 15@20c ½-pk; $1 to $1.40 per bu. Lettuce, 3@10c a head. Cabbage, 6@10c a head. Beets, 3@5c bunch. Onions, 3@5c bunch; 10@12c ½-pk. Radishes, 4@6c bunch. Lima beans, 16@18c quart. Soup beans, 12@15c quart. Lard, 14@15c lb. Turnips, 8@10c ½-pk. Sauer kraut, 8@10c quart. Spinach, 8@15c ½-pk.

Fruit.—Apples, 15@40c ½-pk. Pears, 15c ½-pk. Strawberries 25@35c box.

Retail Grain Market.—Wheat, $1.12; corn, 90c; oats, 60c; rye, 90c; bran, $1.40 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.12; corn 78c; oats, 55c; rye, 80c; bran, $27 per ton; middlings, $32 per ton.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., May 1, 1916.

Receipts for the week ending Saturday evening April 29:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,167	10.954	6,576
Previous week	3,038	4,496	6,729

Calves. — Total receipts of calves for this week were 1,435 against 1,367 last week.

Beef Cattle.—Offerings were seasonably sufficient and mainly of Illinois and Lancaster County, Pa., cattle. Trade was moving along in a moderate way, with prices well sustained. Calves closed easy at a concessional weakness. Bulls, as well as cows of the satisfactory kinds, commanded former rates.

Best steers	$9.25@9.50
Choice	8.75@9.00
Good	8.50@8.75
Medium	8.00@8.25
Common	7.50@7.75
Bulls	6.00@8.00
Fat cows	5.00@7.50

Veal Calves.—

Exceptional lots	$10.00@10.50
Good to choice	9.50@ 9.75
Medium	8.25@ 8.75
Common	6.75@ 7.75
Southerns and barnyards	5.00@ 6.00

Sheep and Lambs.—The market was steady all along the line, tho arrivals were materially increased. Trade was enough to work a fair clearance.

Wethers, extra,	$9.00@ 9.25
Choice	8.50@ 8.75
Good	7.75@ 8.00
Medium	7.00@ 7.25
Common	5.00@ 6.00
Ewes, heavy, fat,	7.00@ 8.00
Lambs, extras,	12.00@12.25
Good to choice	11.50@11.75
Medium	10.50@11.00
Common	8.00@ 9.00
Hothouse, apiece	6.00@ 7.75

Hogs.—There was a firmer undertone predominating, with a slight rise in values, and stock under good control. Westerns, $11.20 gross weight; $14 net weight.

City Dressed Stock.—Every description of choice and prime meats were keeping steady to firm under a normal inquiry. Hogs were revised upward and calves downward.

Steers	11	@14½
Heifers	10½	@13½
Cows	8	@12
Veal calves	13	@14
Extra calves	15	@
Southerns and barnyards	9	@12
Country dressed	12	@14
Extras	14	@
Sheep	14	@15
Extra wethers	16	@
Lambs	16	@17
Extra lambs	18	@
Hogs	14¼	@

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., May 1, 1916.

The supply on sale Monday was 68 loads, compared with 62 loads the week before. The market ruled fairly active with price about steady on the choice heavy and tidy fat grades, while the medium and plainer grades were lower. Cows, heifers and bulls in light supply and market ruled higher on all grades from bolognas to choice. Best fresh cows were stronger; other grades slow. Today's receipts totaled 75 loads. The market was slow and easier. Veal calves were in fair supply and market ruled active at steady prices.

Good to choice	$9.40@9.60
Good, 1300 to 1400 lb.	9.20@9.40
Medium to good, 1200 to 1300 lb.	8.50@9.00
Tidy, 1050 to 1150 lb.	8.40@8.90
Fair to medium, 1000 to 1100 lb.	7.50@8.40
Fair, 900 to 1000 lb.	6.75@7.50
Common, 700 to 900 lb.	5.50@6.25
Rough, half-fat, 1000 to 1300 lb.	6.25@7.25
Common to good fat oxen	4.00@6.75
Common to good fat bulls	4.25@8.00
Common to good fat cows	4.25@7.50
Heifers, 700 to 1100 lb.	4.75@8.75
Bologna cows	4.00@4.50
Fresh cows and springers	$25@85

Calves.—Veal calves in fair supply all week and market ruled active at steady prices. Receipts of calves today were 1,200 head; the market was active but at a decline of 50 cents.

Veal calves	$7.50@9.50
Heavy and thin calves	5.00@7.00

Hogs.—The supply of hogs during the week was fair and with a good demand the market ruled active and prices stronger, the close for the week being 10 cents per cwt. above Monday's close. There were 60 double-deck loads of hogs received today; market lower than Saturday's close.

Prime heavy	$10.05@
Heavy mixed	10.05@
Prime medium weights	10.05@
Best heavy Yorkers	10.05@
Light Yorkers	9.50@
Good pigs	8.80@9.00
Common to good roughs	8.75@9.10
Stags	7.00@7.25

Sheep.—The supply of sheep and lambs has been fair, demand fair and prices ruled steady all week on best grades of sheep and handy weight lambs. Heavy lambs were slow sale and not wanted. Sheep and lamb receipts today numbered 25 double-deck loads; demand good and market active and higher on choice lambs while other grades of sheep and lambs were steady. Spring lambs in light supply and market steady.

Prime wethers (clipped)	$ 7.80@ 8.00
Good mixed (clipped)	7.50@ 7.75
Fair mixed ewes and wethers	6.25@ 7.25
Culls and common (clipped)	3.50@ 5.50
Spring lambs	10.00@16.00
Clipped lambs	6.00@10.10
Culls to choice yearlings	6.00@ 9.50

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., May 1, 1916.

Hay and Straw.—The hay market holds steady to firm. The demand keeps all receipts of desirable grades cleaned up readily while even lower grades are finding steady outlet. Straw is active and higher.

Grains.—There has been a check in decline of wheat prices. Offerings are light and reports of growing crop have a strengthening effect. Prices have advanced about 3 cents per bushel during the week. Corn is also firm under light offerings and a fair demand. Oats are slow but steady.

Hay.—No. 1 timothy, medium bales, $24@25.50; No. 2 do., $23@24; no grade, $11@16. Light mixed clover, $23@23.50; No. 1 do., $22@23.50. No. 2 do., $19@20.

Straw.—No. 1 straight rye, $14@14.50; No. 2 do., $13@13.50; No. 1 tangled rye, $12.50@13; do., No. 2, $11.50@12. No. 1 wheat straw, $10.50@11; No. 2 do., $9.50@10. No. 1 oat straw, $10.50@11. No. 2 do., $9@9.50.

Wheat.—No. 2 red, $1.13@1.16; No. 3 red $1.13@1.16; rejected A, $1.10½@1.13½; rejected B, $1.09@1.12.

Corn.—No. 2 yellow western, 83@83½c; steamer yellow, 81@82c; western, No. 3, 78@79c; No. 4 yellow, 75@76c; ear corn, 80@81c; per 70 pounds.

Oats.—No. 2 white, 51@51½c; No. 3 do., 48½@49½c; No. 4 do., 47@48c; standard white, 50@50½c; sample oats, 43@44c.

Feed.—Winter bran, 100-lb. sacks, $26.00 26.50; spring bran, do., $23.50@24.

Flour.—Car lots, winter clear, $4.85@5.10; straight, $5.15@5.50; patent, $5.60@5.80. City mills, choice to fancy patent, $6.50@6.75; do., regular grades, $4.85@5.10. Rye flour, $5@5.50 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., May 1, 1916.

Hay.—Receipts of hay are still extremely light while all grades find ready sale with the possible exception of off grade clover. Billings in transit are very meager. There is a good demand for prairie hay. No. 1 timothy, $22.75@23.25, No. 2 timothy, $20@21; No. 3 timothy, $15.50@16; No. 1 light mixed, $20@20.50; No. 1 clover mixed, $17@18; No. 2 clover mixed, $14.50@16; No. 1 clover, $15@15.50; No. 2 clover, $10@12; No. 3 prairie, $13@13.50; No. 4 prairie, $9.50@10.

Straw.—Receipts very light while the demand is improving slightly; market better. No. 1 oat, $9.50@9.75; No. 2 oat, $9@9.25; No. 1 wheat, $9.25@9.50; No. 2 wheat, $8.75@9; No. 1 rye, $10.25@10.75; No. 2 rye, $8.75@9.25.

Ear Corn.—There is still a good demand for good, sound, dry yellow ear corn and a few cars can be placed readily to advantage. New stock quoted. No. 2 yellow, 81 82c; No. 3 yellow, 76@78c; No. 2 high mixed, 79@80c; No. 2 mixed, 77@78c.

Oats.—Receipts are more than equal to demand; market very quiet. No. 2 white, 49@49½c; No. 3 white, 47@47½c; Standard, 48@48½c; No. 4 white, 45@46c; Rejected, 41½@44½c.

NEW YORK HAY AND GRAIN

New York City, May 1, 1916.

Hay and Straw.—The hay market is firm at an advance on top grades. Brooklyn markets are reported a little lower. Straw holds about steady with a fair movement on best grades of rye.

Grains.—Wheat shows some apprehension over crop conditions and made a slight advance during the week. There are reports of considerable wheat damage in the Northwest and conditions thruout the Middlewest are not promising at this time. Spring wheat conditions are no more favorable than winter wheat. Cold and rains have delayed seeding. Corn is irregular but rather quiet. The export demand is slow and cash business is light. Oats are firmer.

Hay.—Large bales.—No. 1 timothy, $26.50@28. No. 2 $24@26; No. 3 $20@23; fancy clover, light mixed, $23@26; No. 1, $20@22; No. 1 clover, clear, $18@19; lower grade, $10@16.

Straw.—Per ton. No. 1 rye, $14.50@15; do., No. 2, $13@13.50.

Wheat.—No. 1 Northern, $1.31¼; No. 2 $1.29¼; No. 2 hard winter, $1.26.

Corn.—No. 2 yellow, 90 @ 91c; No. 3 yellow, 85@86c.

Oats.—No. 3 white, 49¾@50¼c; No. 4 48¾@49¼. Ordinary to fancy, 49¼@51c.

Rye.—$1.03½.

Mill Feed.—Coarse Western spring one hundred-pound sacks to arrive, $22.65@23. Standard middlings, $24; flour, do., $28.60 to arrive. Red dog, to arrive, 140-pound sacks $30@30.50. Oil meal, $32@32.50. City feed bulk bran, $23. Heavy feed in bulk, $23.50. Red dog, $32.50. Flour middlings, $32.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., May 1, 1916.

Butter declined 2 cents per pound at the first of last week. The market is in good shape and firm at the decline. Outside advices are stronger and receipts of high grade creamery are promptly cleaned up at top prices. Medium and low grades meet with fair sale at the inside range of quotations. Ladles were quiet and unchanged, with small supplies. Nearby production is small and receipts of prints are light. The demand absorbs all offerings promptly at firm prices. The demand for cheese is only moderate but receipts are light and the market rules firm.

Butter.—Solid packed creamery, fancy specials, 36c; extras, 34c; extra firsts, 33½c; seconds, 32@33c; ladle packed, 27@28c; nearby prints fancy, 37c; average extras, 33c; do., firsts, 34@35c; do., seconds, 33@33½; special fancy brands of prints, 40@43c.

Cheese.—New York full cream fancy, 19@19¼c; fair to good, held, 18@18½c; do., part skims, 11@16c.

NEW YORK MILK MARKET

New York City, May 1, 1916.

The demand is below normal for the period of the year, a condition for which the unseasonable weather is chargeable in some measure. The figures showing receipts for last week reflect the effect of the Jewish holidays upon the market. The demand for milk on the part of the Jews is cut off thru the passover week. The market value lies somewhere between 3¼ and 3½ cents a quart for Grade B in the so-called 26-cent zone. The uncertainty as to the exact value is due to the high prices reigning in the butter and cheese markets. It is a remarkable price for this time of the year.

The receipts of milk and cream in 40-quart cans for the week ending April 29 were as follows:

Railroad	Milk	Cream
Erie	40,412	2,278
Susquehanna	6,348	1,059
West Shore	18,036	1,242
Lackawanna	61,975	1,830
N. Y. Central (long haul)	84,754	2,510
N. Y. Central (short haul)	23,275	43
Ontario	42,388	4,343
Lehigh Valley	37,003	1,547
Homer Ramsdell Line	3,890	41
New Haven	5,434	21
Pennsylvania	7,295	225
Other sources	1,270	31
Totals	332,080	15,175
Same week last year	350,790	14,948

ELGIN BUTTER MARKET

Elgin, Ill., April 29, 1916.

Butter sales today were made at 32 cents per pound; 86 tubs sold at 32 cents.

THE WOOL MARKET

The Boston "Commercial Bulletin" of April 29, says:

"There has been rather more activity in the wool market the past week, altho the total volume of business is probably less than an average one. A considerable line of fleece wools was sold at a decline of about a cent a pound, but the market otherwise has been firm.

"The situation at the mills is not materially changed. In the West buying has been rather heavy, but by no means general, with price firm."

Ohio and Pennsylvania fleece: Delaine washed, 37@38c; ½-blood combing, 36@37c; ⅜ blood combing, 39@40c; delaine unwashed, 32½@33c; Michigan and New York fleece, fine unwashed, 27@28c; delaine unwashed, 30c; ½-blood unwashed, 34@35c; ⅜ blood unwashed, 39c, Wisconsin, Missouri and average New England: ¼-blood, 38c; ⅜-blood, 39c; ½-blood, 32@33c. Kentucky and similar, ½-blood unwashed, 37c; ⅜-blood unwashed, 40@41c.

CHICAGO HORSE MARKET

Chicago, Ill., May 1, 1916.

Horses were in much smaller supply than usual last week, and prices were firm, with army horses especially wanted. Farm workers were in demand at $75@140, while farm mares were salable at $145@240. A few big horses brought $250@325, while chunks sold at $165@235.

VISIBLE SUPPLY OF GRAIN

	April 29 1916	May 1 1915
U. S. Wheat	48,864	26,439
Bonded wheat, U. S.	7,186	1,340
Corn, U. S.	21,004	20,203
U. S. oats	12,096	23,022
Bonded oats	1,551	311
U. S. Rye	1,687	941
U. S. bonded rye	38	
Bond barley, U. S.	294	41

GRASS SEED MARKET

Toledo, O., May 1, 1916.

Cloverseed.—Prime cash, 8.62½; Octover, $8.60; December, $8.57½. Alsike.—Prime cash, $8.70. Timothy.—Prime cash, $3.15.

TOBACCO MARKET

Market transactions were extremely light as most of the 1915 crop has passed out of the growing locality and local holdings of previous crops have grown smaller than for some time. Growers and dealers alike are generally devoid of offerings which is quite natural to the former but to the latter it means serious lack of business and, of course, lack of profits. Dealers are anxious for the new crop and will evidently constitute a buoyant market influence when the crop is ready. The few transactions were on a well sustained and wholly satisfactory basis, prices being as high or higher than at any time the present year. It is too soon to predict the outcome of the new crop but it is sure that growers have been belated in the preparation of seed beds and that they are hampered and hesitating with reference to the existing commercial fertilizer situation. Some will rely on their soil as containing sufficient potash to make a crop, and others rather than pay present prices for this element will not grow tobacco, but some other crop. The present crisis will show either that planters have been wasting money in buying fertilizer or that fertilizers are indispensable and should be used in even larger quantities. The most competent authorities acknowledge a very promising outlook for the forthcoming crop and predict remunerative market prices, but whether they will justify the additional expense of fertilizer is at least problematical. In general, it can be said that so long as one engages in a business he should be willing to incur the risks incident thereto.—H. E. Tweed, May 1, 1916.

The Fur Bringers

By Hulbert Footner

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SYNOPSIS OF PRECEDING CHAPTERS

Ambrose Doane, junior partner of the fur trading firm of Minot and Doane, is in love with Colina Gaviller, the daughter of John Gaviller, manager of The Company which is Doane's most powerful business competitor. While on a visit at Colina's home Doane is urged by the Indians to open a rival trading post and take their furs. This he refused to do hoping to avoid open opposition to Colina's father. He is offered a wonderful black fox pelt by Alexander Selkirk, an Indian, and buys it, giving his canoe to the Indian and permitting him to leave the camp. Ambrose learns a few hours later that Selkirk shot Mr. Gaviller in a quarrel over the fox pelt, and as he permitted the Indian to escape, he is held partially responsible for the crime. He is called to the Gaviller home and has difficulty in making his position clear to Colina.

CHAPTER XIII (Concluded)

Ambrose wanted to help Colina in the new trouble and offered his services.

"Ah, I want help!" she returned. "If only, only you will not abuse him —wounded and helpless as he is!"

Here was the black shape again.

"I suppose Gordon Strange will run the business," said Ambrose.

"Naturally," said Colina. "He knows everything about it."

"If you want my advice," Ambrose said diffidently, "do not trust him too far."

She looked at him in astonishment. "Mr. Strange is almost like one of the family. He's been father's right-hand man for years and years. Father says he's the best servant the company possesses."

"That may be," said Ambrose doggedly, "but a good servant makes a bad master. After all, he is not one of us. If you value my advice at all you will never let him know he is running things."

"How can I help it? I haven't told him yet what has happened; but Dr. Giddings and I agreed that he must be told. He never mixes with the natives."

"Of course he must know your father was wounded. but he needn't be told how seriously. If I were you I would make him inform me of every detail of the business on the pretext of repeating it to your father. And I would issue orders to him as if they came from your father's bed."

"How can I?" said Colina. "I know nothing of the business."

"I can help you," said Ambrose— "if you want me to. I know it."

"But Ambrose," she objected, "what reason have you to feel so strongly against Mr. Strange?"

"No reason," he said; "only an instinct. I believe he's a crook."

"Father relies on him absolutely."

"Maybe his influence with your father was sometimes unfortunate."

Colina's eyebrows went up. "Influence! Father would hardly allow his judgment to be swayed by a breed."

"You're a woman," said Ambrose earnestly. "You should not despise these feelings that we have sometimes and cannot give a reason for. I saw Strange on my way here. I exchanged only a dozen words with him, yet I am as sure as I can be that he was glad of the accident to your father and hopes to profit by it somehow."

Colina was still incredulous.

"Look what he wrote me this morning!" she cried. "It sounds so genuine."

She handed him a note from the desk. He read:

Dear Miss Colina:

They are saying that your father has been taken ill; that the doctor has been with him all night. I am more distressed than I can tell you. You know what he is to me! Do send me some word. He was so cheerful and well yesterday that I cannot believe it can be serious. Native gossip always magnifies everything.

If it is all right to speak to him about business, will you remind him that a deputation from the farmers is due at the store this morning to receive his final answer as to the price of wheat this year. As far as I know his intention is to offer one-fifty a bushel, but something may have come up to cause him to change his mind. Unless he is very ill, I would rather not take this responsibility upon myself.

Do let me have word from you.

G. S.

"Anybody can write letters," said Ambrose. "It sounds to me as if he was just trying to find out how bad your father is. He could easily put the farmers off."

"I can't believe he's as bad as you say," said Colina gravely. "Why, he was here long before I was born. But I will be prudent. With your help I'll try to run things myself."

Ambrose sent her a grateful glance —shot with apprehension. He dreaded what was still to come.

"This question of the price of the wheat," Colina went on; "we have to give him an answer or confess father is very ill."

Ambrose nodded gloomily.

"Fortunately that is easy," she continued; "for he spoke about it at dinner last night. He means to pay one-fifty." She moved toward the desk. "I'll send a note over at once."

The critical moment had arrived— even more swiftly than he feared. He could not think clearly, for the pain he felt.

"Ah, Colina, I love you!" he cried involuntarily.

She paused and smiled over her shoulder.

"I know," she said, surprised and gentle. "That's why you're here."

"I've got to advise you honestly," he cried, "no matter what trouble it makes."

"Of course," she said. "What's the matter, Ambrose?"

"You should offer them one-seventy-five for their wheat."

The eyebrows went up again. "Why?"

"It's only fair. Two dollars would be fairer."

"But father said one-fifty."

"Your father is wrong in this instance."

Colina frowned ominously.

"How do you know?" she demanded.

"I know the price of flour at the different posts," he said depreatingly. "I know the risks that must be allowed for and the fair profit one expects."

"Do you mean to say that father is unfair?" she cried.

He was silent. An unlucky word had betrayed him. He could have bitten his tongue. Still, he reflected sullenly, it was bound to come. You can't make black white, however tenderly you describe it.

Colina sprang to her feet.

"Unfair!" she cried. "That is to say a cheat! You can say it while he is lying up-stairs desperately wounded!"

"Colina, be reasonable," he implored. "The fact that he is suffering can't make a wrong right."

"There is no wrong!" she cried. "What do you know about conditions here?"

"They come to my camp," he said simply, "one after another to beg me to help them."

"And you were not above it," she flashed back, "murderers and others!"

An honest anger fired Ambrose's eyes. "You're talking wildly," he said sternly. "I'm trying to help you."

Colina laughed.

With a great effort he commanded his temper. "What do you see yourself in your rides about the settlement?" he asked. "Poverty and wretchedness! How do you explain it when times are good—when this is known as the richest post in the north?"

Colina would have none of his reasoning. "These are just the dangerous ideas my father warned me against!" she cried passionately. "This is how you make the natives discontented and unruly!"

"You will not listen to me!" he cried in despair.

"Listen to you! I see him lying there —helpless. I am sick with compassion for him and with hatred against the creatures who did it. And you dare to attack him, to excuse them! I will not endure it!"

"I am not attacking him. Right or wrong, he has brought about a disastrous situation. He's the first to suffer. We're all standing on the edge of a volcano. We are five whites here, and three hundred miles from the nearest of our kind. If we want to save him and save ourselves we've got to face the facts."

Of this Colina heard one sentence. "Do you mean to say that father brought this on himself?" she demanded, breathlessly angry.

Ambrose made a helpless gesture.

"I am to understand that you justify the breed?" she persisted.

"You have no right to put words into my mouth!"

Colina repeated like an automaton. "Do you think the breed was justified in shooting my father?"

"I will not answer."

"You've got to answer—before you and I go any farther!"

"Colina, think what you're doing!" he cried. "We must not quarrel."

"I'm not quarreling," she said with an odd, flinty quietness. "I'm trying to find out something necessary for me to know. You might as well answer. Do you think the breed was justified in shooting my father?"

Ambrose, baited beyond endurance cried: "I do! He went into the man's house and laid hands on his property. Even a breed has rights."

Colina bowed her head as if in polite acceptance. "You had better go," she said in soft tones more terrible than a cry. "I am sorry I ever saw you!"

The bitterness of lovers' quarrels is in ratio with their passion for each other. These two loved with complete abandon, consequently each could wound the other maddeningly.

But the plant of their love, vigorous as it was, was not rooted in old acquaintance. When the top withered under the blasts of anger there was no store of life below. Now each was secretly terrified by the strangeness of the being to whom he had yielded his soul.

Ambrose, wild with pain, no longer recked what he said. "You make a man mad!" he cried. "You will not listen to reason. A thing must be so just because you want it that way. I rack my brains for words to save your feelings, and this is what I get! Very well, you shall have the bald truth."

"Leave the house!" cried Colina.

"Not until I have spoken out!"

She clapped her hands over her ears.

"That is childish!" he said scornfully. "You can hear me! Thruout the whole north your father is called the slave-driver!"

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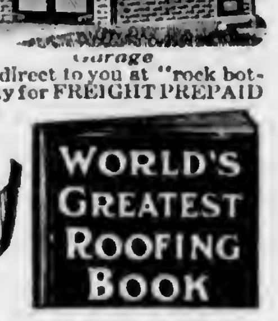

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Colina faced him still and white. This was the very incandescence of anger. "Go!" she said. "I'm done with you!"

"One thing more," he said doggedly. "The price of wheat. I shouldn't have said anything about justice. Putting that aside, it will be good business for you to pay the farmers their price. Otherwise you'll have red rebellion on your hands!"

As Ambrose made for the door he met Gordon Strange coming in.

"Wait!" Colina commanded. "I want you to hear this."

It was impossible to tell from her set face what she meant to do. Ambrose waited, hoping against hope.

"You want to know about the wheat?" said Colina.

"First, your father," said Strange, anxious and compassionate.

"He is not dangerously ill," said Colina.

"Ah!" said Strange. "Yes, the farmers are waiting."

Colina said clearly: "The price is to be one-fifty per bushel."

"That's what I thought," said Strange. "I will tell them." He went.

"Ah, Colina!" cried Ambrose brokenly.

She left the room slowly, as if he had not been there.

Ambrose could not have told how he got out of the house.

CHAPTER XIV

Simon Grampierre

Ambrose lay in his tent with his head hidden in his arms, trying not to think. Job licked his hand unheeded. A hail from the river forced him to rouse himself. As he crawled out he instinctively cast a glance at the sun. It was mid-afternoon.

Tole Grampierre landed on the stones. "You are seeck!" he exclaimed, seeing Ambrose's face.

Tho life loses all its savor, it must be carried on with a good air. "Mal de tete!" said Ambrose, making light of it. "It will soon pass."

Tole accepted the explanation. He told Ambrose that he had come that morning and found him gone. He had come back to tell him what the white man already knew—that, tho Gaviller had been laid low by a mysterious stroke, he had sent word from his sickbed that he would pay no more than one-fifty for wheat.

"The men are moch mad," Tole went on in his matter-of-fact way. "They not listen to my fat'er no more. Say he too old. All come to meet to our house tonight. There will be trouble. My fat'er send me for you. He say maybe you can stop the trouble."

"I stop it?" said Ambrose, laughing harshly. "What the deuce can I do?"

Tole shrugged. "My fat'er say nobody but you can stop it."

It was clear to Ambrose that "trouble" signified danger to Colina. "I'll come," he said apathetically.

"Where is your dugout?" asked Tole.

Ambrose explained.

"Bring all your things," said Tole. "You stay at our house now till you go back. My mot'er got good medicine. She cure mal de tete."

Ambrose reflected bitterly that Mrs. Grampierre's simples could hardly reach his complaint. Nevertheless he was not anxious to be left alone—he was not one to nourish a sorrow. He packed up what remained of his outfit, and Tole stowed it in the dugout.

The Grampierre house was a mile and a half above the Company's establishment on the other side of the river. The two young men had, therefore, a three-mile paddle against the current.

Landing, Ambrose saw before him a low, wide-spreading house built of squared logs and whitewashed. Ample barns and outhouses spread around a rough square. The whole picture brought to mind a manor-house of earlier and simpler times.

The patriarch himself waited at the door. He was a fine figure of manhood—lean, straight, rugged as a jackpine. He had the noble aquiline features of the red side of the house, and his dark face was wonderfully set off by a luxuriant, snowy thatch.

Ambrose, indifferent as he was, could not but be struck by the old man's beauty, and his dignity was equal to his good looks. Young Tole's naive pride in his parent was explained.

Ambrose was introduced to a wide interior of a dignified bareness. This was the main room of the house; the kitchen they called it, tho the cooking was done outside.

It was spotlessly clean; none too common a thing in the north. Clearly these people had their pride.

Still Ambrose was reminded of the difference between white and red for the women of the house were ignored, and when later he sat down to sup with Simon and his five strong sons the wives waited humbly on the table.

Afterward the men sat before the door, smoking. Simon kept Ambrose at his right hand, and conversed with him as with an honored guest. He avoided all reference to what had brought him.

When Ambrose, not understanding the reason for his delicacy, asked about the coming meeting, Simon said:

"When all come you learn what every man thinks. I not want to shape your mind to mine until all are here."

They came by ones and twos, a little company of twenty-odd. Many anomalies of the race were exhibited. Some showed a Scotch cast of feature, some French, some purely Indian.

One or two might have been taken for white men had it not been for an odd cast of the eye. Yet it might happen the Indian and the white man were full brothers. The general character of the faces was stolid rather than passionate.

There was little talk.

The room having been cleared, they went inside. The women had disappeared. Simon Grampierre sat at an end of the room, with Ambrose at his right, and his sons ranged about him. The other men faced them from the body of the room.

There were not chairs for all, but indeed chairs suggested church, the trader's house, and other places of ceremony; and those without, squatted on their heels around the walls, were the happier.

Talk was slow to start. They kept their hats on and stolidly looked down their noses. When it began to grow dark a single little lamp was brought in and stood upon a dresser in the corner.

The wide room with its one spot of light and all the still, shadowy figures conveyed an effect of grimness.

Simon Grampierre opened the meeting. Out of courtesy to Ambrose all the talk was in English.

"Men!" said the patriarch. "John Gaviller send word that he will pay only one-fifty a bushel for our grain. We meet to talk and decide what to do. All must agree. In agreement there is strength.

"Already there has been much talk about our grain. I will waste no words now. For myself and my sons I pledge that we will not sell one bushel of grain less than dollar-seventy-five. What do the others say?"

One by one the men arose and repeated the pledge, each raising his right hand. Ambrose began to be aware that the stolidity masked a high emotional tension. It was his own presence that restrained them.

Simon rose again. "I have heard talk that you will spoil your grain," he said. "Some say let the cattle and horses in the field while it is green. Some say burn it when it gets ripe. That is foolish talk.

"Grain is as good as money or as fur. A man does not feed money to cattle nor burn up fur. I say cut your grain and thrash it and store it. Some one will buy it.

"Gaviller himself got to buy when he see we mean to stand together. He has made contracts to send flour to the far north. Who wants to speak?"

A litle man of marked French characteristics sprang to his feet. His eyes flashed. "I speak!" he cried.

"This Jean Bateese Gagnon," explained Simon to Ambrose.

"Simon Grampierre say wait!" cried the little man passionately. "Always he say, 'Wait, wait, wait!' All right for Simon Grampierre to wait. He got plenty beef and potatoes and goods in his house. He can wait.

"What will a poor man do while he wait? What will I do—starve, and see my children starve? If we not sell grain we get no credit at the store. Where I get warm clothes for the winter and meat and sugar and powder for my gun?

"What do we wait for, un miracle? Do we wait for Gaviller's heart to soften? We wait a long tam for that I t'ink, me! While we wait I think Gaviller get busy. He say he come and cut our grain. Will we wait and let him?"

The old man interrupted here: "If Gaviller put his men on our land we fight," he said.

"Aha!" cried Jean Bateese. "He will not wait then. You say let us cut our grain and store it and wait for one to buy," he went on. "What will Gaviller do? I tell you. He will go to law! It is not the first time. He mak' the law to serve him.

"We all owe him for goods. He will send out and get law papers to say because we owe him money for goods our grain is his grain. If he got law-papers the police come, and take our grain for him. W'at you say to 'at, hein?"

Old Simon was plainly disconcerted. He turned to Ambrose. "Will you speak?"

Ambrose's heart sank. How is a dead man to sway passionate, living men? However, he rose with the best assurance he could muster.

"I have only one thing to say," he began, conscious of the feebleness of his words. "John Gaviller is a sick man. I have seen the doctor. You cannot fight a sick man. I say do not accept his price—do not refuse it. The grain is not ripe yet. Wait till he is well."

A murmur of dissent went around the room. Ambrose being a stranger, there was a note of politeness in it.

Jean Bateese sprang to his feet again. "Ambrose Doane say wait!" he said. "He is good man. We lak him. But me, I am sick of waiting!

"Today we hear John Gaviller is sick. All are sorry. All forget we have trouble wit' him. We wait to hear how he is. Wa! he say to us right out of his bed dollar-fifty or starve! Why should we wait till he get well? He does not wait!"

Another man, a burly purple-cheeked son of the earth, took up the harangue at the point where Jean Bateese dropped it. This was Jack Mackenzie, Simon said.

"Me, I am sick of waiting, too!" he cried. "Always we wait, and John Gaviller do what he like! Why he put down the price of grain? Why he do everything? It is to keep us in his debt. We can work till our backs break, but he fix it so we are still in debt.

"Because we can do not'ing when we are in his debt. We are his slaves! We got to break our slave chains. It is time to act. Now I say out loud what all are whispering: Let us burn the store!"

Thirty men took a sharp breath between their teeth. There was a little silence; then quick cries of approval broke out. The meeting was with the speaker.

Ambrose, thinking of Colina, turned a little sick with apprehension. Simon rose to still the noise, but Mackenzie held the floor.

"I know w'at Simon Grampierre goin' to say!" he cried, pointing. "He goin' to say if you break the law you fix yourselves. They send many police and put you all in jail. Simon Grampierre got good property. He not want lose it.

"Me, I say all right! I go to jail. There is a trial. Everything got come out. John Gaviller he cannot make slaves after that. I say let them send me to jail. My children will be free!"

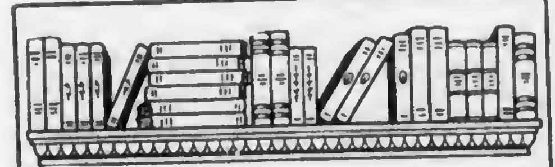
The meeting went wild at this. Simon had lost control. Even his own sons, as could be read in their faces, sympathized with the speakers. The old man betrayed nothing in his face. He stood like a rock until he could get a hearing.

"Jack Mackenzie say I rich," he said proudly. "Say I think of my property first. I now say whatever we do, we do together. We will decide by vote. If you vote to burn the store I will put the fire to it myself!"

They cheered him to the echo. Some cried: "Burn the store!" Some cried: "Vote!" By this move Simon captured their attention again. He held up a hand for silence.

"Wait!" he said. "I have a little more to say. Jack Mackenzie say we got to break our chains. Those are true words! But how? If we burn the store we only rivet them tighter.

(To be continued.)



PIECES to SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

THE MAN WHO DIDN'T SUCCEED

They sing of the men who build the mills
And girdle the earth with steel;
Who fill the hour and wield the power
That molds the public weal.
Honor to them that in honor do
The work that the world must need,
And yet in chief I hold a brief,
For the man who didn't succeed.

'Tis not to excuse the indolent;
No pleas for the down and out;
Nor specious rot condemning what
The leaders are about.
Merely to ask in a casual way
Of those who chance to read,
For fairer view, and kinder, too,
Of the man who didn't succeed.

His house is small, his table light;
His family must endure
The snubs and sneers of the buccaneers
Whose debts fall on the poor.
Yet his is a home and no hotel,
His wife is a wife indeed.
There's nothing above his children's love
To the man who didn't succeed.

Admitting it's true that he did not make
The most of his talent then;
He won no pelf nor raised himself
At the cost of his fellow men.
His hands are clean, his breast is white,
His honor has been his creed—
Now who are we to say that he
Is the man who didn't succeed?

Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the cause in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Injured Foot.—I have a 6-year-old horse that is lame in right hind leg. He has had gravel in foot and altho the wound healed it has left a hard callous at the top of his hoof. Besides, there is a small hole leading into frog. I am anxious to know what to do for him. At the same time tell me if you believe he will get over his lameness. I forgot to say that he walks fairly sound but trots quite lame. J. G. A., Bliss, N. Y.—I believe if you will apply tincture of iodine to bunch on coronet every day or two, you will succeed in relieving him of most of his soreness. This lameness may be mechanical.

Chronic Garget.—Last September my 7-year-old cow had an attack of garget. With home remedies I succeeded in partially curing it. Now she has just come fresh and even with a milking tube I am unable to get much milk out of her bag. J. J. B., Hunker, Pa.—Apply 1 part fluid extract belladonna, 1 part fluid extract phytolacca and 8 parts olive oil to caked portion of udder, once or twice a day. It is well to keep in mind that chronic garget and infected udders are very often incurable. The careless use of an infected milking tube is very apt to produce an infection of the udder.

Thick Urine.—I have a mare that has had more or less kidney trouble for some time. Our local veterinarian has been treating her for the past six months, but she is no better. A portion of the time her urine is quite thick and high colored. She is inclined to pass urine too often, but only a small quantity each time. J. W. E., Stillwater, N. J.—Give her a teaspoonful of acetate of potash, 2 or 3 times a day, and as soon as the desired effect is produced, discontinue giving medicine for a few days, then give it as often as you believe necessary to stimulate the kidneys into action.

Warbles.—I recently purchased a 7-year-old cow; a week ago I discovered six or eight lumps on her back. Each of the lumps is about the size of a nickel. Two or three are soft and the others hard, but the cow appears to be in good health. H. W. B., Boston, Mass.—Your cow suffers from warbles. Open skin with a sharp, clean pen knife, squeeze out grub, kill it, then apply boric acid to sores daily.

Toughening Tender Shoulders.—My farm team is going into the spring work after comparative leisure thru the winter. Both horses are in good flesh. Is there a special preparation I can use on shoulder to avoid collar galls? M. A., Lititz, Pa.—The least expensive and one of the most satisfactory washes to apply to tender shoulders and collar galls is made by dissolving one-quarter pound acetate of lead, 3 ounces sulphate of zinc and 3 ounces of tannic acid in a gallon of water and apply to shoulders, 3 times a day. It is well to keep in mind that every work horse should wear a collar that fits; furthermore, the collar should be kept clean and free from infection.

Poor Appetite.—I have two colts coming a year old which eat grain fairly well, but do not have much appetite for roughage. I suspect that they have some worms. J. A., Duncannon, Pa.—Mix together 1 part powdered sulphate iron, 1 part salt and 4 parts ground gentian. Give each colt a teaspoonful at a dose in ground feed, twice a day.

LATE BULLETINS

Commercial Grading, Packing and Shipping of Cantaloupes. — Farmers' Bulletin, No. 707 fully discusses the above subjects. Illustrated with 18 illustrations from photographs. Free from the U. S. Department of Agriculture, Washington, D. C.

Sulphate of Ammonia on Soil.—Bulletin No. 165 of the Agricultural Experiment Station, Amherst, Mass. This bulletin is a record of efforts to determine the changes which have been produced in a soil by years of continuous use of sulphate of ammonia as a fertilizer.

Experiments with Cabbage.—Bulletin No. 137, issued by the Agricultural Experiment Station, State College, Pa., gives results of experiments in early and late sowing; large plants vs. small plants; planting distances and yields.

Monthly Bulletin for March, Ohio Experiment Station, Wooster, Ohio.—The Ohio Station began issuing on January 1, 1916, a monthly publication containing the kind of information heretofore given as separate bulletins. It contains about 32 pages and we believe will be appreciated by farmers in general.

The Soil Improvement Committee, Muncy Building, Baltimore, Md., has issued three new bulletins: Oat Production, Potato Production, and Corn Production. Each is illustrated from photographs and contains much useful information and helpful advice.

Sweet Potato Diseases.—Farmers' Bulletin, No. 714. Department of Agriculture, Washington, D. C. Owing to the trouble many growers of sweet potatoes are having with diseases of the plant and tuber this should prove a useful publication.

Cherry and Hawthorn Pest.—Bulletin No. 411 of the New York Agricultural Experiment Station (Geneva, N. Y.) discusses a new plant pest confined as yet to restricted areas. This leaf-miner is destructive to the English Morello cherry and to ornamental and wild hawthorns. Growers of the cultivated species should be prepared to recognize and combat this pest as soon as it appears on their stock. Effective remedies, when the pest is generally distributed, have not yet been worked out; but removal and burning of infected leaves at the first appearance of the insect now seems the most practicable. The bulletin will be sent free to applicants.

Why and How Pasteurize Dairy By-Products.—The question of pasteurizing dairy by-products—skimmilk and whey—is now attracting much attention and an attempt is being made to secure a law compelling pasteurization at all cheese factories and skimming stations where by-products are returned to the patrons. Bulletin No. 412 of the New York Experiment Station gives results of investigations made at several factories and stations where pasteurization is now used voluntarily. The process was found quite satisfactory to patrons, tho not perfectly effective in several cases; it is comparatively inexpensive; and probably valuable enough in other ways as well as thru health protection, to make its adoption worth while. Those interested may secure the bulletin without cost by writing to the above station at Geneva, N. Y.

Plant Foods in 1916. — Fertilizer prices are now very high and in some cases prohibitive so that every plant grower must use such materials with good judgment or run the risk of financial loss. In Circular No. 47 of the New York Experiment Station, Geneva, N. Y., will be found some helpful hints in regard to the use of plant foods for crops in 1916. Some of the points emphasized are the proper selection of soils for crops, soil management so as to utilize as far as possible the plant-food supplies already there, the conservation and utilization of all sources of plant foods produced on the farm, the most economical commercial plant-foods materials, careful study of the plant-food needs of different crops and precautions to be observed in purchasing fertilizers. This circular will be sent free to all who apply for it at the above address.

Fertilizers, What They Are, How to Apply Them, and Seed Improvement.—These are two new bulletins, Nos. 13 and 11 respectively, published by the Soil Improvement Committee, The Munsey Bldg., Baltimore, Md. Free upon request.

The following bulletins may be had free upon request of the Department of Agriculture, Washington, D. C.:

Name	Bul. No
The Germination of Seed Corn	253
Harvesting and Storing Corn	313
Most Profitable Corn Planting Method	400
Corn Cultivation	414
How to Grow an Acre of Corn	537
School Lessons on Corn	617

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—why, its flavor is so different and so delightfully good;

—why, it can't bite your tongue;

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—why, you can smoke it as long and as hard as you like without any comeback but *real* tobacco happiness!

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On the reverse side of every Prince Albert package you will read:

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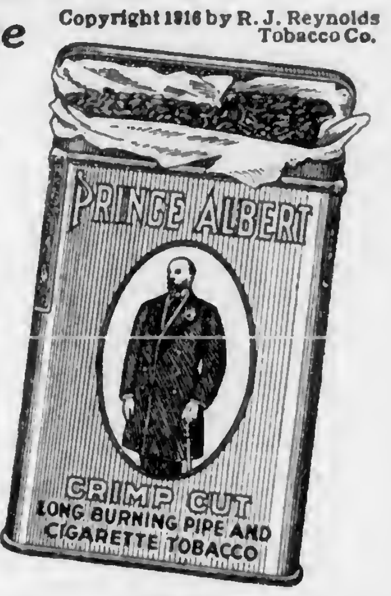
is certainly worth your while getting on talk-terms with if you'd like to know what will please your jimmy pipe appetite *most*—in flavor, coolness and downright satisfaction to the high-top-notch degree!

For Prince Albert is tobacco made by an exclusive patented process *that cuts out bite and parch* and lets you fill up your pipe to your heart's content without a flareback of any kind! You'll get chummy with Prince Albert in a mighty short time.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NEWTON'S Heave, Cough, Distemper and Indigestion Cure.

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Horse Lame? Use KINDIG'S famous OINTMENT. A sure cure for bone, bog, and bloody spavin, ringbone, curb, soft bunches, splint, etc. 50c postpaid. E. KINDIG, Jr. REMEDY CO 1000 Farragut Terrace, Philadelphia, Pa.

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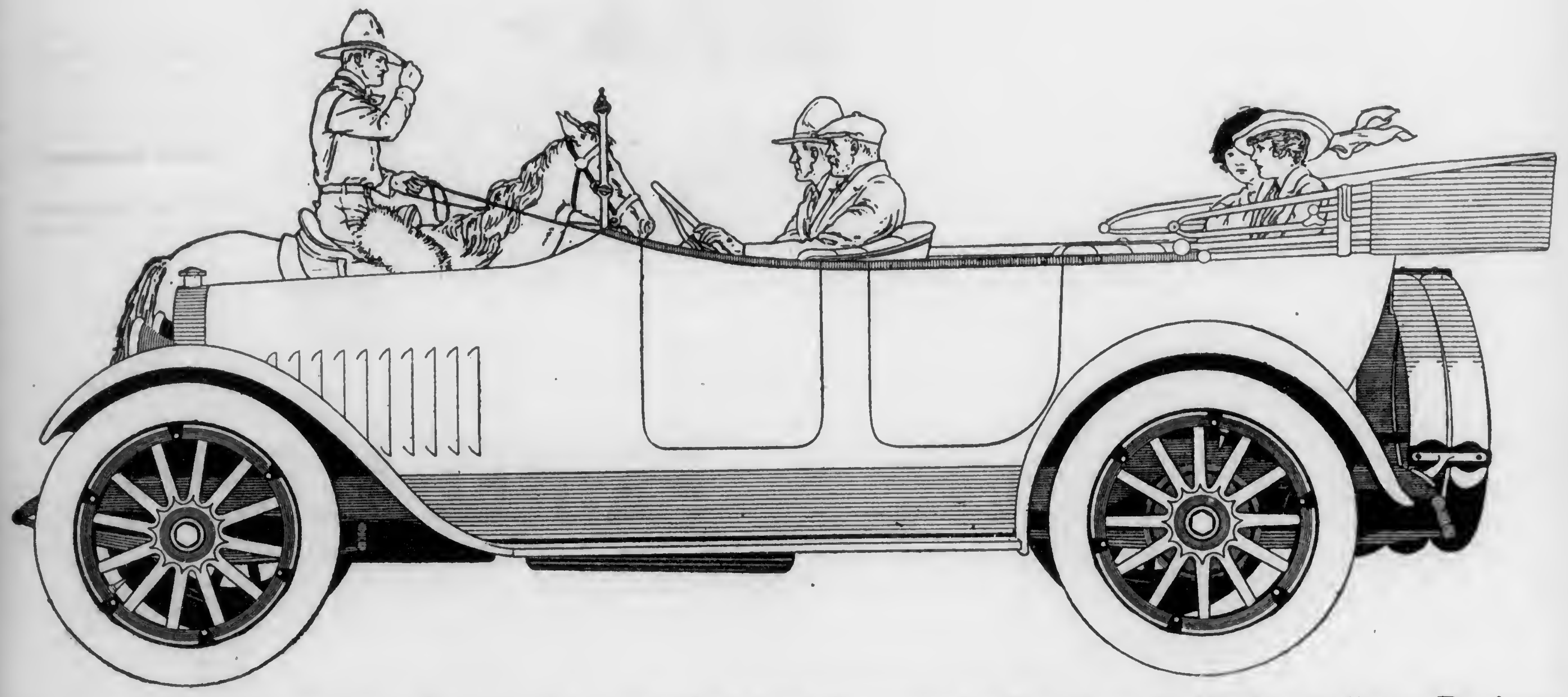
Quality First



Price, $1090 Detroit—One Reason for a 900 Per Cent Increase in One Year in Chalmers Farm Business

A car that merely looks well, "steps" smartly, and rides comfortably on boulevards, is emphatically not for the rigorous demands of the American farmer.

The value of length of life in a piece of machinery is nowhere more thoroughly understood and more keenly sought, than on the farm.

Length of life is a thing of scientific certainty in the 3400 r. p. m. Chalmers. Its high engine-speed is in part responsible, for the higher the engine speed, the less the side-thrust of the crankshaft, and the side-thrust means destructive wear and tear that rips an engine to pieces.

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3400 r p. m. does not mean that the engine turns at this high rate at all times. It means that it can attain this record speed without skipping and with absolute safety. Normally, you do not require any such crankshaft turning. At 10 miles an hour, for instance, you need only 500 r. p m., at 20 you require 1000 r. p. m., and at 30 miles 1500 r. p. m.

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Here is conservation of energy at its best; ahead of the 3400 r.p.m. stretch years of obedient work; and all intelligent judges of machinery know that a car thus built and thus conducting itself cannot wear itself out in a few years of hard usage.

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Women appreciate the riding comfort of this car. Your wife or daughter won't be able to discover any pitch, jolt, jar, lurch or sidesway in her. Correct distribution of weight, perfect balance, great multiple-leaved vanadium steel springs, 9-inch cushions and enduring leather, combined with her smooth, even delivery of force, are responsible.

Go and see this machine the next time you go to town. Examine her engine. And you'll no longer be in doubt what machine you ought to own.

Five-Passenger Touring Car, $1090 Detroit;
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Color of Touring Car and Roadster—Oriford maroon or Meteor blue. Cabriolet—Oriford maroon, Valentine green, or Meteor blue. Wheels—standard dark, primrose yellow or red. Wire wheels optional on Roadster or Cabriolet at extra cost.

Chalmers Motor Company, Detroit

PENNSYLVANIA FARMER
AGRICULTURE THE KEYSTONE OF NATIONAL PROSPERITY
ESTABLISHED 1880
PUBLISHED WEEKLY

Vol. 39—No. 20. PHILADELPHIA, PA., SATURDAY, MAY 13, 1916. 2 Years for $1.00

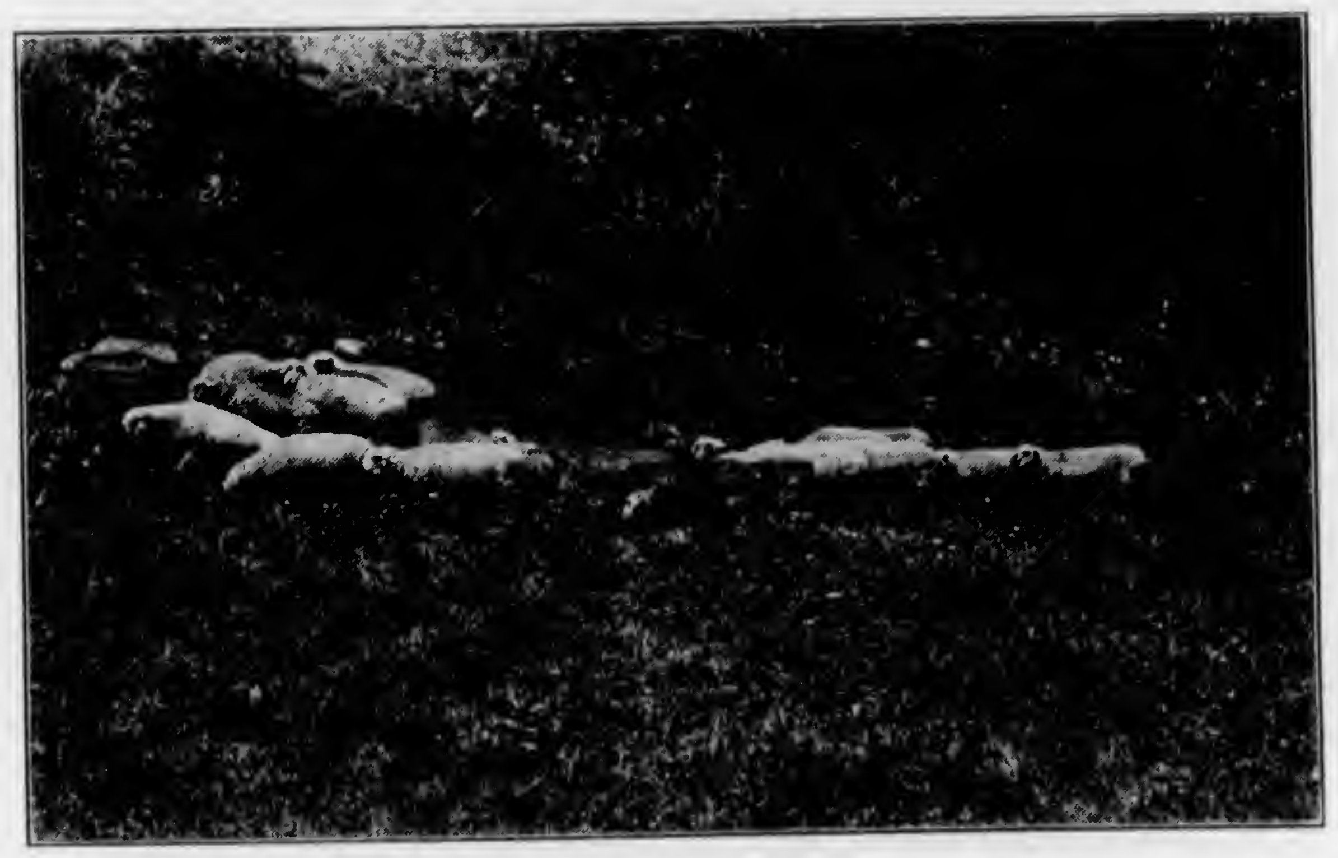
Sheep Raising in Pennsylvania

By B. O. SEVERSON,
Pennsylvania State College.

Census reports show that Pennsylvania had 1,767,000 sheep in 1840 and that this number remained relatively constant until after 1880. During this period the state was recognized as one of the leading sheep states of the Union and became known thruout the wool-growing sections of the world as a breeding center of fine wooled (Merino) sheep. Especially were the counties of Washington and Green recognized in this regard, where the improved Black Top Merino and the Delaine Merino breeds had their origin and development. This section flourished as a breeding center, supplying breeding sheep that were used in the development of the "Western Range" sheep in this country and were even exported to Australia, Argentine Republic and Africa for the purpose of increasing the wool qualities of sheep in those countries.

The question may properly be asked, "Why are there only 839,000 sheep in Pennsylvania today?" (1914). There are several causes for this decrease in this state. The first one was the removal of tariff on wool during the eighties which lowered the value of wool to such an extent that it was unprofitable to raise sheep for wool alone. Later the tariff was restored, but the time had passed when sheep could be raised profitably in the East for wool alone. The territory west of the Mississippi river developed as a sheep country and the lower cost of production in that section made it relatively more difficult to raise sheep at a profit in the East for wool. Then, too, the "opening" of the coal and oil lands in Pennsylvania distracted the farmers' attention from sheep. With the "opening" of these lands the dog nuisance became a serious menace to sheep. Also, the prevalence of parasites gave trouble in the management of flocks. Still another cause, and not the least, was the lack of proper appreciation of sheep as a source of revenue on the average farm.

C-TYPE MERINOS SUITED FOR EARLY LAMB PRODUCTION.



SHEEP WILL GRAZE ROUGH LAND AND ERADICATE WEEDS.

Possibilities of Sheep Raising

What are the possibilities of raising sheep profitably in Pennsylvania? In answering this question there are several conditions and facts that should be considered. Sheep are by nature forage consuming animals, thriving best under conditions where land is relatively dry and suited for grazing. This state has 16,018,961 acres of land that are not considered improved lands. Of this amount, 5,893,313 are in farms, and the improved lands total 12,673,519. With only 1,586,519 cattle and 839,000 sheep which constitute the grazing animals within the state, it is apparent that the grazing lands are not being properly used. The fact, also, that 3,088,105 acres are in forage crop indicates that the feeds on which sheep thrive best are available.

The market demand for sheep today is greater than it has ever been in this country. Receipts of sheep on the six leading markets in the United States in 1915 were 2,020,585 less than in 1914, with the result that the average price for sheep advanced 80 cents and lambs $1.15 over the 1914 average on these markets. Sheep that will produce mutton as well as wool are necessary for profit. "Fine wool" sheep of the type suited for wool alone will not meet this demand. This does not mean that wool should be disregarded because it is necessary to consider it in profitable sheep raising. The lesser number of sheep in 1915 reaching the markets of the United States was due to the decrease in the flocks on the ranges of our western states. This decrease was a result of the rapid "breaking up" of grazing lands by increased valuation of land and "homesteading" by settlers.

The demand for lamb for meat consumption is greater than it has ever been, as indicated by higher prices, in spite of the fact that pork and beef have been cheaper. The American people are beginning to appreciate and relish lamb for food consumption. This appreciation is largely limited to people in the cities. Mutton as a food, as shown by Government tests, is superior to pork and equal to beef in food value.

Other factors that make Pennsylvania suited to sheep raising are that the farm flock utilizes labor at that time of the year when labor is cheap and most in need of something to do; equipment is cheap; markets are numerous and the best in the country; results in increased valuation of land since sheep manure is more valuable than from any of our domesticated animals on the farm. Dr. Thorne of the Ohio Station states that per 1000 lbs. live weight, sheep return, annually, $32 worth of fertility to the soil in the form of manure. Sheep will keep the farm clean of weeds. Actual experimental results at the Minnesota Station showed that out of 600 varieties of weeds, sheep consumed 570.

With the increased value of mutton and wool, the decrease in number of sheep in the country, the natural advantages of the state to sheep raising, the advantages that sheep offer to operation of the average farm and opportunities for marketing in the state, it would seem that successful sheep raising could be carried on in this state.

Disadvantages

Are there any disadvantages in raising sheep? One of the greatest obstacles in sheep raising is the lack of knowledge and interest in the proper care and management of the flock. The labor required in caring for the flock is relatively small, but at certain times such as lambing, weaning, breeding, etc., certain details must be observed. If the breeder is unwilling to give this attention, his flock is likely to prove a hinderance rather than an asset to his farming operations. Experience in sheep raising is important for the successful management of the flock.

The dog nuisance is another serious proposition, but Pennsylvania in 1915 passed one of the best dog laws of any state in the Union. The law protects the sheep raiser and when the sentiment of a community is as favorable to the sheep as to the dog, then sheep ought to have a fair show in that section.

(Concluded on page 12.)

How We Have Increased the Clover Crop

By J. Stuart Groupe, Lycoming County, Pa.

We started 20 years ago with a farm that had been in the hands of tenants for 17 years. It was so much run down that we purchased it for one-half the amount it cost the former owner. When cleared, 70 or 80 years ago, this land produced about 40 bushels of wheat, and about 65 bushels of shelled corn to the acre. Twenty years ago the producing power had fallen to 10 bushels of wheat and 20 bushels of shelled corn.

We came here with a vision. We were cognizant of the fact that the humus was nearly gone and that humus was the foundation of soil fertility. We started to (as we called it) work with and assist nature, without the use of commercial fertilizers, and in our dreams we saw this land producing in the future, crops as good as when it was first cleared. Now in regard to omitting the fertilizers, do not misunderstand me. I do not mean to denounce the fertilizer man, for there is money to be made by the judicious use of fertilizers. But I deplore the tendency of so many farmers of the present day to depend so much on fertilizers instead of using what nature gives them.

POTATO FIELD PHOTOGRAPHED JULY 2, 1915
YIELDED 265 BUSHELS PER ACRE.

This land, when we took possession, was all seeded to timothy. The last tenant told me that clover would not "catch" any more. We, being book-farmers (my wife and I both being raised in Philadelphia), had read that clover was a deep-rooted plant and being a legume, it has the power to take nitrogen from the air; also that it had a loosening effect on the soil, and was rich in protein. All these things made it too valuable to give up without a struggle. By the use of lime and stable manure we soon had the land growing clover as it had done formerly.

Our rule from the start was to sell no roughage. All hay, straw and corn stover must be fed or used as bedding, and returned to the land. In fact, for 10 years we denied ourselves every luxury and spent only what was necessary for our living, running expenses, taxes, etc. Our rotation was corn or potatoes, oats, wheat and clover, 1 year each. Our cash crops were wheat, potatoes, hogs and cattle.

With this plan as the years went by we got a steady average increase in yield. At the end of 12 years the land commenced to produce more clover than our stock would consume. We then put in the barn about what we thought sufficient for our horses and cattle, and whatever was left we simply mowed and left lie on the ground to be plowed under the next spring for corn or potatoes. We reached the maximum in 1913, when we mowed and left clover enough on the field to have made about 65 tons of hay. Our rule was to sell no hay and we did not break it. That same year our yield of wheat was 31 bushels per acre, of corn, shelled, 73 bushels, and of potatoes, 265 bushels per acre.

During our first years, when we had some very poor fields, we never failed to get a good stand of clover by applying lime previous to the fall seeding of wheat. Then, after the ground was frozen, we put on the wheat a top dressing of stable manure, 10 tons to the acre. We always endeavor to get our clover seed (medium red) on early in the spring, generally when the ground is honeycombed on a frosty morning. Our young clover is always clipped in the fall, about the time heads appear. This stimulates the plant, makes it stool well and a good stocky, healthy crown is developed that stands the winter. In this section there is many a good stand of clover ruined by allowing the plants to ripen seed the same year it is sowed. The plant is thereby robbed of so much vitality that it is easily raised out of the ground by the action of frost.

A farmers' institute lecturer three years ago told me that I was probably now on the crest of the wave, and suggested that if I continued my present plan my land might become clover sick. I confess that I was a little anxious until I read Dr. King's book about a year ago in which he tells that the Chinese have been growing clover for 4,000 years and had never heard of commercial fertilizer until recently, but depended upon manure and legumes.

CLOVER MOWED TO BE LEFT ON THE GROUND.
J. STUART GROUPE FARM.

Lime and Manure

"But I tell you, you have got to have some barnyard manure to go with the lime. You cannot depend on the lime alone."

THE 1915 STAND OF WHEAT ON J. STUART GROUPE FARM, LYCOMING CO., PA.
AVERAGED 31 BUSHELS PER ACRE.

We had been talking, this young farmer and I, about a field of clover we grew on our place last year. His eyes shone with a fine fire when he said:

"It was the best crop of grass I ever saw. I know there were four tons to the acre, if there was a ton. It lodged some, but we got it all right and it was just splendid! The lime helped; but," and here is where the faith in barnyard manure came in, "you have got to have some barnyard manure to go with the lime. That is what gives the humus, which is what most of our land needs now."

Now, I think my boy is right. That wonderful thing we call humus has been gradually reduced by the crops we have been taking off year after year. Lime will not supply this directly. It is used to grow clover and good sods in order to bring back the productive qualities the land used to have, and which it must have again if we are to get the results we used to.

So, too, in another way I think my son is correct. He has always stood up for the keeping of cows on the farm. It was not easy to do this at first. We had to buy some hay in the spring of the year to get the stock thru, because we were keeping more than we could support from the hay and corn we could grow; but by keeping cows to the limit of the pasture and putting the manure back on the land, and building a silo to give us more value from the corn, we have come to a place where we do not have to worry that we shall not cut enough to winter the dairy. To go with the manure we get the unslacked article, pile it up and let it mellow up ready for seeding time. For some years we have been hauling the manure out as it has been made and spread where we intend to plow for corn. Then when we seed that land down we apply the lime. I think, too, some may profitably be used broadcast on new seeding.

Still another thing we have decided, and that is that the shorter our rotations the better. About like this, so far as we can now see, is the best. This year, corn, next year oats, or some other seeding grain crop, the year following grass; then round again to corn. This gives us a liberal supply of grass roots to turn under, and so we get more humus. Once we get this rotation started it is not difficult to keep it up.

One of our friends not far away tried to keep up the fertility of his soil by using nothing but commercial fertilizers. The soil of his farm was naturally strong and he thought he could make more money, I have not doubt, with less work. So he sold off the cows and depended on the crops grown on the place for his income. But he did not stick to that long. Almost before we knew it, he had bought back some cows and was doing a dairy business again.

"Yes," he said when we spoke to him about it, "I found that we had to have the manure or the land would go down."

If a man is situated so that he can buy manure, that makes a difference, but comparatively few of us are thus located. I have in mind a small farm that was fed for a number of years by manure drawn three miles from village stables. That place steadily increased in producing capacity, until the owner was cutting the finest timothy hay of any farmer in the neighborhood; and altho he has not lived on the place for a good many years, and in spite of the fact that his successor has not felt it advisable to stock the place as it might be, or to haul manure from town, the effects of that generous fertilizing with barnyard manure are still visible in the good crops harvested every year. But these crops are decreasing in quantity and in value and will deteriorate faster and faster as time passes.—E. L. Vincent.

In every community there are a few farmers who have prospered thru thick and thin. Try to find out why, and when possible imitate their ways.

Queries and Comments

(This department is open to all of our subscribers. Queries and short comments are invited. Queries will be answered by best available authorities.)

Lime for Potatoes

"Please let me know if it is good policy to lime potato ground sod just turned, or whether it is best to put it on the sod after turning. Last year I manured the sod and turned it down and the grubs ate the potatoes so they were not worth digging. Some say I should put lime on, and others say not. Which is right? Commercial fertilizers are out of the question since there is no potash." A. G., Columbia, N. J.

If lime is to be applied, we would recommend plowing down the manure and apply the lime on top. But if you have any trouble with potato scab, either on seed or in the soil we would not apply lime to the potato crop. It will have little influence in increasing the crop of potatoes, but will increase the scab if the germs are present. We are not so sure that it will not pay you to apply fertilizer in the shape of phosphoric acid. Except on sandy soil, this has been found in many instances to be more helpful than potash. Since you will manure the ground, thus applying nitrogen, we would recommend an application of acid phosphate. Leave a few rows without any. We should be glad to know the result. Lime would have little or no influence in preventing grub injury.

Soybeans for Hay

"Kindly give advice concerning sowing of soybeans for hay. Quantity of seed, varieties best for Chester County, time of sowing, etc. Also, relative merits of cowpeas and soybeans. Extremely late season for oats seems to favor the sowing of some leguminous crop which will come off the ground early for wheat seeding." H. L. D., Chester Co., Pa.

The soybean grows best on a good corn soil, and the soil preparation is similar to that for corn. It is a warm weather plant and should not be planted until the soil and weather are well warmed up. It is a good rule to sow them a week after corn planting time. The best results are obtained by drilling with a grain drill in rows 24 to 32 inches apart, using 20 to 40 pounds of seed per acre. They should be cultivated two or three times to keep down weeds and to keep soil broken up. Unless the special bacteria are present in the soil they will not enrich the land. It is usually wise to inoculate the soil and thus add fertility as well as grow feed. In average seasons, soybeans will be found preferable to cowpeas in Pennsylvania. For hay they should be cut when in full bloom and the pods are beginning to form.

Cattle on Highway

"If I drive cattle on the highway, can I be held responsible for damage done to property or crops on land adjoining the highway?" A. S. C., Quakertown, Pa.

In driving cattle on the public highway you are bound to use due care to prevent them from trespassing on the adjoining land, but if, in spite of the exercise of care on your part, the cattle escape and go upon private grounds, you are not responsible for the damage done to the property or to crops, provided that you remove the cattle within a reasonable time. What is a reasonable time must depend upon all the circumstances.—G. G. and H.

Widow's Share

"A man dies intestate, leaving a wife and children. His property consists, besides real estate and chattels, of a bank account. What part does does the wife inherit by the law of the state of New York?" E. S., New York.

The wife takes a life interest in one-third of the real estate, and she is entitled to one-third of the personal property, which includes both the chattels and the bank account, absolutely.—G. G. and H.

Corn Wireworms

Corn wireworms damage cereal and forage crops in the Middle Atlantic States, the New England States, and the Mississippi Valley. They are reddish brown in color, about 1¼ inches long, cylindrical in shape, and have three slight lobes or projections on the tail. These insects spend a considerably longer time in the soil than the wheat wireworm. In some cases they have been known to live in the ground as long as six years. On the other hand, they are almost exclusively confined to poorly drained and heavy soils. For this reason heavy liming and thoro tile draining will undoubtedly prove beneficial in their control. The thoro cultivation of waste land, especially along drainage ditches and creeks during mid-summer, and the deep cultivation of crops and fallow land are also recommended.

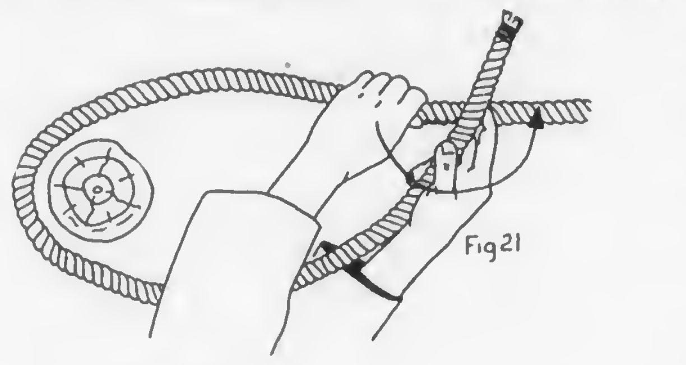
Meadow wireworms attack corn, potatoes, tomatoes, onions, cabbage, radishes, turnips, horseradish, spinach, sugar beets and alfalfa. In the Northwest they are most destructive on irrigated lands and in the East on poorly drained areas. They look very much like the dry-land wireworm, but can be easily distinguished from other varieties by their forked tails. They do not usually attack beans or peas and the planting of these crops before seeding to corn would therefore assist in controlling the pest. The thoro tile draining of infested fields in eastern areas and the heavy liming of the land at the rate of about 2 tons to the acre, together with deep cultivation during July and August are other measures that specialists recommend for their control.

Easy Lessons on Ropes—V

By R. A. Andree,
Dept. Farm Mechanics, Penna. State College.

Bow Line Knot

This is undoubtedly the most popular non-slipping knot known. It is used by stage hands, and for the very reason that it can be made rapidly and quickly undone. Make a loop around a post, laying the short end on top of the long end, as shown in Fig. 21. Then, with the left hand, throw a loop over the short end as shown in Fig. 22. You will now notice that the short end of the rope tends to come thru this loop from the bottom up. The short end then goes under the long end as shown by the arrow in Fig. 22, and is placed in the position shown in Fig. 23. It is finally pushed down thru the loop as indicated by the arrow in Fig. 23. By taking hold of the rope at the points marked "a" and "b" in Fig. 24, with one hand and pulling with the other at the point marked "c", the knot can be drawn up.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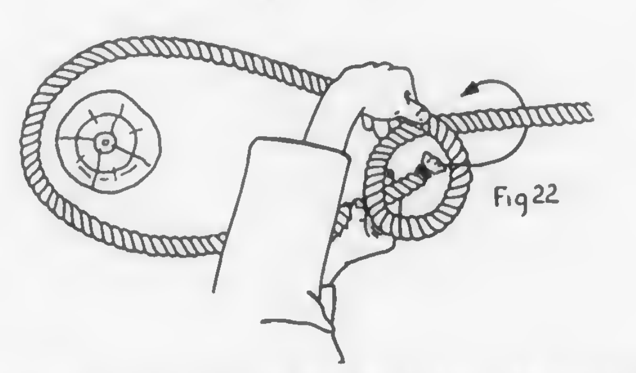
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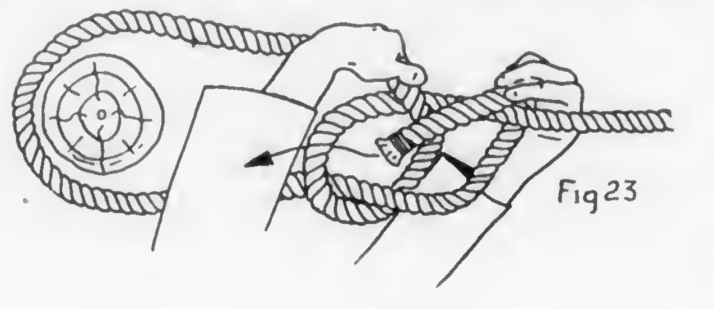
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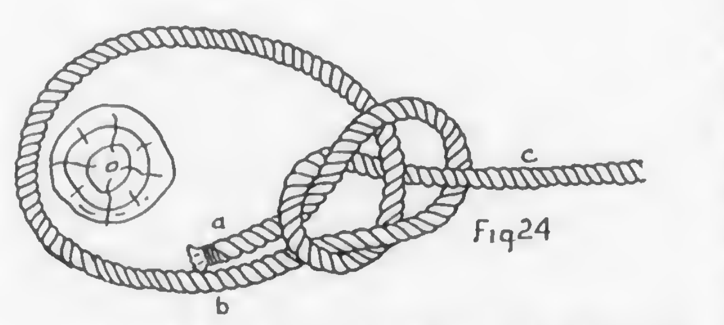


Fig24

Cross Roads Farmers' Club

The last meeting of the Cross Roads Club was devoted mainly to queries and personal questions. Each member had previously written out questions on which he wanted the advice or opinion of his neighbors, and in his turn asked a member or the whole club. Of course there was some difference of opinion, but we give herewith the gist of the best judgment.

J. Wriglesworth: "What kind of fertilizer can I use economically this year with corn, seeing as how there are some elements we can't get and others are too high? I will give a light application of manure."

Answer: Apply 200 pounds per acre of 14 per-cent acid phosphate, drilled in broadcast before planting. This will add what is lacking in the manure, and is the limiting factor in most of the soils in this neighborhood.

Farmer Helper: "Is it wise to roll ground right after the plow?"

Answer: "Yes. Each day's or half-day's plowing should be rolled so as to pack the soil and maintain the capillary action of the water from the subsoil upwards. However, it is just as important to follow the roller with the harrow to prevent the moisture from escaping. Since it requires but little longer to fit a field this way than to do all the plowing first, letting the soil dry out completely, it is hard to see why so many farmers do it the wrong way. You will need all that moisture later on."

Farmer Spencer: "If, as it looks now, help is going to be scarce all the season, what can we cut down on so as to meet the conditions?"

Answer: "Cut down the acreage of planted crops to what can be well prepared and cultivated. It is more sensible and profitable to put the proper amount of work on five acres of corn, than it is to put half enough on ten acres. Modern machinery will go a long way in making one independent in seasons of help scarcity. For instance, one man on a two-plow gang with four horses can plow more than two men using single, walking plows, and a man on a sulky cultivator can do more cultivating than two men with single cultivators.

Farmer Bloom: "Will it be wise to plant many potatoes this year, remembering the old saying, 'When seed potatoes are cheap, plant many; when high, plant few?'"

Answer: "It is following such fool advice as that that makes the potato market so variable. If every one would plant a regular amount each year, there would be more certainty about the business. On soil that is adapted to potatoes, and the crop is well grown and cared for, there is a profit in them at 50 cents per bushel, and the average price has been above that for a number of years. Yes, we would plant the usual amount and give them better attention than ever before."

Farmer Marshall: "What is a good spring and summer feed for horses when one has little or no oats to spare?"

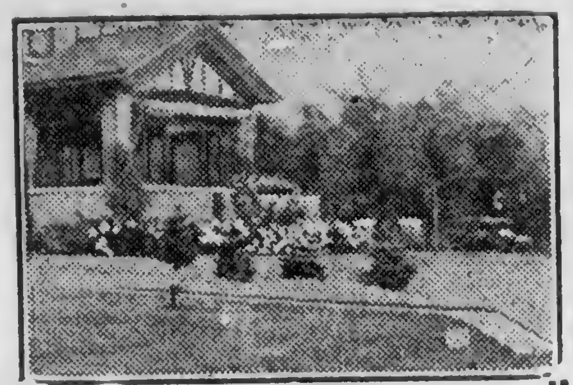
Answer: "One of the best rations for farm work horses, when oats can not be a part of it, is to mix together 100 pounds shelled corn, 15 pounds wheat bran and 5 pounds oil meal. Feed about 10 pounds of clover or mixed hay per day. Too many farmers feed little but corn and timothy hay in hot weather. This ration is too low in protein to keep up blood, bone and muscles, and while enough may be fed yet a horse cannot do the work required of him. If the hay is alfalfa, corn may be used quite largely. If clover hay is fed, 10 pounds of gluten may take the place of the 5 pounds of oil meal in the above."

Farmer Kester: "I would like to know what to plant that would furnish the best roughage for cows."

Answer: "When clover hay and alfalfa is absent, or insufficient, soybeans will come more nearly filling the need than anything else in this neighborhood. They make a highly nutritious feed and on good corn land will yield two to three tons per acre. Plant them in well prepared ground after corn is planted. It requires less seed and an equal amount can be grown by drilling them in rows instead of sowing them broadcast. Also, they do better when given two or three cultivations which kill the weeds and loosen up the soil. A good way is to use the grain drill, closing all the holes except the two end and middle hose. Plant 20 to 30 pounds per acre. While furnishing feed, they will at the same time enrich the soil if inoculation be larger and nitrogen be added to soil if the right bacteria are present. They should be mown for hay when in full bloom. The Wilson variety is one of the best."

TO INOCULATE SEED

Coating the seed of legumes with inoculated soil before planting is a simple method of insuring soil inoculation at slight cost. County agents in Illinois have found ordinary furniture glue effective in holding particles of inoculated soil to the seeds. This method gives each individual seed some of the particles of inoculted soil which it carries with it when planted. The scheme requires but a small amount of inoculated soil and costs but a few cents an acre. The method is described in Farmers' Bulletin 704 of the department.



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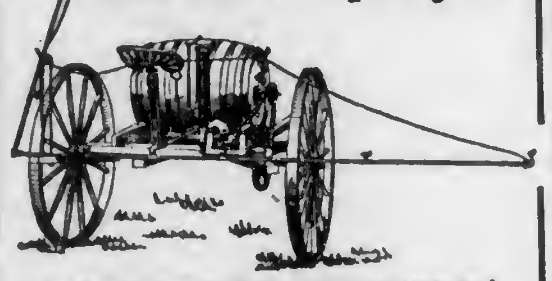

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Horticulture

Timely Fruit Notes

By Dr. J. P. Stewart

Does the Location of the Nursery Affect the Hardiness of the Trees?

"For New England planting would you consider it wise to purchase trees as far away as Missouri, or would you feel that a New York or Pennsylvania nursery would be more satisfactory?" E. G. M., Philadelphia Co., Pa.

Practically all the definite comparisons made on this subject indicate that the location of the nursery in which the trees are produced exerts little or no influence on the value of the trees for any other location, provided the handling is equally good in all cases.

In a test on plums in Vermont, for example, it was found that trees produced in Louisiana were fully as hardy and vigorous as any of the same variety produced farther north, even including those grown in Canada. It is the variety, therefore, and not the place in which the tree was produced that determines its fitness for any particular section. There are often other considerations, however, which make it desirable to deal with a nursery that is fairly near, whenever this is possible.

The J. H. Hale Peach in Pennsylvania

"What do you know of the J. H. Hale peach? I am located near big orchards of Champion and Elberta and want something for local market that will outclass these varieties. I now have Carman, Hiley and Niagara. How does the J. H. Hale ripen as compared to the 5 varieties just mentioned?" W. B., Chester county, Pa.

This variety ripens about with the Elberta, and apparently has a slightly longer season. The others therefore are all earlier. In regard to its value in this state, I may say that the fruit itself is very satisfactory, distinctly better than the Elberta, judging from the samples that I have had of it. Its hardiness, vigor, and general bearing qualities in this state, however, have not yet been tested sufficiently to warrant any very large plantings of it. In other words, it is very promising and certainly worthy of careful trial, but still somewhat on probation here. There are a good many planted in the state, and the next year or two should go far toward determining their true rating. Another good yellow peach that will ripen slightly later than the Hale is the Frances. It might be well to use some of them rather than take too big a chance on the Hale alone.

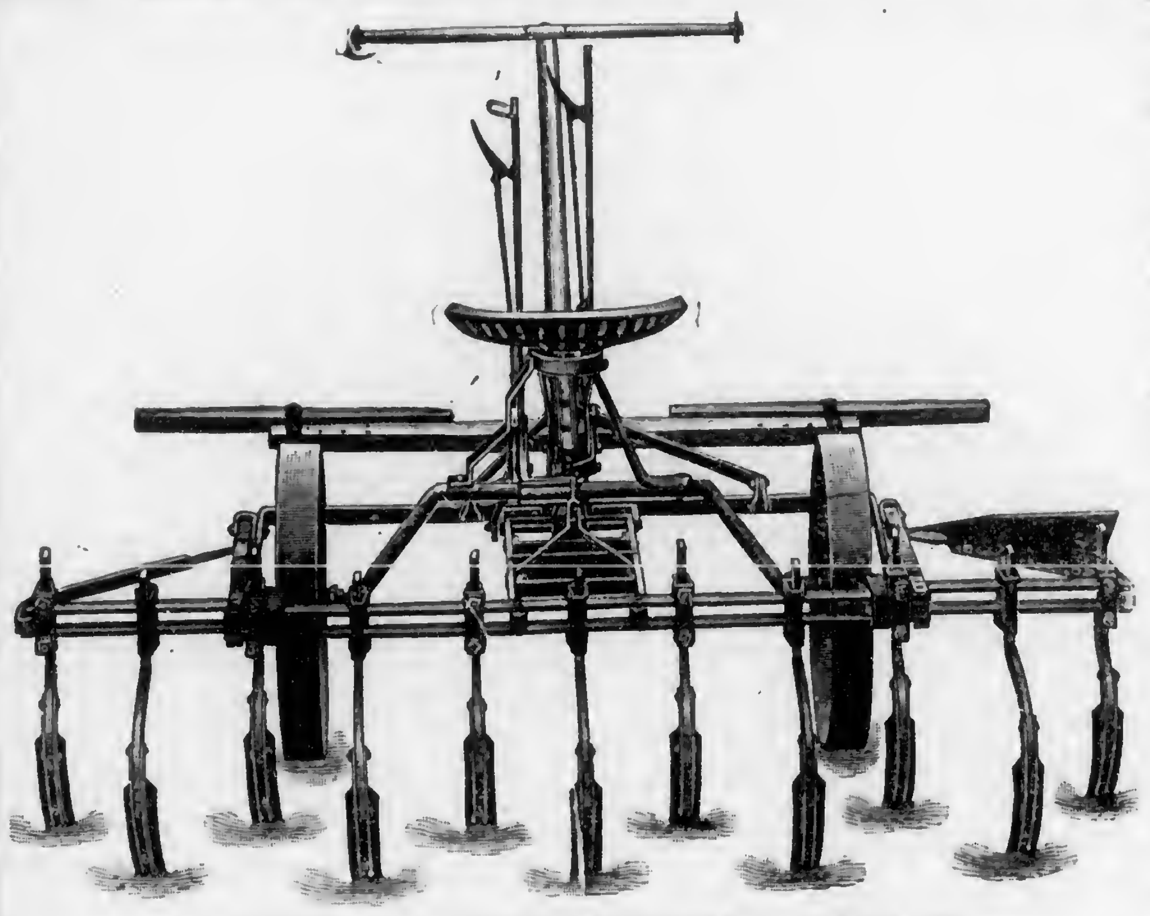
Hight of Heading for Apple Trees

"I am about to set out an apple orchard of some 3,000 trees and would appreciate your advice as to the hight from the ground that the trees should be headed in. I plan to set two year old trees and had thought of insisting that no tree would be accepted with first branches more than 24 inches above the ground as I wish low headed trees. Do you consider this desirable and practicable?" E. G. M., Philadelphia County, Pa.

This is a point upon which there is much difference of opinion. All hights, from 15 to 18 inches up to 7 feet or more, have their earnest advocates. It also depends considerably on the characteristics of the variety, the drooping or spreading sorts such as Smokehouse, Jonathan, or R. I. Greening requiring the higher headings.

In my own opinion, however, 30 inches is low enough for the lowest limb on any apple tree, altho there is no serious objection to going a little lower, if this is especially desired. In such a case, however, I would use at least five limbs for the framework and would try to get them spaced so as to have a vertical distance of at least 6 inches between the points of origin of these branches. With this arrangement you can eventually reduce the number of framework limbs by one or possibly two, and when this reduction is made, the hight of the tree can be modified somewhat by removing either the lower or upper branches.

When you wish the trees headed even as low as 30 inches, however, it is probably best to buy one-year-old whips and develop the framework directly from them.



A MODERN AND EFFICIENT ORCHARD CULTIVATOR.

Planting with Apple Fillers—Blasting Holes for the Trees—Lime-Sulphur Equipment

"I have about 2½ acres, some of it is now in peaches and a few rows are started on standard apples. The land is in a limestone region. The apples are planted in square form, trees 32 feet apart with fillers between, making them 16 feet apart. Now I wish to plant about 3 or 4 varieties of apples of standard kind. Are there any better than York Imperial, Smokehouse, Rome Beauty, and Stayman Winesap? Which two of these four do you consider the best? I intend to plant them 32 feet apart, with dwarf apple trees between as fillers, making them 16 feet apart. Do you consider this practicable? As dwarf fillers I selected Jonathan and Wagener. Do you consider these all right? I intend to have them all late winter varieties as much as possible.

"What name specifies the grade of sulphur that is used to make lime-sulphur solution, and how many grades are there?

"What size mesh wire is used for screening lime-sulphur solution, and where can it be procured?" C. M. P., Lebanon County, Pa.

I would not advise the use of apple fillers unless the permanents were planted farther apart than 32 feet. Where apple fillers are used, the permanents should be not less than 40 by 40 feet, and even 45 feet apart would not be too much. If one of the fillers is planted in the center of the square, there will be no danger of not having the ground fully occupied as long as desired, even tho the greater distance is used. If the greater distance can not be obtained it would probably be better to use some good plums or peaches for the fillers.

As to varieties, the Rome Beauty and Stayman Winesap are preferable if you want late-keeping varieties of good quality. It is also possible that you could make some improvement on the Rome Beauty by using the Ensee, which is apparently an off-shoot of this variety. It is higher in quality and apparently equal to the Rome in other respects. You can get further information from U. T. Cox, Proctorville, O., on whose place it originated. The Jonathan and Wagener should be satisfactory as fillers, but I would use standard trees and not dwarfs, as seems to be suggested.

Lime-sulphur can be made out of any of the powdered sulphurs now on the market. There are three important grades known as the "flowers", the "flour", and the "powdered commercial" or "commercial flour". The last is much the cheapest and is just as good as any of the others for making lime-sulphur.

Any size of screen, from 30 to 50 meshes to the inch, should be satisfactory for straining lime-sulphur solution. Suitable wire can be procured from any good wire-cloth manufacturers, or often from the local hardware dealers.

For lime-sulphur alone the tinned-iron or the brass wire is preferable, and copper wire should not be used at all, as the lime-sulphur will corrode and destroy it very quickly. Even the former screens should be washed immediately after using in order to preserve them as long as possible.

CULTIVATING ASPARAGUS IN THE CUTTING SEASON

Asparagus needs cultivation regularly during the cutting season if it is to keep up its supply of spears. The tread of the cutters, the pelting of rains, and the passage of cart wheels make it difficult for the spears to force their way thru the soil because of the packed condition of the soil.

Perhaps it is not at first evident how cultivating the soil between the ridges can relieve the dry hard conditions in the ridged portions of the bed but when one considers that checking the evaporation from five-sixths of the surface by cultivation means a moisture saving that must benefit the ridges occupying about one-sixth of the surface.

The work between the ridges is done with a horse cultivator and should occur once a week at least. A surface scratching of the ridges is necessary at intervals to loosen the crust and to destroy young weeds. This is done by a light tined tool and does not penetrate more than an inch so as not to injure any spears below the surface.

The ridger is used several times during the cutting season and is properly used after the soil has been loosened with the cultivator.—M. R. Conover.

Strawberry Culture---III

Harris T. Kille, New Jersey

Treatment of Established Beds

Neglect seems to be the popular treatment for established strawberry beds. Practices which are most popular are sometimes the least profitable, but usually the reverse is true. If neglect is the popular treatment for established strawberry beds there must be a good reason for it. The farmer—the man who makes his living from the soil—is just as anxious to see his strawberry bed as free from weeds and grass as is the so-called agricultural experts and if there was a profit in keeping a one or two year old strawberry bed free from weeds and grass no one would be more quick to do so than the average owner.

Several years ago it was discovered in the corn belt that one cultivation more than the average would increase the yield of corn. But the increase, or bushel-return for that last cultivation was not profitable.

Where land was cheap the greatest profit was to be derived from growing a larger acreage of corn with the average number of cultivations, rather than increasing the cultivations on a less number of acres. With strawberries, labor and not land is the most expensive item of production. The question, then, resolves itself into this: Does the greatest profit come from expending the available labor on an established bed, in keeping it tilled and free from grass and weeds, or is the greatest profit to be derived from neglecting the established bed and expending the labor in the production of a young bed? Custom in many large strawberry growing sections points to the fact that neglect is the most profitable, even tho most preached against.

It is not my intention to advocate neglect. I want strawberry growers to think and experiment; for, after all, each farmer must judge for himself the amount of time he can profitably spend in the production of berries. However, I think most of the advice about clean tillage of established beds is either general or else has been drawn from observations made where strawberries are grown in a small way for a special trade. The great bulk of growers must produce the fruit which brings the average price and below in the large wholesale markets. These growers must consider every labor expense, else their profits will be negative.

Methods of renewing old strawberry beds often fail not because the method is not good, but because the soil, for the time being, is "strawberry sick". After a field has been in strawberries for two or three years it should be planted to other crops for two or three years before an attempt is made to establish a new bed.

Insects and Diseases

In sections where strawberries are a new crop, insects and diseases give little trouble, but in some sections these enemies have become so severe that remedial measures must be taken or strawberry growing abandoned.

The strawberry weevil is one of the worst pests. It hibernates in winter among the leaves and rubbish. In spring as the buds are forming it comes forth and feeds upon the pollen by penetrating the closed buds with its long snout. The eggs are laid in holes in the closed buds. Further development of the buds is prevented by a girdling of the stem of the bud in which an egg has been laid. The earliest maturing buds are the ones most injured. Except with those varieties which blossom most profusely the crop is often very small.

Varieties producing pistillate blossoms only are not injured as there is no pollen for the young to feed upon. Until last year no satisfactory remedy was known for this pest. Last spring Dr. Headlee, New Jersey State Entomologist, discovered that the weevil could be controlled by dusting the plants with a mixture of one part by weight of powdered arsenate of lead to five parts sulphur just before the first buds opened. This mixture acts as a repellant as well as a poison.

The strawberry leaf-roller causes much loss in some sections by reducing the leaf surface of the plants. The adult is a small moth which appears in early May. The small green eggs are laid on the under side of the strawberry leaves. These hatch in a few days and the small green larvae feed openly on the upper surfaces of the leaves of the leaves for about two days after which they spin their webs, drawing the edges of the leaves over them. There are three broods. The first causes most immediate damage. The last two do most damage to the young fields, checking the growth and formation of new plants. The remedy is an application of arsenate of lead (4 to 5 lbs. to 100 gals. of water). This should be applied in the form of a fine spray just before the larvae hatch. After they begin to curl the leaves it is too late, for they are protected. In the latitude of Philadelphia from May 10th to 15th is the proper time to spray for the first brood.

The white grub or larva of the May beetle or June bug proves very destructive to newly set beds on sod lands. They eat off the roots. To avoid injury from this pest strawberries should not be set on newly plowed sod land. A crop of corn should first be grown and the land fall plowed.

On poor soil and in areas where strawberries have been grown for several years, especially in the South, the strawberry root-lice do considerable damage. They suck the plant juices from the roots, causing the plants to wilt and finally die. If the soil is badly infested, a long rotation is the only remedy. Frequent cultivations which discourage the work of ants, the care takers of the root lice, will prevent their rapid spread.

Before setting new land with plants that are likely to be infested with the root-lice, they should be fumigated. For this purpose a box or small room in which the plants can be spread out thinly on shelves or trays should be used. Hydrocyanic acid gas is the best fumigant. For 100 cubic feet of space one ounce of cyanide of potassium, two ounces of sulphuric acid and four ounces of water should be used. The cyanide should be dropped into the mixture of acid and water in a glazed earthen or glass container and the box or room closed tightly immediately. The plants should be exposed to the gas for ten minutes only. Both the gas and the potassium cynide are deadly poisons.

Among the diseases two or three forms of leaf spot and leaf blight are the most prevalent. Powdery mildew also does some damage. These can all be controlled by timely sprayings of 4-4-40 Bordeaux mixture.

Many of the insects and diseases can be so held in check by a close mowing and turning over of old beds at the close of the picking season that spraying may not become necessary. If there is not too much trash over the plants they will not be injured by the fire.

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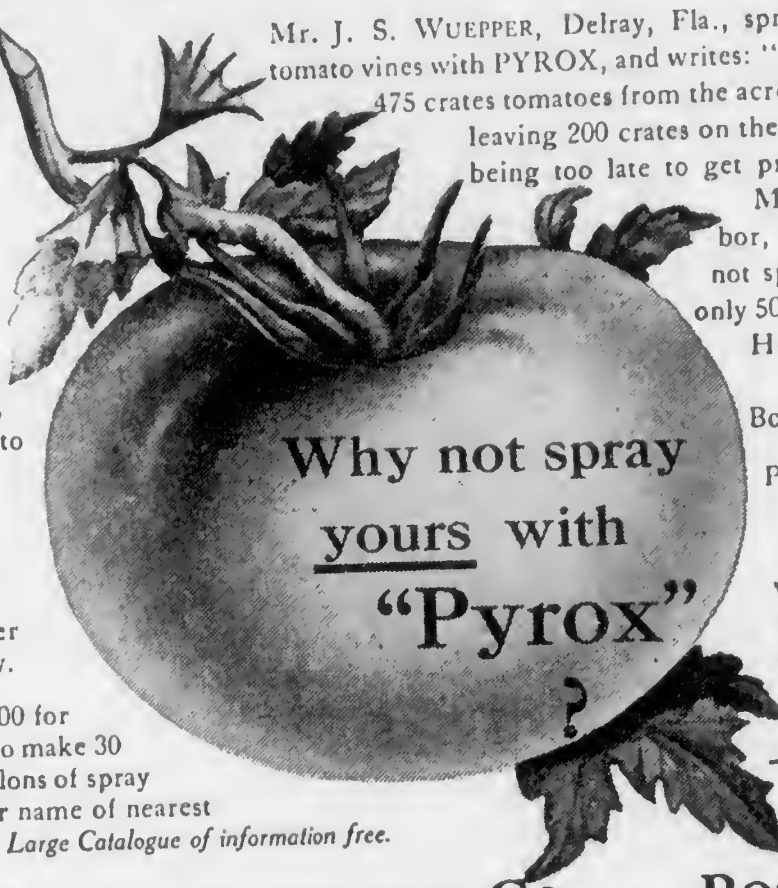

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Philadelphia, Pa., May 13, 1916.

National Dairy Convention

Editorial Correspondence

The national convention or conference of milk producers and other dairy interests of the country, held at Washington, May 5 and 6, was an unqualified success and should prove an important advance step in dairy legislation and organization in this country. The conference was called by officials of the National Buttermakers' Association and the National Dairy Union, Secretary Wm. T. Creasy of the latter and Mr. W. E. Skinner, of the former body, being prime movers. The object of the conference as announced was to develop uniform practical regulations governing the production and care of dairy products. The conference was inspired by the recent proposals in Congress to extend Federal inspection of dairy farms, creameries, skimming stations, etc., but the discussions uncovered many phases of inspection and regulation now practiced that alone justified the conference.

The meeting was perhaps one of the most representative and widely attended that has ever been held. There were about 350 present at every session, and the promptness of gathering and uniformity of attendance at all sessions spoke volumes for the earnestness of purpose of all there. Thirty states were represented by from one to six delegates, ranging from Maine to Oregon and from Michigan to South Carolina. Every dairy breed association was also represented in addition to delegates from local and trade bodies representing every branch of the dairy industry.

The purposes of the conference were definitely stated in a short opening address by Wm. T. Creasy. Co-operation of the Department of Agriculture in development of the dairy industry was promised in the address of welcome by Assistant Secretary, Carl Vrooman. Response was made by the Hon. M. D. Munn, president of the National Dairy Council. Mr. Munn sounded the real key note of the conference, declaring that all had come for a definite purpose to secure improvement of certain definite conditions and secure definite legislation. He asked for the reorganization of the Dairy Division of the Bureau of Animal Industry to care for the growth of the industry and give more efficient attention to the specialties developing in the industry. He urged all to deal with the general principles involved and not in personalities, but to be firm in appeals for only such regulation and inspection as is necessary and then have these on just and equitable grounds and administered by officials who have a close and intimate knowledge of the business.

Permanent organization was effected by election of M. D. Munn, of Minnesota, president; N. P. Hull, of Michigan, vice president; and Wm. T. Creasy, of Pennsylvania, secretary.

The Dairy Field

N. P. Hull, president of the National Dairy Union, opened the regular program with an address on the general needs of the dairy industry. He appealed for remedial measures that would permit a living profit to practicing dairymen; such profit being the first necessity in development and permanency of the industry. He declared that we have put too much emphasis on production in all lines and not enough on soil fertility conservation, which in general demands more dairy cows and a return of fertility to the soil. Dairying is not profitable in the large dairy areas today. Feeds, labor, care and equipment have all increased in cost much more rapidly than the selling price of milk. We are advised to cheapen cost of production, but the trend of prices reaches a point where cost can not be cheapened and there is still no profit. Milk must improve in quality, but more particularly it must advance in price. A big factor in increasing cost is illogical, unjust and unreasonable inspection and regulation by city, state and federal governments, and lack of uniformity in regulation demands. Mr. Hull advocated municipal distribution of milk with city bacteriological tests as check on wholesomeness. Duplication of equipment, investment and time in distribution accounts for much of the difference in price to producer and consumer. This could be eliminated by municipal distribution. Let the city establish its grades and test fairly and openly and the farmer who fails to meet the requirements will ask for inspection of premises and be in the proper frame of mind to act on reasonable suggestions.

Standardization

Dr. H. A. Harding, dairy bacteriologist of the University of Illinois, discussed ''The standardization of conditions under which milk and cream are handled from producer to consumer.'' This discussion was based upon a duplicate series of careful experiments, the findings of which should be read by every city board of health. Kindly keep in mind that practically all city inspection and regulation has been based upon herd and stable scores and then note the results of these experiments as reported by Dr. Harding:

He declared that all regulation of milk trade can be based logically only on food value, healthfulness and cleanliness. Food value depends primarily upon amount of total solids. The present standard of 11.75 percent of total solids is about as far as such sandards can go and is generally acceped as just and reasonable. Healthfulness depends upon absence of disease germs. Pasteurization is the only feasible remedy at this time, but must be administered by distributors or dealers as pasteurization at the farm is not yet practical. The time has not come for universal pasteurization in interstate shipment because of the cost at producing end.

Cleanliness.—Cleanliness is most difficult to control and is the factor in which greatest error has been made in past regulations. Bacterial examination is at present the best test of cleanliness. Using the bacterial count as test, investigations show that condition of the barn as ordinarily scored has very little effect upon bacteria content of milk except in extreme cases. Cleanliness of cow has little effect and with milking machines properly handled this effect is greatly lessened. The two greatest sources of bacteria infection are seeding with germ life in processes of straining, aerating, transporting in cans, in bottling machinery, and in temperature. Of these, responsibility for contamination at strainer and pail (which tests show to be least common) is with the farmer; responsibility for contamination from machinery in bottling (which tests show to be greatest) lies with the retailers. Time and temperature of handling, the two greatest factors in control of bacterial growth, are in the hands of the transportation companies and the retailers. The facts in hand indicate that the factor of cleanliness, as indicated by bacterial examination, is largely in the hands of the transportation companies and retailers, and least of all in the hands of the producers who have been made the target of all kinds of herd and stable inspection and scoring. Federal inspection is not feasible for universal enforcement and Federal inspection of herds and stables alone will fall far short of effective control.

Pasteurization

Prof. O. F. Hunziker, chief of dairy husbandry at Purdue University, discussed ''Pasteurization in the dairy industry''. He declared that the commercial and economic future of the industry demanded pasteurization of dairy products; it was necessary in order to kill disease germs and keep the products in condition to market. In handling of market milk, pasteurization is necessary in order to keep in condition to market, and if properly done does not injure food value. It kills lactic acid bacteria if kept close to the boiling point but is not objectionable at commercial temperatures. If pasteurized by holding method at 145 degrees temperature disease germs are killed and digestibility is not injured. Dealers have objected to pasteurization because the treatment tended to diminish the cream line. This is true only at the high temperature near the boiling point. The holding process at near 145 degrees not only retains but hastens the formation of the cream line. These facts were demonstrated by recent careful experiments. The professor also advocated pasteurization of cream for butter making and declared if pasteurizing was done with sweet cream there was no difficulty and no bad effects. Sour cream can not be pasteurized successfully because of combination of high acid and high temperature forming a powerful corrosive that not only injured metal equipment but imparts a disagreeable off flavor to the product. Heating to 145 degrees temperature and holding from 15 to 20 minutes at that temperature was the process advocated.

The value of pasteurization in destroying disease germs in butter has not been definitely proven, but the process is at best advisable, and if properly done it improves rather than impairs the quality of the product. He quoted charts showing scores of butter from both raw and pasteurized cream in which the pasteurized produce gave best scores both when fresh and when coming out of storage. Summing up, he declared that the only practical weakness in pasteurization of products in commercial trade was with sour cream and even here the use of neutralizers would overcome the difficulty. Cream grading and quality paying is the secret of better butter but until we reach that practice, pasteurization must be used with cream as it comes to the butter maker today.

Reasonable Legislation

W. J. Kittle, secretary of the Northern Illinois Milk Prouducers' Association, and the man who brought the recent Chicago ''milk strike'' to a successful close, discussed the ''Kind of legislation under which the farmer can succeed''. He gave a brief review of the organization of his association. It has a membership of 10,000 dairy farmers, 62 percent of which are renters. These dairymen have carried the burden of city regulations changing with every city administration for years until the only profit in the business was the calf and the manure. Over 9,000 of the members stood together in the recent strike and, acting as one man, won recognition and a higher price. The only legislation he thought desirable was what he characterized as ''reasonable'' legislation; reasonable in being based upon essential things and stable enough to avoid frequent and expensive changes. He asked for a check upon city officials and greater uniformity of city regulation. He thought there should be a Federal law or ruling definitely defining market milk and then provisions to protect the producer who turns out a product that measures up to the requirements. Tuberculosis control should have reasonable enforcement, with uniform laws in every state and reasonable remuneration for animals slaughtered. If animals are killed for public protection, the public ought to pay for such animals.

Legal Standards

Prof. G. L. McKay, secretary of American Association of Creamery Butter Manufacturers, discussed ''Legal Standards of Butter''. Present standards are rather indefinitely fixed by Food Products' Committee calling for 80 percent fat in butter and the Federal order limiting moisture content to 16 percent. Mr. McKay quoted investigations in various countries showing that these requirements were approximately correct and declared that the 16 percent moisture ruling was the best thing that could have happened for the stability of the butter business in this country. The trade demands that butter be of good flavor, good texture and good aroma. These requirements are met in an 80 percent fat content, and a higher fat standard is not called for. The proposal to increase it to 82½ percent is unjust, unreasonable and unnecessary. France permits an 18 percent moisture content. Denmark calls for a 16 percent limit for export butter and 20 percent for domestic use. England, after long investigation, fixed a 16 percent limit.

Surplus Products

Utilization of Surplus Dairy Products was discussed by B. H. Rawl, Chief of the Federal Dairy Division. His subject presupposes a surplus, which, he declared, does not exist in the country as a whole. Certain sections now have a surplus and will face a grave problem ten years from now unless new markets are developed. All dairy products are cheap when compared with other food products on a food value basis. Domestic consumption must increase by advertisement and development of this fact. When that is done there is an unlimited field in the export trade if wisely and skillfully handled with first class products. He called for greater development of the cheese business, particularly of the fancy grades now being so largely imported; also in manufacture and sale of by-products, such as skim milk, butter milk, cottage cheese, casein, milk powder, etc.

Reasonable Regulations

L. J. Tabor (a practical dairyman who had taken his place in line and milked 10 cows down in the sun-kissed hills of Belmont County, Ohio, the evening before the convention), Master of the Ohio State Grange and representing the National Grange, discussed ''What are Reasonable Regulations for a Milk Producers to Operate Under''. Mr. Tabor introduced the co-operative idea and cited the case of his local organization as evidence. Organize the producers and set organization standards to meet market requirements and you will accomplish more than by years of legislation. In his home community a local association controls all but 20 cows in the township. A committee of three sells all the milk. A local committee establishes association standards and acts as inspectors. They have made more money and have cleaned up stables, built more milk houses, eliminated more old manure piles and improved the product more in six months than has been accomplished by eleven years of city inspection. Association regulations have been based upon factors affecting health and comfort of the cow, clean milking, early aeration and cooling of milk and handling in well cleaned and sterilized utensils. Producers know the reason for every precaution taken and there is no objection to following the regulations.

Commenting on this discussion, Prof. Oscar Erf, of the Ohio University, declared his belief that the co-operative association idea was the secret of regulation success. Congress will never take the power of regulation from the cities and producers must meet it as outlined by Mr. Tabor. Co-operation removes misunderstanding and suspicion and puts all classes on a basis of better understanding, not only of each other but of actual requirements of the business. Prof. Erf predicted that cities would eventually establish grades for milk, and the lowest grades would have the greatest demand. He cited cases of cows in expensive stables elaborately cared for showing high bacterial counts in milk, simply because they were unhealthy due to pampering. Make stables comfortable, keep cows healthy and they will produce wholesome milk. He suggested an annual conference of delegates from every state dairy organization to draft rules for local observance.

Dairy Inspection

Hon. J. J. Farrell, Dairy and Food Commissioner of Minnesota, and president of the National Creamery Butter Makers' Association, discussed ''Constructive Dairy Inspection''. He declared that inspection alone is not a measure of improvement. As long as there must be inspection it should be educational rather than mandatory. As such the inspectors should be capable of instructing and should know that the basis of their instruction is sound. Mr. Farrell touched off the real fireworks of the conference in a mild but firm reference to attitude of Bureau of Animal Industry officials toward the dairy industry. He referred specifically to the report of that Bureau for 1912, which gives incomplete figures and statements on the conduct and management of

creameries and skimming stations calculated to create unjust impressions derogatory to the dairy industry as a whole. He declared that a portion at least of that report was written by someone vitally interested in discrediting the dairy business and that the report of 1912 has been and is being used by a propaganda to destroy confidence in the butter industry as it is now conducted. He charged that Bureau officials admitted that figures in the report were misleading, but they have taken no steps to correct the erroneous impressions. He further declared that this same report is being used as the basis for further Federal regulation proposals in Congress. He called attention to the fact that Federal inspection and regulation of the meat packing business has given the packers a virtual monopoly, and he warned that Federal inspection of creameries would do the same thing with the dairy industry.

Better Prices for Bettor Milk

Dr. Chas. E. North, of New York, gave an illustrated discussion of better prices for better milk as developed by his clean milk campaign. Dr. North advocates paying for milk according to bacterial count, and demonstrated that this system of payment brings early and striking improvement of quality. He demonstrated further that good clean milk is made in cheap barns, that cleanliness is of greater importance than equipment and that the man is a bigger factor than expensive buildings. Dr. North advocates grading of milk and paying a price based on grade. He declares that the ''pocket nerve'' is the most responsive, and improvement of quality deserves a higher price.

The conference embodied the results of its deliberations in a strong set of resolutions which will be published in full next week. It appointed a committee to present these resolutions to the Secretary of Agriculture, and if necessary to Congress.

HARRISBURG NOTES

Belated Reports. — The appearance within the last few days of the report of the State Department of Agriculture for 1914 into which has been squeezed the transactions of the meeting of the State Board of Agriculture held in January, 1915, furnishes an excellent example of belated printing and the need for some ''speeding up'' of the system. The Department of Agriculture is not the only one which suffers from the defects in the publishing system, but as agriculture is more or less seasonal it is rather regrettable that some effort can not be made to put out the informative matter when the people it is designed to reach have time to read it. The organization of state officials has taken some cognizance of the conditions by requesting persons sending matter to the state printer to edit it and not require expensive revision on the proofs. What the state will come to eventually must be overhauling of the whole printing system and division of the operations into classes whereby reports and bulletins of educational or economic value will not have to be sidetracked for jobs of all sorts put in by various departments.

The Governor and Highways.—Governor Brumbaugh's poclamation of the second state-wide ''good roads'' day when people are either to go out on the roads and work or else pay for some labor or material to show their interest in better highways is meeting with substantial support in many parts of the state and there is little doubt from what has been heard at the Capitol that thousands of people will observe the day. Clubs, chambers of commerce and mercantile organizations are joining with highway associations and motor clubs in stimulating interest and in some communities the day will be marked by a partial suspension of business and going out onto the roads. Governor Brumbaugh, who intends to work himself on the roads, has said that he does not intend to overturn the policies of the late highway commissioner in regard to the department being kept out of the present political brawl and if he withstands the pressure to drag it in he will get splendid support from the people of the state in his plans for a highway legislative program next winter.

May Go To $2,000,000.—The receipts of the state from the licensing of motor vehicles have gone up close to the $1,750,000 mark and it is believed that the $2,000,000 record may be reached. This will give a tidy sum for the state highways and insure plenty of funds for maintenance and repairs as long as the law stands. What is now needed is some certain fund for the construction or assistance of districts and for aid to the townships on a more honest system than that now in vogue. The state is obligated to the townships for about $5,000,000 and this should be taken care of at the time that the road building program finances are taken up.

The Spring Meeting.—It is probable that the spring meeting of the Department of Agriculture in Reading will give some expression regarding the appropriation program for the state's educational work. The field for institutes and farm advisors working either under one head or in conjunction with State College is growing rapidly, but the budget of the department should be made up with some idea of being adhered to. The next legislature is going to be the same as every other one in the second term of a governor and unless the appropriation program for the agricultural department is pretty well instilled into the minds of the public it may have rough sledding and the governor forced to slash again.

Marketing and Sheep.—The State Commission of Agriculture was here one evening early last week and outlined plans for the more extensive raising of sheep, but precious little information was given out about it. In a general way it has been learned that the commission is working whereby a plan will be financed by bankers, manufacturers and business men to place half a dozen sheep on certain designated farms and to make observations as to cost, growth and value of products. A market for the meat and the wool has been assured. What remains is to get the sheep on the farms. In regard to the marketing problem the commission authorized the working out of a scheme whereby townships or smaller communities would be organized to get to the markets. The details of this have not been announced.

Watching for Typhoid.—State health inspectors have been warned to do all in their power to prevent spread of typhoid fever and the usual summer gathering places, such as camp meeting grounds, picnic resorts and the like will be inspected to see that chances of infection are removed. The effect of this will be to safeguard country health as well as that of town people.

School Payments.—Just as an instance of the pass to which the state has been brought by careless appropriating it may be said that whereas on the first of December in 1914 all school districts had been paid for that year there are still 30 districts unpaid for 1915. Since the first of April approximately $140,000 has been paid.

Hog Cholera Menace. — State Live Stock authorities are taking energetic steps to check hog cholera and quarantines are being established upon farms without much ceremony. Quite a number of cases of cholera have been traced to sales, the persons in charge having failed to take precautions which the state and public policy had required. Some prosecutions are likely. — Hamilton, Harrisburg, May 8.

NEW JERSEY FARM NOTES

Egg Laying contest.—The New Jersey State Agricultural Station will conduct a three-year international egg-laying and breeding contest at Vineland. It will be started November 1. During the past five years egg-laying contests have attained much popularity in this country, but the majority of them have been planned and continued for one year only. At the end of this time the birds were returned to their owners with no indication of their true breeding value. In the present contest the plan is to continue the test for a period of three years, during which time the egg-producing ability of the contesting birds will be determined as well as their breeding value. Such a contest, it is believed, will be of much greater and more far-reaching value in improving the poultry industry than would be possible with a one-year contest. A definite object in conducting this contest is to furnish some authentic and accurate means whereby the poultryman can demonstrate his ability to breed for high egg production. It will provide interesting data pertaining to the much debated question as to the profitableness of keeping birds during their yearling or second producing season. The breeding feature of the contest will provide for obtaining valuable data pertaining to inheritance of facundity. One of the very material objects of this contest is to return to the owner the pedigreed stock, together with records and other data which are unquestionable as to their accuracy. Not only will the original females with a pedigree production of two years be returned to him, but at the end of the contest the pullets or daughters of these hens, with their pullet production, will be returned. In addition, the owner will have the cockerel used in breeding work the second spring, the breeding constitution of which is so far as ten of his pullets is concerned, will be known. Each entry will consist of a pen of 10 pure pullets, the male bird being supplied by the owner March 1, 1918. The pullets entered must be hatched during the dates of January 1, 1916, and July 1, 1916.

Advocates School Farm.—Commissioner Frank I. Adams, of the Paterson Board of Education, who is advocating a farm for the disciplinary class at one of their public schools, has received an offer for a suitable farm near the city. The matter has been discussed by members of the board and all are of the opinion that such a farm should be purchased.

Egan Bill Fight.—To deluge the state periodically with maps and literature and to storm every municipality with good roads oratory furnished by 40 speakers, is briefly the plan of the campaign outlined for the organized motorists in behalf of the Egan bill preliminary to the November referendum election. A total number of 600,000 letters is expected to reach 200,000 addressed voters during August, September and October. The details of the campaign were explained at Lakewood last Saturday by Beorge E. Blakeslee, father of the bill, before members of the Associated Automobile Clubs of New Jersey at the annual spring meeting and good roads convention. It is thought that the automobile clubs will do more than any other faction in pushing the bill.

Convict Road Work.—Work has been started on a two-mile stretch of the Vineland-Bridgeton road, which crosses a corner of Salem County, by convicts who have moved to a new camp at Parvin's corner. The convicts came from a camp at Porchtown which has been temporarily abandoned because of insufficient funds to complete the Elmer-Malaga road.—L.

NEW YORK LETTER

Standard Barrel Law.—The new Federal law governing the standardization of apple barrels goes into effect July 1. This law provides that a standard barrel must contain 7,056 cubic inches, or 105 quarts, but the dimensions of the barrel may differ so long as the cubic contents are as required by the law. Heretofore all sizes of barrels have been used, but hereafter all undersized barrels will go to the woodpile. The penalty for violation of the law is $500 fine or imprisonment for six months. It is safe to say that the law will be complied with. In this connection attention may be called to the International Apple Shippers' convention which the executive committee have recently decided shall be held in New York at the Hotel Astor, probably on August 16 to 18. There will be an extensive apple exhibit.

Too Much Water in Butter. — On April 29 an interesting case was determined in the Federal Court at Syracuse relating to the adulteration of butter with more than 16 percent of water. The Internal Revenue department had required a creamery company at Adams, N. Y., to pay a license fee, with interest for a period of four years. The fee was paid under protest and amounted to only $550, but the jury decided in favor of the Internal Revenue department and thus prevented the presentation of similar claims by butter men who had paid similar fees, which claims would have amounted to $1,000,000, it is said. On analysis it was found that the butter sold to Buffalo parties by the creamery company contained nearly 18 percent of water.

Farm Bureau Demonstration Trucks. —The Albany County Farm Bureau co-operating with the bureau of Farmers' Institutes, is undertaking a line of extensive work reaching points where railroad demonstration cars do not go. It is by the use of large trucks. Last week a two-ton truck was started out from Albany on a tour thru 12 towns in Albany and Green counties, equipped with spraying apparatus, pruning outfits, and chemicals for the treatment of seed oats for smut and of seed potatoes for disease affecting them. Demonstrations were made at each of the villages visited. There is a general effort this spring on the part of the agricultural department and the agricultural college to prevent the great losses in the oat crop from smut.—D.

COUNTY NOTES

Cumberland Co., N. J., (S.W.) May 1. —Have been having cloudy, cool weather that has kept the crops back. Horses are cheaper this year than usual. Cows are in fair demand but there are not as many cattle sales as usual. Hay is selling for $16 per ton; corn, 85c bu; wheat, $1.25 bu. Farm work is rather retarded because of the wet weather. No corn is planted yet. Most of the spring plowing is done.—Everett H. Sheppard.

Chester Co., Pa., (S.E.) May 5.—Weather clear and pleasant. Milk cows high. Beef high. Chickens, 16c alive; veal, 10½c; milk, $1.65 for March. Pigs, 6 to 8 weeks old, bring $3.50 to $4. Hay $20 per ton. Straw scarce. Farmers busy plowing for corn and planting potatoes. Some hauling manure. Wheat, grass and altalfa look good.—Hayes C. Taylor.

FARMERS' NORMAL INSTITUTE

The annual Spring Meeting,' or 'Round Up', of the State Board of Agriculture and Institute workers will be held at Reading, Pa., in the Berkshire hotel, May 23, 24, 25, 1916, the first session meeting at 9.30 A. M., on Tuesday.

A good program has been prepared covering questions on general farm practice, Good Roads, Stock Breeding, Poultry Raising, Institute Work, Marketing, and Home and Rural Improvement. The various questions have been assigned to persons who are well qualified to discuss them. These meetings deserve a large attendance, and people who live within reach will be well repaid for arranging to attend every session. Programs may be obtained by writing to C. E. Carothers, Deputy Secretary, Harrisburg, Pa.

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Auray Farms Offer a few Registered Holstein Bull Calves by their well known sire, King Segis Pontiac Clorinda, and bred from full list of A. R. O. dams, at Dairy Farmers' prices — $75, $100; etc. Delivered safely by express. Write your wants — will send pedigree, particulars and make best offer. IRVING M. AVERY. Sparta, N. J.

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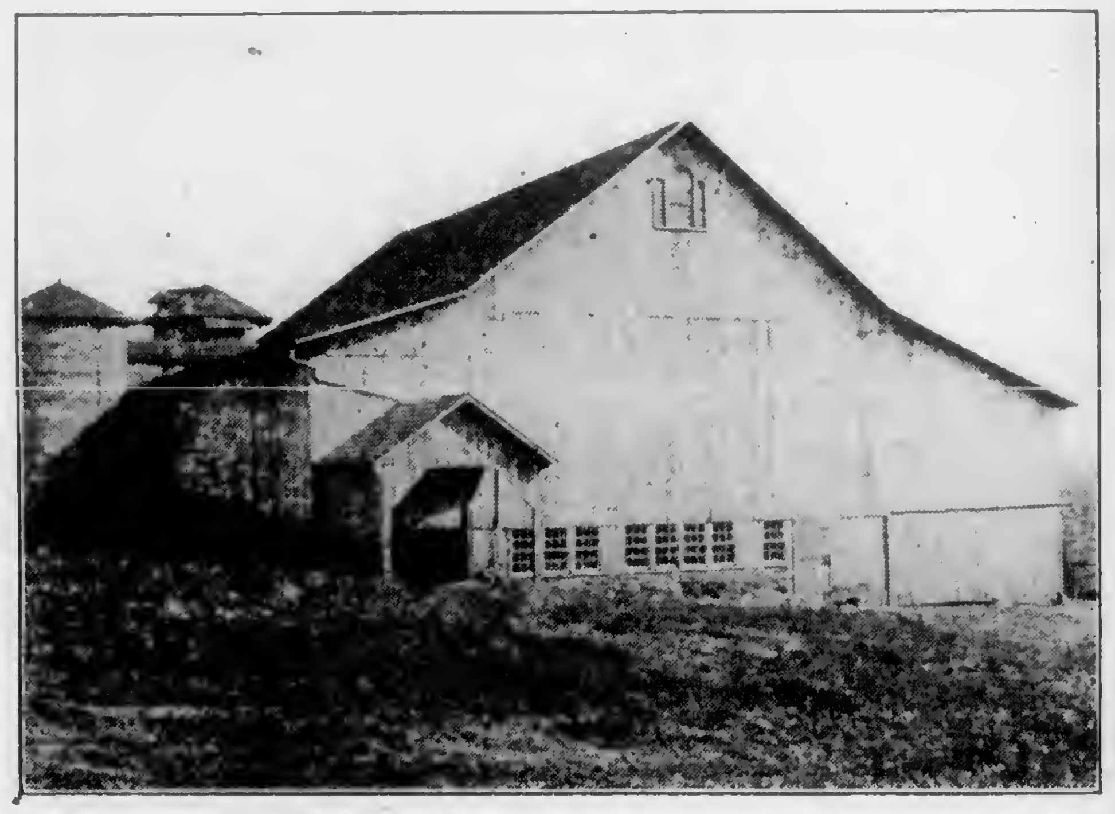
The Dairy

STARTING THE DAIRY CALF

There is probably no more serious handicap to the dairy industry than neighbors etaoinshrdlcutaoietaoishrdlu calves that are destined to become the future cows. If there is any class of dairymen more than another who might be tempted to practice such false economy, one would naturally expect to find them in districts where the milk is disposed of to cheese factories and condensors. Selling the whole milk off the farms means that nothing of any practical value is returned. This interferes seriously with the rearing of young stock, for when one is getting as high as $1.75 per hundred pounds for his milk it is almost prohibitive for calf-feeding. Usually the calf is the loser. Along in May it is turned out to pasture to shift for itself and generally develops into a pot-bellied runt.

This phase of dairy practice is very materially retarding our progress toward better cows and greater financial returns from the industry. Improvement must come first thru breeding, but of what use is the vantage ground if it is sacrificed right at the beginning by starvation rations? The calf that is not worth feeding liberally is not worth raising. Of course, I am writing from the standpoint of the dairy farmer where the object in calf-rearing is somewhat different from that of the beef-raiser. The latter aims to develop considerable flesh on the calf. On the other hand, the dairyman's object should be rather the development of frame, capacity for rough feeds, bone and muscle, along with moderate flesh. A really fat calf soon acquires a tendency to stay fat and a cow so endowed does not promise well as a milker. Our feeds then should be of such a nature as to produce growth. This includes skim-milk, wheat bran, oil cake, chopped oats and clover hay.



NEW BANK BARN WITH STRAW SHED DAIRY AND TWO CONCRETE SILOS ON FARM OF D. H. HARRY, HARFORD COUNTY, MD.

The calf should be provided with whole milk two or three times a day for a month after being weaned from its dam. Then the weaning process from whole milk may begin. Do it gradually, so that it will be on a full feed of the latter in a week or ten days. In feeding either kind be very careful regarding the quantity fed; avoid extremes, making increases or changes by degrees, and maintain an even temperature. After the calf is ten days old it will begin to nibble at any hay it can reach and from this time on should be furnished with a bunch of clean bright clover. By the time the calf is six weeks old it should be on a full feed of skim milk and will soon have a taste for a little meal. We teach our calves to eat at first the meal mixture we intend feeding them right along. This consists of equal parts of bran and chopped oats with oil cake, for which they seem to have a liking from the start.

It is not absolutely necessary for best results, to stable the calves all summer, as some contend. If allowed to run out of doors, I do not believe they suffer any disadvantage provided, of course, this be accompanied by proper conditions. The feed that they had in the stable should be continued in such quantities as they will take along with the pasture. If they cannot secure protection in some of the sheds or outbuildings from the flies, the hot sun or rain, some sort of shelter should be provided. An excellent idea is a movable coop on skids that may be shifted from place to place in the field. By hanging a piece of canvas over the entrance the flies are brushed off as the calf enters and the interior being dark conditions are very favorable to its comfort during the heat of the day. It is surprising the amount of time the calves will spend in this shelter.—J. Hugh McKenney, Ontario.

SOY BEANS FOR DAIRY FARMS

The soy bean is a valuable legume, of the annual group, very rich in protein and possessing, in common with all legumes, the power (by means of nodule forming bacteria upon the roots) of gathering nitrogen from the air and storing it in the form of nitrates in the soil. The leaves are broad and numerous, the pods and stems rather hairy, and in good soil the plants approximate a stand of three feet. We use a variety known os the Mammoth yellow, which, tho coarse and probably less desirable than other smaller and finer kinds of hay (with which by the way we were never successful), nevertheless turns off a large quantity of fodder and goes very well with corn for ensilage, besides being about the cheapest. This seed ranges in price from $2 to $3 a bushel.

After trying out thoroly several ways of planting soy beans so as to get them to the silos and convert them into ensilage, we finally settled upon the method described below. We first tried them sown broadcast by themselves—secured an excellent stand, but found it utterly impossible to handle them efficiently while working a large gang, extra teams, and filling three large silos. Next year we tried mixing them with the corn in the seed hoppers of the two-row horse planters. That was no great improvement, because of the uneven

distribution of seed in the row. We wanted the beans in addition to the regular quantity of corn—not in place of a large proportion of corn. The year following we tried going over the rows with hand planters after the corn was up, and planting in the beans. This was more successful but still undesirable, as it was found that the corn, because of having secured too great a start, shaded the beans to such an extent that they suffered. Not only that, but there was considerable danger of completely covering the sprouting beans when it came time for the second cultivation. The year after we struck it.

Seeding Soy Beans

Our ensilage corn is always planted in rows and cultivated but one way. We start the two-horse planters, and as soon as they have made one round, start several men with hand planters to follow the broad wheel marks that cover the corn in the rows, and put in the beans. No attempt at placing or spacing is made, the planters being dropped into the ground as often as possible (irrespective of where the corn may lie) and three or four beans dropped at a time. Beans and corn then germinate in about the same length of time, and come up and are cultivated together.

Far from impeding the growth of the corn in any way, the beans, especially after the first month or so, seem actually to assist it. Doubtless they take away a small amount of moisture that the corn might make use of, but if the soil has been properly prepared with an eye to the conservation of moisture, there should be enough for both. Undoubtedly they use up far less available moisture than would the weeds which they replace.

Grown in this way the beans attain a hight of 2 to 2½ feet on good corn land, depending to a great extent upon how thick the corn is planted. When cut with a corn harvester, the plants are held firmly in the bundles by the pressure of the butts of the corn stalks, and delivered at the cutter without loss. They certainly add an appreciable amount to the quality and feeding value of the ensilage; they take the place of weeds among the corn in the row, and in addition improve to some extent the soil in which they are grown —and all at comparatively small cost, none of which can be charged to harvesting expense. I can thoroly endorse and recommend the practice as outlined.—Irving M. Avery, in Sussex Register, N. J.

FEEDING GRAINS TO COWS ON PASTURE

Does it pay to feed grain to cows on pasture? The results obtained at the Missouri Agricultural Experiment Station indicate that it depends largely upon how much milk the cows give and how good the pasture is. If a cow is producing less than a pound of butter each day the necessary food can be obtained from a good pasture. If she produces more than this some grain can be fed with profit. This means that a Jersey cow should be able to get enough food from grass to make about 20 pounds of milk daily and a Holstein about 25 to 30.

It will pay to feed grain to all giving above this amount as it becomes impossible for the animal to gather sufficient feed in the form of grass. A cow giving a pound and a half of butter daily should have about 5 pounds of grass daily and for two pounds of butter, give 7 or 8 pounds of grain. When not more than four or five pounds of grain are fed, it can be all corn. If more than this is needed, some bran or a small amount of cottonseed meal should be added

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Every separator (except the New Sharples) loses cream if not turned at the exact speed marked on its crank. Experiment Stations and independent researches have brought out the surprising fact that 19 out of every 20 separator users turn their machines under speed and thus lose $2.40 to $12 per cow per year. (See Purdue Bulletin No. 116).

The New Sharples skims clean whether turned *fast* or *slow*. It will get you this extra profit your cows make for you, but which your fixed-feed Separator throws away.

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Separator feeds the milk into the bowl in exact proportion to the separating force. At 45 revolutions it skims clean; at 55 revolutions it skims clean; and at 35 revolutions it skims equally clean and always with *even quality cream.* No other separator has these two valuable features—*clean skimming* and *unchanging density of cream at varying speeds.*

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If you've a man's work to do — wear TOWER'S FISH BRAND
REFLEX SLICKER $3.
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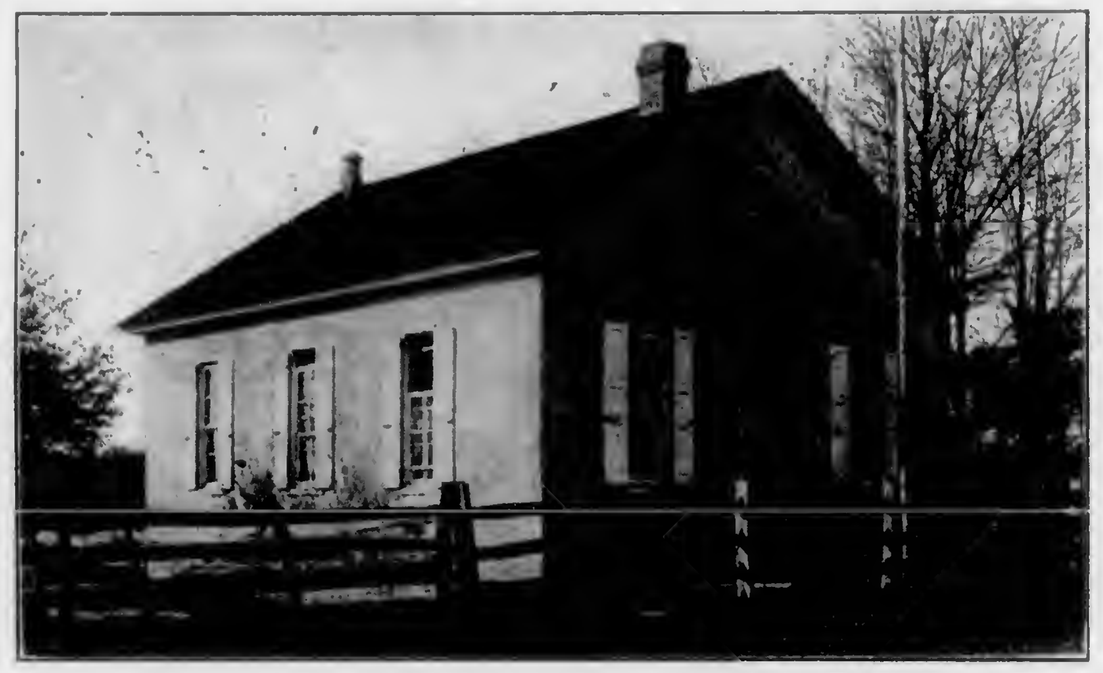
A Teacher and Her School

Paul R. Guildin, Berks County, Pa.

Better than the rich brown wheat, better than the golden corn, better than any other product of the farm, is the crop of Boys and Girls, the men and women of tomorrow.

Only a little White School House, nestled among the hills where the soil is poor and life at best is hard, yet one teacher saw an opportunity. The rural exodus of a former generation had taken away the best of a virile, energetic population and had left in its wake abandoned, desolate homes and farms. The school, once the pride of a thriving community, now was neglected, sadly in need of repairs, no flag pole, a leaking roof, outbuildings and grounds cheerless and uninviting. Only nine pupils answered the first call of the bell, yet the teacher saw not numbers but the dormant possibilities of those country boys and girls.

Her story is simple, her attainment small indeed; yet it helps to show what can be accomplished under adverse conditions, when pupils, patrons, directors, friends and former pupils work together in harmony, guided, not led, by a faithful earnest teacher, acting under the direction of a far-seeing capable County Superintendent filled with a vision of the new rural life.



THE LITTLE WHITE SCHOOL HOUSE.

At a local Teacher's Institute in Berks County, a modest young girl rose to reply to the important question, "How I Standardized my School". The Superintendent had set a high standard in regard to material equipment, school surroundings, furnishings, supplies, organization and teaching. Any school meeting these requirements would receive a diploma designating it as a Standard One Room School. This teacher and her school received one of the first diplomas issued. Her story is told not because of great results attained but for its wholesome lesson of how by real unity and team work a seemingly backward community can improve its school and thereby develop manhood and womanhood. Honor counts for little, results are all we want. Her story follows exactly as given at that little, unpretentious meeting of those to whom the cause of the rural school meant so much.

"This year at the opening of the term, I wanted to get pictures for the school room. Of course we had pictures but not exactly the kind I wanted to have. But it seemed useless to begin because I had such a very small school, only eight families represented. I did not say anything to the children and after the first few weeks I thought it was impossible. Then in October when we had our teachers' meeting in Reading and several of the teachers told what they had accomplished, that again made me anxious. Thinking that if they could raise enough money to improve their schools, I wondered why I would not be able to.

"For the next few days I was studying and planning what to do and asking suggestions from friends in our community and at last we thought of having an oyster supper in an auditorium located in a village near the center of the township, about two miles from my school. The following evening I went to see the owner of the auditorium and asked permission to hold the supper there and he kindly consented to allow us to use the building free of charge. That made me feel still more like working. I then asked the opinion of the patrons and they seemed very willing to help me in any way they could. So we set the date for October 28.

"I told the children what we wanted to do to improve the room and they were so interested that they also wanted to do something. So in the two weeks before the supper I thought they might sell a soap order, which they did in three days. That again was promising. For our premium we got a book case.

"Just before the supper I drove around to all the patrons and collected sugar, eggs, butter, lard or just what they wanted to give. They all contributed so freely that my expenses amounted to only $16.40 including ice cream, cakes, oysters, candies, etc. We had a very good attendance at the supper and the receipts were $47.15, leaving us $30.66 for school use.

"A former pupil of the school has for the last two years sent two children's magazines to the school. This year he sent these two and one more each month. His interest surely is appreciated. So when I as well as patrons, children and friends were interested in raising money for school improvement I thought I would ask his help. He approved of the work we were doing and sent a most acceptable check to help the cause along. Since he seemed so willing to help us, we thought perhaps other former pupils would be glad to. So I wrote to ten, many of them answering. They sent contributions ranging from $1 to $10, in all amounting to $22. So during the month of October we raised $58.56 towards standardizing our one room country school.

"To get the diploma we needed picture molding, framed pictures, a new flag, rope and so on and screened outbuildings. The school board appreciating the work we were doing sent a new flag and a former pupil gave us permission to get a tree from his woodland. So one of the patrons selected a tree, trimmed it and brought it to the school. He with the help of one of the directors and his son erected the staff for us, so we had no expense connected with flag or staff.

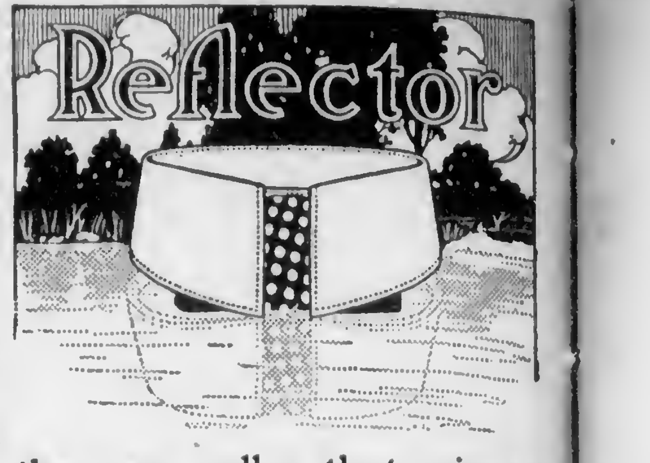
"We bought the picture molding and one of the directors was kind enough to put it up for us. The following pictures beautify the walls: 'The Gleaners', 'The Angelus', 'Sistine Madonna', 'Horse Fair', 'Sir Galahad', 'Can't You Talk', 'Washington' and the 'Birth of Our Nation's Flag'. We now had the book case, the sanitary drinking cups and the only things lacking were screens for the outbuildings.

"Now I have told you what patrons, children, friends, directors and I are doing but not what the school board as a body has done. To begin with I was told that the superintendent recommended them to get a new heating system. I also told them in what condition my stove was and invited them to come and see it. They very kindly decided to install one of the new improved school heating systems. Soon after I had started in my work of standardizing, the directors had the old wooden porch torn away and replaced it with cement, also a cement walk and steps leading to the road. They also decided to give the buildings one coat of paint this year and then finish painting it inside and outside next spring. The building was painted this week. The plastering was fixed during Institute Week and the fence was remade.

"So you can see that we have a very appreciative board and we are all very glad for their help in this work. At their meeting last Saturday they also decided to screen the outbuildings. They had already helped us so much that I did not expect them to do this and so I was indeed agreeably surprised. We certainly owe many thanks to the school directors for their help.

"After getting everything I needed for the diploma and the sanitary drinking cups, we still have $30.62 to spend. I shall select some books and perhaps a library table or busy work table, recitation seats or anything we decide is best. I know you teachers can do the same thing and on a much larger scale, if you secure the hearty co-operation of patrons, children, friends and school board."

Her simple story was heard by the principal of the school system of a neighboring borough. Soon afterwards a call came for her to teach in that borough. She accepted and is now earning a well deserved success as a teacher in the graded schools. Another of our rural teachers taken away by the call of the town! When, oh, when, will we of the open country realize that the best is none too good, even for a one room country school.



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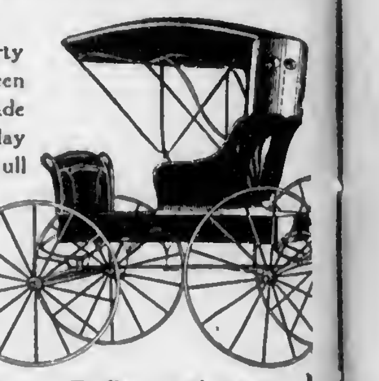

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MEETING IN ADAMS COUNTY

Professor Roth, County Superintendent of Adams Co., Pa., called a meeting in the court house at Gettysburg, April 15, for the purpose of taking the first steps towards securing a county agent for Adams county. The attendance was small as it always is at agricultural meetings here. The first address was by Prof. Menges, one of the state advisors on corn breeding. He argued that good corn may be bred by proper care and selection, like cattle, and urged the importance of this work. He said that more corn might be raised in south eastern Pennsylvania than anywhere else in the United States, but intimated that this was due more to the York County Dutchman than to the land.

The next speaker was Mrs. Foulke, also a farm advisor. Her subject was Home Economics. We were told to get as much out of life as possible, and give as much in return. Boys and girls on the farm should be taught to take an interest in the same things. The men received the usual advice about providing running water, convenient closets, enough clothes line props, and always to carry in enough wood with never a stick too long.

Prof. Menges then spoke again on Community Interests, and Mrs. Foulke followed on Boys' and Girls' Clubs.

After listening to all these talks the audience had dwindled to about 15, leaving little time for business. It was determined to submit the question of agent or no agent to a vote. The discussion developed the fact that there was but one person there opposed and it was decided to hold another meeting when it was hoped the attendance would be larger.

At the close of the regular program, D. P. Forney, Master of Gideon Grange, of York Co., was called upon for remarks.

He made the following statements: In 1913 the Legislature of Pennsylvania created a Commission of "Economy and Efficiency" composed of three persons, with an annual salary of $3,000 and expenses. In their report, the committee makes the following recommendation.

"The Commission feels that maintaining a Board of Agricultural Instructors and Demonstrators, consisting of ten persons, at $2,100 each per annum is not the best method for helping the agriculturists of the state. We believe that practical demonstrations are productive of better results than mere answering of questions. State College carries on a satisfactory course of this kind and there is no need for a board to duplicate the work.

"We, therefore, recommend that the Board be abolished; and that four experimental farms be established, one in each corner of the state and that a recognized expert agriculturist be placed in charge of each. We believe the practical results thus obtained would be much more far reaching and beneficial than the present system."

One of the reasons for the establishment of the State College given was that it would furnish a place where farmers could get the information they wanted. It is now equipped with a first class laboratory for soil analyses, etc., and has a faculty of 300 teachers and professors with an average salary of $1,256 per annum. Beside this we have a Department of Agriculture with a Bureau of Chemistry, consisting of 32 positions, at an annual expense of $56,880. From this it would seem as tho the sources of information for farmers were well provided for by the state and our voters and, more particularly, our County Commissioners ought to hesitate before endorsing this County agent project which will add several hundred thousand dollars to our state expenses.

DOCKING LAMBS FOR MARKET

Lambs which are docked appear more uniform and present a blockier and neater appearance on the market. During the summer the tails of the lambs offer a lodging place for filth and increase the danger of trouble with maggots. For breeding sheep, also, docking is necessary to insure a high proportion of the ewes being bred.

While cutting the tail with various instruments is practiced, loss of blood and even loss of lambs may result from such methods. The most satisfactory method and that used at the Pennsylvania College of Agriculture is searing. A red hot blacksmith's pincer is used, and a piece of cardbord, containing a hole thru which the tail may be drawn, will protect the body of the lamb from burning.

Lambs at the State Experiment Station are docked at the age of two or three weeks.

HURRY YOUR PIGS to MARKET
Avoid danger of loss - save labor - secure top prices. A grain ration alone will not accomplish this. Growing pigs must have animal protein and phosphate of lime in order to develop bone structure, meat and muscle.
Reichard's Digester Tankage
furnishes these needed materials in the best form and at lowest cost.
A single trial will convince you.
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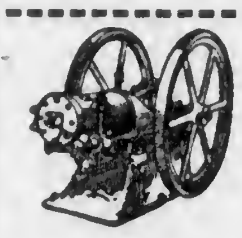

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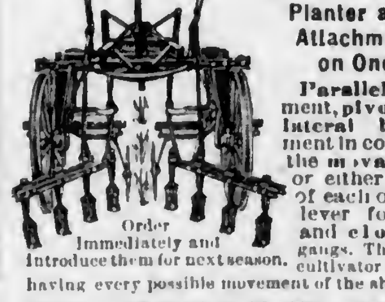

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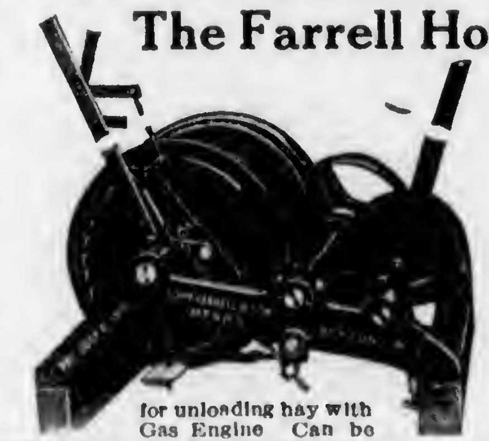

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Live Stock

SHEEP RAISING IN PENNSYLVANIA

(Concluded from page 1.)

The third obstacle in raising sheep is the trouble from parasites. This obstable can be overcome by proper management of the flock and the lamb crop. Rotation of the pastures for grazing at two-week intervals; the marketing of lambs prior to July 1st., before they become infected; the use of forage crops and by special treatment, the parasite question can be controlled successfully.

A SHOPSHIRE LAMB THAT WILL MAKE A GOOD MUTTON.

Kind of Sheep to be Raised

In answering this question it might be well to consider some results obtained at The Pennsylvania State College. The results are an average for four years, a comparison being made between the Delaine-Merino and the Shropshire breeds. The former represented wool type and the latter mutton type. Following is a summary table showing average cost of the maintenance of a Shropshire ewe as compared with a Delaine-Merino ewe and the comparative returns annually. (100 percent lambs.)

MERINO WOOL---THE FLEECE IS AN IMPORTANT FACTOR IN SHEEP-RAISING.

	Value of Lamb and fleece	Cost of maintaining ewe and raising lamb	Profit per ewe
Shropshire	$8.74	$5.89	$2.85
Delaine-Merino ...	7.61	5.38	2.23

This average was based on our average of 10 ewes in each lot for four years. They were kept on pasture during the summer. The lambs received grain in creeps. During the winter the ewes were fed corn silage and alfalfa hay, with grain in limited quantities. The grain mixture was made up of 5 parts shelled corn, 3 parts oats, 2 parts wheat and 1 part oil meal. The valuation was based on $15 per ton for alfalfa hay, $3.50 a ton for corn silage, 70 cents a bushel for corn, 50 cents a bushel for oats, $28 per ton for wheat bran and $36 per ton for oil meal. One quarter of an acre was allowed for pasture for a Merino ewe and one third of an acre for a Shropshire ewe. The valuation of the pasture land was $56 with a charge of 5 percent interest on the pasture.

The Merino wool was 34 percent heavier and 29 percent more valuable than the Shropshire wool. The Shropshire lambs weighed 75 pounds by July 10th, and the Merinos weighed 60 pounds. The Shropshire lambs sold for 9 cents a pound, live weight, and the Merinos sold for 8 cents a pound, live weight. The lambs of both breeds were dropped during the month of March. The Shropshire ewes average 160 pounds and the Delaine Merino ewes average 120 pounds. The profit per ewe was $2.85 in the case of the Shropshires and $2.23 in the Delaine-Merino breed. This would seem to indicate that the Shropshire is the more profitable. However, when the relative value of the two breeds are considered, the Merino shows up as returning greater dividends than the Shropshire when one hundred percent lambs are raised.

Flock Comparison

	Ave. No. of sheep Valuation per ewe	Labor Income and Interest	The returns for money invested
100 ewes	$12.	$285	23.8 pct.
100 ewes	8.	223	27.9 pct.

Due to the lower valuation of $8 per ewe for the Delaine-Merino as compared with $12 for the Shropshire, the interest on money invested in the Merino gave 27.9 percent return for interest and labor while the Shropshire breed returned 23.8 percent.

This comparison shows that the Delaine-Merino is therefore more profitable than the Shropshire when the relative values of the two are considered. However, the Shropshire breed averages a higher proportion of lambs than the Delaine-Merino. This fact would tend to equalize the relative return of the two breeds. One important point that the investigation shows is that mutton and wool production are both necessary in the raising of sheep for profit. The breed of sheep selected should depend upon the conditions under which the sheep are raised and the market demand for mutton and wool.

What Breed Should Be Selected?

The market today gives the highest price for early maturing lambs weighing from 65 to 75 lbs. This type requires breeding. The larger, coarser, later-maturing breeds as the Lincoln, Leicester, Cotswold and Oxford do not produce lambs that meet this requirement. Neither do the fine wooled sheep that show the "wrinkled fleece coverings" meet this demand. The medium sized breeds such as the Shropshire, Dorset, Southdown, Hampshire, Cheviot, Smooth Bodied Merino and Tunis breeds produce market topping lambs. The Merino when crossed with mutton rams produced early maturing lambs equally as valuable as strictly mutton-bred lambs. Purebred Merino lambs bring about one cent a pound less than do mutton lambs.

The selection of the breed should be decided upon by the characteristics of such breeds in meeting the conditions of market and demand. The selection of the breed could be based upon the following points: (1) Grazing ability of sheep; (2) production of early lambs or late lambs; (3) feeding grain or using largely rough feed; (4) milking ability of ewes; (5) fattening qualities of lambs; (6) low or high land for grazing; (7) size of flock; (8) wool production; (9) high proportion of twins; (10 individual preference; (11) market demand; (12) community demand.

Space and time will not allow for a discussion of the merits and demerits of each breed on these points. The following references are standard on this subject; Craig's "Sheep Farming" published by MacMillan & Company, and Plumb's "Types and Breeds of Farm Animals" published by Ginn & Company. The practice, however, of keeping sheep for two to four or more years of age is unprofitable and the marketing of well conditioned lambs at 65 to 75 lbs. live weight, is desirable.

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Poultry

LAKEWOOD'S POULTRY FARMS

Visitors to Lakewood, N. J., are naturally surprised to learn of the large number of poultry farms which are operated in that vicinity and the amount of business which is transacted along these lines. The production includes table eggs, broilers, roasters, capons, eggs for hatching, baby chicks, and breeding stock. It is safe to estimate a weekly production of 200 cases of eggs within a radius of five or six miles around Lakewood at the present time, not to mention the thousands of eggs which are saved for incubation during this season of the year. Among the larger and most attractive of the poultry farms is that operated under the name of the Prospect Hill Poultry Farm by Richard Heine, who is a veteran poultryman and one of the most successful in this section. Mr. Heine's specialty is Single Comb White Leghorns which he has bred and developed for a number of years until now they produce some of the largest and whitest eggs to be found anywhere. The quantity produced, too, always reaches a very high average from the thousand or more layers which he keeps. Joining land with Mr. Heine is the White Feather Farm, owned and managed by Mr. Henry Heine, son of Richard Heine. Henry, like his father, owes his success to his strict attention to details in the management of his place. He breeds the same strain of White Leghorns that made his father's farm famous. Altho he has been in business for himself for less than two years he is rapidly developing an up-to-date plant for the production of market eggs, broilers and breeding stock. Near these two well managed farms is that owned by Mr. H. T. Somers. This farm has a capacity of about one thousand layers and several thousand chicks. There are many more poultrymen all operating farms near each other and all doing a fine business. Nearly all are members of the Lakewood Poultry Association.—C. Harold Levy.

POULTRY NOTES

It certainly pays to grade eggs—especially eggs that are shipped to city markets. In large cities, eggs of the first grade usually sell for ten or fifteen cents more for the dozen than eggs of a lower grade. First grade eggs are fresh, and uniform in size, shape and color. They must average twenty-four ounces to the dozen. Brown and white eggs should not be packed in the same case. Dirty, small, misshapen eggs can be disposed of to better advantage at home.

Fowls suffering from serious diseases, such as cholera, consumption and bad cases of roup, are not worth the medicine used in doctoring them. Even if they recover, the disease leaves them in such a weakened state that their future usefulness is ended. The safe and sane method is to kill all badly diseased hens and burn their bodies, to prevent the spread of contagion to the rest of the flock.—R.

HOME-MADE LICE POWDERS

In fighting lice and mites, I always make my own powders. A powder that has been giving good results is made as follows: Equal parts of road-dust, tobacco dust and sulphur. This powder is used in a sifter top can, made by punching a number of holes in the lid of a baking-powder can with a very small nail. Sulphur alone makes a very good louse powder.

Another good powder is made of air-slaked lime, gasoline and carbolic acid. Two ounces of carbolic acid are mixed with a half pint of gasoline. This mixture is used to moisten two pounds of lime. In mixing this powder one should be careful to keep away from fire. When dry, the powder has a pinkish appearance, and a strong carbolic acid odor.

I have also tried blue ointment for lice and find it satisfactory. A pellet, the size of a pea, rubbed under the wings and around the vent of the fowl, will soon rid her of the parasites.

For lice on chicks, nothing is better than a mixture of lard and sulphur. A little of this rubbed on top of the head, under the wings and around the vent will kill the lice. Preparations containing grease should not, however, be used on chicks during damp weather.

Powders and whitewash are not entirely effective against the red mite, the parasite that feasts on the fowls at night and hides in cracks on or near the perches during the day. Kerosene is an effective remedy, if persistently applied to the perches and the cracks and crevices close to the roosting quarters.—T. Z. Richey.

Poultry Queries

Leg Weakness

"I have a flock of 30 chicks, four weeks old, who have shown signs of weak legs during the past week. They wabble from side to side when walking and cannot stand. I am inclined to think they have leg weakness. I feed them bread crumbs soaked in milk in the morning, sour milk in the afternoon, chick feed at noon and at intervals thruout the days. Grit is before them all the time. Is this a disease of serious character?" P. S., Montgomery County, Pa.

You are quite right in believing this to be leg weakness. The cause in the majority of cases is due to not allowing the chicks contact with the earth. Heavy feeding of rich foods to induce fast growth is a contributing cause, but there is rarely any trouble found where the chicks are allowed to run on the earth. Chicks can be confined to house floors for the first two weeks without danger, but after that they should be allowed the freedom of a yard, daily, if leg trouble is to be avoided. Allowing the chicks out on the earth will frequently correct the trouble within a week or ten days, altho chicks once badly affected are likely to retain an awkward gait for life.

Reduce the amount of feed somewhat and give an abundance of green food such as mangels, lettuce or steamed alfalfa. Keep a dry mash mixture before them all the time consisting of wheat bran nine parts and finely screened beef scraps one part. After the trouble is overcome they may be allowed a dry mash mixture of 200 wheat bran, 100 middlings, 100 corn meal, 100 alfalfa meal, 100 ground oats (hulls sifted out) and 100 beef scraps.

Young Chicks Fighting

"I have a flock of Rhode Island Red chicks hatched by hens in February who fight among themselves thruout the entire day. Can you suggest a remedy?" Mrs. G. R. H., Md.

It is rarely that fighting among young birds becomes serious, excepting where a large number of males are kept in close confinement. Are you sure they are not pulling feathers? Free range will overcome the trouble in either case. If free range cannot be provided, then every effort should be made to keep the birds busy. Scatter the grain feed in deep little.—J. R. K.

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CHICKS S & Sc. Leghorns. Money refunded for dead chicks. Circular free
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CHAS A. SCHWEBEL Leaman Place Pa.

Eggs Wanted Highest prices paid for fresh white or brown eggs. No commission. Returns made immediately. References Chatham and Phenix National Bank. BLAINWOOD FARMS, Inc. 330 East 53rd St. New York City.

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Household

BEAUTIFY THE HOME GROUNDS

Some men seem to enjoy and take personal pride in being able to make their farms pay a good dividend. Others pride themselves on a well-kept farm so far as it returns a revenue for the labor expended. But there the pride stops. The motto apparently is: No pay, no work. What is money worth, anyway? It is worth just what it will buy in the way of comfort, the necessities of life, or pleasures. Money hoarded up or kept pushed way down in the bottom of one's pocket has no more value than so much paper. It must be spent to get value out of it.

The writer has been at farm homes where not a blade of grass was cultivated. I use that word because if there was any grass in sight it was accidental. The driveways were just mother earth worn down until they were more of a waterway than a roadway. There was no sign of any attempt at lawn making or tree planting, and not a flower of any kind in sight. At the side of the house, sometimes in front, too, the eye meets a jungle of miscellaneous growth where an old yard fence is yet standing. It is standing because it can't fall down. It is not an eye sore because it can't be seen unless one hunts for it. It is hidden in the jungle.

The owners of these farm homes are well to do; they own automobiles, and some of them trucks, too. Hence, this neglect is only indifference and is so because there is no money value attached. Allow me to cite one instance where there was a money value. This is for the benefit of those who think they can not afford to work without cash pay. Here in my neighborhood, a few years ago, there was a small farm for sale. The owner was hard pressed for cash. Numerous people came and looked at it, but all shook their heads and turned away. The owner gradually lowered his asking price until at last he sold it for 75 percent of his first price. The trouble was that everything was topsy-turvy. The whole front yard was a jungle. The side of the driveway was a wild hedge. There was nothing inviting about the place. The new owner cleaned up the whole yard, dug out the hedge and tidied things up in general, all at a cost of not more than $50, labor excepted. He sold the property one year later to one of the previous prospective buyers at an advance over the purchase price of $900. This is an actual case. Now, does it pay?

There is something else to consider of far more importance than cash value. It is to know that wife and children are satisfied and happy, and what will make them more so than to have the home grounds well arranged; a fair sized lawn nicely kept, dotted with shade trees and shrubbery, and somewhere about the premises a place for a flower garden. It is not always convenient to have this in the front yard; neither do I think it desirable. I think it looks better at one or both sides, but have it somewhere. There is nothing that attracts as do flowers and ornamental shrubbery; and the individual, let it be man, woman or child, who has not a tender place in his heart for flowers, and the beauties of nature, has something lacking in his make up.

Much sympathy is bestowed by the lecturer and the writer upon the housewife. Pages are written detailing how to lighten the housewife's duties by installing modern conveniences and comforts. These are all commendable, but a flower garden is a comfort and joy to the wife and children. What more enjoyable recreation can a tired housewife have than to mingle with her plants and flowers? It is not only enjoyable but inspiring and health-giving. Furthermore, it tends to make the children think, "there is no place like home."

Now do not let any one think that it means considerable outlay in cash and time in order to accomplish desired results. That is the least part of the advantages gained. The collection need not be costly, unless so desired. If the major part of the collection is perennials, the labor problem is cut to a minimum. I think for farm ornamentation, perennials, such as roses, both bush and climbing, peonies of various colors, hydranges, and numerous other flowering bushes are preferable. These can be interspersed with, or beds made separate of hardy phlox, sweet William and many others. A row or clump of dahlias should not be overlooked. Sweet rocket and columbines are all hardy. They are also fragrant and very pretty. These and many others can be planted in a garden in borders, along drives or in separate beds.

RUSTIC PORCH ON A MARYLAND FARM-HOUSE.

Aside from these, there is a host of annuals the seed of which can be had for a song. Plant flowers! They mellow the boy; they broaden the girl, and they are the joy of the wife.—C. C. Hulsart, Monmouth Co., N. J.

RICH CREAM STRAWBERRY SHORTCAKE.

HOW TO MAKE AND USE A FIRELESS COOKER

The department of home economics of the New York state college of agriculture announces a publication on the fireless cooker and its uses. The pamphlet contains descriptions of commercial fireless cookers, and gives directions for constructing home-made ones.

A wooden box, a trunk, an ice-box, a galvanized iron ashcan, or a wooden candy bucket, it is stated, are among the articles which have been successfully used in the construction of fireless cookers. The inside container may be a bucket of agate-ware, galvanized iron, or tin, and should have a tight-fitting cover. Powdered asbestos, cork, excelsior, straw and torn paper, it is said, have proved to be very satisfactory insulating materials. The new publication contains several recipes for roasting meats, cooking stews, dried fruits, puddings, and bread in a fireless cooker. These have been tested by the department of home economics with good results. A copy of this reading course may be obtained by any resident of New York state on application to the New York state college of agriculture, Ithaca, New York.

LUSCIOUS STRAWBERRY SHORT CAKES

Rich Cream Shortcake

Ingredients.—1 pint flour; 1 tablespoonful white sugar; ½ teaspoonful salt; 1 cup sour cream; 1 teaspoonful soda; ½ teaspoonful cream of tartar.

Sift the sugar, salt, and cream of tartar together, add the soda to the sour cream, beat thoroly and stir into the flour mixture. Make as soft as can be handled readily, using a little more flour if necessary. Roll into two round, flat cakes. Spread one with softened butter, and place the other on top of it. Bake in a hot oven. Separate, fill and spread the top with 1 quart of crushed, sweetened berries. Cover with a coating of whipped cream and dot with whole ripe berries.

The above recipe may be used for individual shortcakes, or if something less rich is desired, prepare as follows:

Ingredients.—3 heaping teaspoonfuls baking-powder; 1 quart flour; ½ cup butter; 1 pint of milk.

Sift the baking-powder and flour together with ½ teaspoonful of salt, rub in the butter and add the milk. Roll out ½ inch thick, and cut with a cooky cutter, and bake. Place one on top of the other rubbing the surface of the under one with softened butter. Spread with crushed berries and top with a little whipped cream. Cakes which are baked in a single sheet, then split, are much more likely to be soggy.—Dorcas Webster, Cayuga Co., N. Y.

OUR MAKE-OVER WOMAN

(She will make suggestions as to what you would best do with that old dress or suit or hat, if you will tell her about it. Try her. Address your problems to "Make-Over Dept., Pennsylvania Farmer."—The Editor.)

A last year's gown in lavender lace cloth had the correct skirt fullness, but the sleeves were impossible. This dress opened in front. There were only scraps of material like it. She bought three and a half yards—a remnant at half price—of sheer white organdy splashed with lavender roses. Then she sewed her lavender waist up in front, concealing the seam with two inverted tucks. She cut off the top, adding a deep drop yoke, opened in the back, of the organdy. She put three-quarter length puffed sleeves of the organdy onto this yoke, buttoned the dress down the back with amethyst-and-white crystal buttons, and put wee frills of organdy at top and bottom of sleeves, around the low-cut neck, and at top of yoke. With the scraps of lavender lace-cloth she pieced out narrow bands to head all these little frills. As the skirt looked a bit worn around the bottom, it was shortened to a stylish length and had two little frills of the flowered organdy added, one at the bottom and one at the top of a four-inch hem.

Another dress of cream-barred mull, with a design of pale pink apple blossoms scattered over it, was brought up to date by adding full-length sleeves of pale pink marquissette. The lower edge of the skirt was cut in big scallops with a dinner plate as a guide, and two little ruffles of the pale pink marguissette outlined these scallops.

A two-toned old-rose kimono of the slip-on variety seemed a useless possession, as the woman seldom wore it. So the loose sleeves were cut off at the drop-yoke length, and old-rose chiffon cloth sleeves, quite full, long, and gathered in several shirrs at the wrist, were added. An oblong portion was cut away from the kimono in front and a little vest of delft blue silk, topped by a ready-made front and high flaring collar of cream net, took away every last resemblance to a lounging robe after the garment was shirred several times just above the waist line in Empire effect. Narrow bands of the blue silk finish the top of the sleeves, and a dozen blue-silk-covered button molds down each side of the lace and silk vest add just enough contrasting color to be attractive. The skirt had to be evened around the bottom after the shirrs were put in at the waist.

An old coat and skirt suit—the skirt very tight at the lower end—had added to it a knee-length circular flounce of contrasting material. This was buttoned onto the old skirt top, the button molds for this purpose being covered by a professional with the old suit goods. The coat was cut shorter and somewhat square across the back, and was modernized by having revers and a belt across the back of the contrasting material.—Mrs. Nina Willard

IODINE, DEADLIEST OF GERM KILLERS, NEW FAMILY REMEDY

Iodine as an antiseptic is recommended for a place in the medicine closet of every household by Dr. W. E. Forsythe, head of the health service of Pennsylvania State College. He urges its use for first treatment of all kinds of skin abrasions, saying that physicians now recognize iodine as one of the best materials known for preventing infection and blood poisoning. In the European war iodine is now being used for wounds almost to the exclusion of other antiseptics. "Iodine should be useful around the barn" he adds, "for dress-wounds on livestock. It is especially valuable to prevent development of lockjaw from wounds containing stable and barnyard dirt." Dr. Forsythe advises using the tincture of iodine at one-half the usual strength, i.e., five percent or weaker. Keep it in bottles having glass or rubber stoppers. He recommends painting the wound and around it without previous washing, and says the wound can then be left uncovered or bandaged with a clean cloth. He warns against using the so-called "colorless iodine" as a substitute for real iodine.

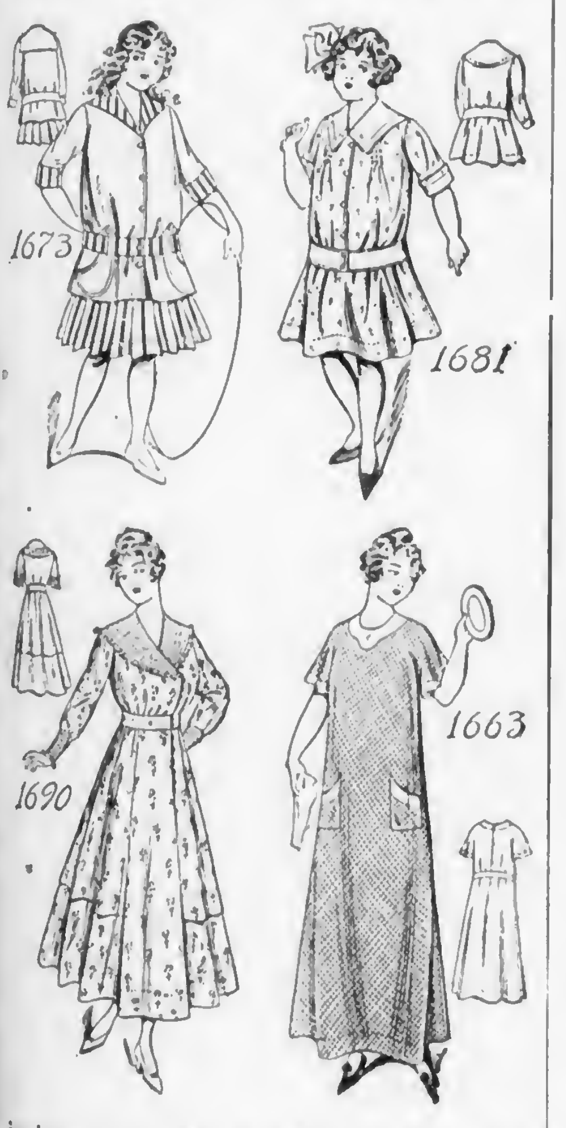
PENNSYLVANIA FARMER PATTERNS

Be sure to give the figures and letters of each pattern exactly as printed at the beginning of each description. We will not be responsible unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-263 So. Third Street, Philadelphia, Pa.

1673—Girls' Middy Dress, with Skirt attached to an Under Waist.—Cut in 5 sizes: 4, 6, 8, 10 and 12 years. It requires 4½ yards of 40-inch material for an 8-year size. Price of pattern, 10 cents.

1681.—Girls' Dress.—Cut in 4 sizes: 4, 6, 8 and 10 years. It requires 3 yards of 36-inch material for a 6-year size. Price, 10 cents.

1690.—Ladies' Dress.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires 8½ yards of 44-inch material for a 36-inch size. The skirt measures 3 2-3 yards at its lower edge. Price, 10 cents.



1663.—Ladies' One Piece Apron.—Cut in 3 sizes: Small, medium and large. It requires 4½ yards of 36-inch material for a medium size. Price, 10 cents.

MONEY POSSIBILITIES FOR THE NEEDLEWORKER

The tiny tots in every household have laid a claim on all seasons, and we inhabitants of grown-up-land who are in the least way proficient with our needles or shuttles or crochet hooks, may pass many pleasant and profitable hours fashioning dainty articles for children's use, which can be sold to those who need them in a hurry or have no time or skill to make them. Every mother welcomes bits of dainty needlework for the layette basket, and many are willing and able to pay generously for well made garments and accessories to her little one's wardrobe. Daintily embroidered or crocheted bibs, or bibs that are tatting trimmed are very dainty presents for the little one's wardrobe. Carriage straps, tiny hoods, caps and jackets, daintily trimmed and fashioned, dresses, blankets and barrow coats; dainty pillow slips, crib sheets: tiny bath towels and wash cloths—all of these may be made quickly and easily, and the majority of them may be made from inexpensive remnants, making it possible to realize a very neat profit when the finished articles are sold.

Our needlecraft need not all be confined to the fashioning of infantile articles of wear, however. Crocheted or embroidered hats for grown-ups are dainty and serviceable. Silk roses and foliage for trimming these hats may be made from remnants of dresden or other dainty silk ribbon. These hats sell readily at a generous profit to the maker.

The crocheted wrist bag has come to be known as a necessity, and it takes only a few hours to make a dainty little bag that will sell for a dollar and upwards. Centerpieces and doilies are in demand at good prices at all seasons of the year. Crocheted or tatted finger purses, card cases, coverings for powder cans and toilet water bottles, motifs and edgings for dress and underwear trimmings, cushion covers, belts, etc., all have good commercial value if daintily made and properly advertised and displayed. Every needleworker who takes pains and pride in her art has a steady income at her fingertips if she cares to commercialize her skill. Delicate stitchery and hand-made laces offer great possibilities in the way of appropriate and inexpensive trimmings for household linens and articles for personal use.—Gracia Shull.

LIKES LIME ARTICLES

"Enclosed find money order for $1.25 as subscription for three years to the Pennsylvania Farmer, beginning where my subscription expired. Please send me 50 copies of the Pennsylvania Farmer dated February 12, 1916. I want the same to distribute among my neighbors who do not get this paper. I think I can get quite a lot of subscriptions for your paper. The whole question in our community is lime and I think you have the best article I ever saw of the kind."—F. E. Leonard, Carlisle, Pa.

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The Fur Bringers

By Hulbert Footner

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SYNOPSIS OF PRECEDING CHAPTERS

Ambrose Doane, junior partner of the fur trading firm of Minot and Doane, is in love with Colina Gaviller, the daughter of John Gaviller, manager of The Company which is Doane's most powerful business competitor. While on a visit at Colina's home Doane is urged by the Indians to open a rival trading post and take their furs. This he refused to do hoping to avoid open opposition to Colina's father. He is offered a wonderful black fox pelt by Alexander Selkirk, an Indian, and buys it, giving his canoe to the Indian and permitting him to leave the camp. Ambrose learns a few hours later that Selkirk shot Mr. Gaviller in a quarrel over the fox pelt, and as he permitted the Indian to escape, he is held partially responsible for the crime. Colina construes his sympathy for the Indian as unfriendliness for her father and rejects his offer of help. Against his advice she enforces a price of $1.50 per bushel for the Indian's wheat which causes threats of rebellion into which Ambrose is drawn by his Indian friends. The Indians are in conference and it has been suggested that they burn the Company store.

"Gaviller will cry these are bad men and lawbreakers. These are incendiaries! It is a word the white men hate. They will say do what you like to the incendiaries. They deserve no better."

The strange word intimidated them. But a voice cried defiantly: "Must we wait some more?" And their cries threatened to down the old man.

"No!" he cried in a voice that silenced them. "Here is Ambrose Doane!" He paused for dramatic effect.

"I ask Ambrose Doane to our meeting to talk with us. I now say to him"—he turned to Ambrose—"you have heard these men. They are so much wronged they cannot see the right. They are so mad they don't know what they do.

"I ask, 'Ambrose Doane, will you save them from their madness? Will you help us break our chains? Buy our grain?' "

CHAPTER XV

The Plan of Campaign

An absolute silence followed Simon Grampierre's unexpected words. The astute old man had withheld his proposal until the psychological moment. Ambrose was a little dazed by it. He rose, feeling every eager eye upon him, and said slowly:

"I must have a little time to consider. I must talk with Simon Grampierre. I will give him my answer before morning."

Simon said to the company: "Men, will you sell your wheat to Ambrose Doane at a dollar-seventy-five?"

The question broke the spell of silence. There could be no mistake that the proposal was successful. A chorus of acclamations filled the room.

"Very good!" said Simon. "I will talk with Ambrose Doane and try to make him trade with us."

The meeting broke up. It was then a little after nine.

Simon and Ambrose went apart to a bench on the river bank. There were innumerable questions to be asked and answered. Simon estimated that the grain in question, provided they had no frost, would amount to twenty thousand bushels of wheat, and half as much oats. It was a momentous decision for a youth like Ambrose to be called upon to make.

The greatest difficulty was how to grind the wheat.

"You have an engine here?" asked Ambrose.

"Yes, for our thrashing-machine," said Simon.

"I could order a small process mill from outside," said Ambrose, "but it is doubtful if he could get it in this year."

"I have a hand mill," said Simon. "We call her the mankiller. Work all day, grind a couple bags of flour. It is very old."

"Could it be rigged to the engine?" Ambrose asked.

"Wa! I never think of that," said Simon. "Maybe grind four bags a day, then."

Ambrose had no intention of giving an answer until he had communicated with Colina. Strongly against Simon's advice he insisted that Gaviller as he said, must be given one more chance to relent. Simon unwillingly yielded. At ten o'clock Ambrose and Tole started down the river in a dugout.

Ambrose did not mean to seek the interview with Colina. Before starting he scribbled a hasty note.

Dear Colina:

The farmers have asked me to buy their grain. I've got to do it unless you will pay their price. Its not much good to say it now, but I'd sooner cut off my hand that seem to be fighting you.

I can't help myself. You won't believe it, but its a fact just the same, if you won't pay their price I must, in order to save you. If you will agree to pay them one-seventy-five, I'll go back to Moultrie tomorrow, and never trouble you again. Ambrose.

Landing below Gaviller's house Ambrose sent Tole up the bank with this. In a surprisingly short time he saw the half-breed returning.

"Did you see her?" he demanded.

"Yes," said Tole.

"Did she send an answer back?"

"Only this."

Ambrose held out his hand, and Tole dropped the torn fragments of his own letter into it. Ambrose stared at them stupidly. He had steeled himself against a possible humiliation at her hands—but to be humiliated before the half-breed!

He drew a long breath to steady himself, and opening his hand, let the fragments float away on the current.

"Let us go back," he said quietly.

During the whole of the way he did not speak.

Grampierre was waiting for them in the big kitchen.

"I will now give you my answer," said Ambrose.

"Well?" said the old man eagerly.

"It is only a partial answer. I agree to purchase enough of your grain at one-seventy-five to see you all thru the winter; and I agree to bring a stock of goods here to supply your necessities."

Simon warmly grasped his hand. "It is well!" he cried. "I expected no more."

"I will return to Moultrie tomorrow," Ambrose went on in his dull quiet way. "I will consult with my partner, and if we can finance it, we will buy all your grain."

"Tole shall go with you," said Simon. "You can send him back to me with a letter."

Ambrose went to bed, and slept without dreaming. Nature is merciful. After a certain point of suffering has been passed, she administers an anesthetic.

Next morning Ambrose transacted his business with Simon, and prepared for the journey, to all appearances his usual matter-of-fact self.

Only Job perceived the subtle change in his master. The faithful brown eyes continually sought Ambrose's face, and the ridiculous curly tail was agitated in vain to induce a smile.

On the afternoon of the sixth day following, Ambrose and Tole landed there. The sight of Peter's honest red face was like balm to Ambrose's sore heart.

Seeing Ambrose, the remnants of Peter's anger evaporated like mist in the sun. He clapped his young partner on the back until the other's lungs rang.

Peter's blue eyes beamed with honest gladness, meanwhile he uttered loud abuse in his own style.

"So you're back, darn you! You ornery little whipper-snapper! To sneak off from working like a breed after you feed him! I was hoping I'd never lay eyes on you again. But here you are to plague me!"

Ambrose smiled sheepishly, and gripped his hand.

Peter sent Tole off to Eva to be fed, while he went with Ambrose to the latter's little shack. Ambrose looked around his own place curiously. It was like another man's house now. He had lost the old self who used to live here.

"What's happened to you?" asked Peter with an offhand air.

"Why do you ask?" said Ambrose quickly. He hated to think it was all written in his face.

"You look older," said Peter. "I don't see you grinning so much."

Ambrose immediately grinned—after a fashion. "I've got a lot to tell you," he said. "We'll talk after supper."

Half the night they talked. Ambrose laid his proposal before Peter in anxious trepidation. Peter earned the young man's lifelong gratitude by the promptness and heartiness of his response.

"You did right!" he cried with another clap on the back. "It will be a fine adventure! We'll go into Fort Enterprise and make a killing! We'll buy all the grain in sight!"

"It's a big weight to swing," murmured Ambrose.

"Sure!" cried Peter. "But no man would refuse it. What if it does break us? We're young. And we'll have a grand run for our money."

The excess of Ambrose's relief unnerved him a little. "Peter, you're a man!" he murmured brokenly. "I was near crazy, wondering if you'd stand by me!"

"Hey, cut it out!" cried Peter. "Buck up! We got work to do tonight!"

Thruout the hours of darkness they counted up their resources, decided as to the friends they could call on for assistance, and planned ways and means.

There was not a day to be lost, and it was first of all decided that Ambrose must start for the outside world next morning. Once started he would be out of touch with his partner for good, therefore every question had to be discussed that night, and there were a hundred.

Ambrose was astonished by Peter's pluck and dash in business affairs. Like many another junior partner he had been accustomed to patronize his elder a little.

"I'll stand by you to the limit," Peter had said. "But this is your put. You must do everything yourself."

Therefore, after the details had been arranged, it fell to Ambrose to compose the letter to Simon Grampierre. It was the longest letter he had ever written.

Tole and I arrived yesterday after a quick trip. I have talked wth my partner. We agree to purchase all grain grown around Fort Enterprise this season at one-seventy-five per bushel.

We will load up a york boat immediately with a small load of supplies for present use. Tole will steer it up the river. He will take this letter to you. It may take four or five days to get a crow.

(Here followed an inventory of the goods they had decided to send.)

We appoint you our agent to distribute these goods. I will send you a book in which to put down all the charges. Let the crew of the york boat have two dugouts to return home in, and keep the york boat at your place to send down grain and flour later.

I have missed the steamboat on her first trip out. I will start today by canoe with an Indian. It will take me ten days to cross the lake and go up the Miwasa to the landing and so to town.

I will order a full outfit in town, and bring it in immediately by way of Caribou Lake, and down stream to you. I will bring a little process mill if I can get one. If I have no trouble you will see me about the first of September. Anyway I will be in before the ice begins to run.

Coming back I will have no trouble going up the Miwasa or Musquasepi or across Caribou Lake, because Martin Sollers has steamboats there, and he is independent and friendly to us. They can't stop me on the Spirit River either, because I can build a raft and bring my stuff down.

Where they will try to get me is on the portage between Caribou Lake and the Spirit. They will try to tie up the teams. On my way out I will see Martin Sollers about it. He has power.

As soon as the grain is begun to be thrashed start the mankiller going to try and get a little ahead with the flour.

Send Tole and another good man in a dugout up to the crossing to meet me. Let them start August 8.

I am sending by Tole two bottles of Madeira wine. Send it to the sick man at the fort without letting him know it comes from me. For yourself Peter Minot sends a box of cigars with his compliments.

If I think of anything else I'll write at the landing and send it in by the August mail. My regards to the boys.

Yours truly,
Ambrose Doane.

CHAPTER XVI

Colina Commands

On August 25, well within his schedule, Ambrose arrived at Spirit River Crossing with ten loaded wagons.

For six long days they had been floundering thru the bottomless mudholes of the portage trail and men and horses were alike played out; but the rest of the way to come was easy, and Ambrose paid off his drivers with a light heart.

The york boat and crew he had engaged at the crossing were non-existant, and no explanation forthcoming. He had met with similar small reverses all along the line. This one was not important; it meant three days delay to build a raft.

There was a current of nearly four miles an hour to carry him to his destination, and no rapids in the three hundred miles to endanger his cargo.

Tole Grampierre and his brother Germain were waiting for Ambrose. With two such aides he could afford to smile at the mysteries of labor which developed on his arrival.

Tole's budget of news from down the river contained nothing startling. John Gaviller had been very sick all summer with pneumonia as a result of his wound. He was getting better; "pale and skinny as an old rabbit in the snow," in Tole's words.

Gaviller had sent up the launch to get what grain had been grown at the crossing; but it was not enough to fill his contracts for flour up north. He had been obliged to pay two dollars a bushel for it. Ambrose smiled at this piece of information.

Ambrose waited eagerly for some word of her who was seldom out of his thoughts, but to Tole the matter was not of such great importance. Ambrose could not bring himself to name her name. Not until Tole had covered everything else did he say casually:

"Colina Gaviller rides all around on her yellow horse. She is proud now. Never speaks to the people."

That was all. Ambrose's heart stirred with compassion for the one, who by her loyalty was forced to embrace the wrong cause.

Another time Tole remarked: "Gordon Strange run the store all summer."

"So!" said Ambrose. "What do the people say about him? What does your father say?"

Tole shrugged. "He say not'ing," he said cautiously. He could not be induced to commit himself further in this direction.

They built their raft, and loading up, started without untoward incident. Traveling day and night, allowing for stoppages and delays, they expected to be nearly five days on the way.

On the third day, Ambrose chafing at their slow progress, put the dugout overboard, and set off ahead to warn the settlement of their coming. He had no hesitation in leaving the raft with the Grampierre boys; they could handle it better than himself.

He paddled all day, and at night cut down a tree so that it would fall in the water, and tied his canoe to it, that he might not be blown ashore while he slept.

For hours he lay waiting for sleep, watching the stars circle round his head as his canoe was swung in the eddies, and considering his situation.

He could not rest for his eagerness to be at the end of his journey, tho he had no hope of what awaited there—that is to say not much hope; there is always a perhaps.

But how could Colina relent when she beheld him arriving laden with ammunition to make war upon her? Ambrose wondered sadly if any lover before him ever found himself in such a plight.

By ten oclock next morning he was within a mile or two of Grampierre's place. The river was dazzling in the morning sunlight, the air like wine.

The poplar trees had put on their gorgeous autumn dress of saffron and scarlet, which showed like flames against the chocolate colored hills. Suddenly in a grassy ravine on his right, Ambrose saw the "yellow" horse feeding.

His heart set up a furious beating. No power on earth could have prevented him from landing, the common sense told him clearly no good could come of it. That "perhaps" drew him ashore, that hope against hope.

After a short search he found her sleeping under a poplar-tree in a hollow of the bank that was hidden from the river.

She wore her khaki riding habit, as usual, her head was couched in the crook of her arm, and in the other hand she held her hat by its strap. Ambrose brooded over her wistfully.

Her face was paler and thinner; evidently she herself had not been having too easy a time these two months past.

These blemishes on her beauty made her seem infinitely more beautiful and dearer to him. And all relaxed and disarmed in sleep as she was, it seemed so easy a thing to gather her up in his arms and make her forget what divided them.

Ambrose's dim thought was: "If somehow I could only send her real self a message while her headstrong, unreasonable self is asleep, maybe she'd confess the truth when she woke."

While he was hungrily gazing at her her eyelids fluttered. He moved back to a more respectful distance. She awoke without alarm. For an instant she lay looking at him as calmly as a babe in its crib.

Then in a flash recollection returned, and she sprang to a sitting position, both hands, womanlike, flying to her hair. She eyed him with a certain composure. It was as if she felt that she ought to be furiously angry, and was somewhat dismayed because it did not come.

"What do you want?" she asked coldly.

In her cold eye Ambrose was conscious of a wall between them more impenetrable than granite. His heart gave up hope. "Nothing," he said sullenly.

"Its not exactly agreeable," she said frowning, "to find oneself spied upon."

Ambrose started and frowned. This construction of his act had not occurred to him. "I saw Ginger from the river," he said indignantly. "I landed to find you."

"What did you want?" she asked coolly.

"I don't know," said Ambrose.

There was a silence between them. Her cold look told him to go. Pride and common sense both urged him to obey—but he could not. He was like a bit of iron filing in the presence of a magnet.

"I—I suppose I wanted to find out how you were," he said at last. "Was that so extraordinary?"

She ignored the question. "I am well," she said.

"How is your father?" he asked.

She looked at him levelly and did not answer.

A slow red crept up from Ambrose's neck. "I asked you a civil question," he muttered.

"If you want a truthful answer," said Colina clearly, "I think you have a cheek to ask."

"I didn't shoot him!" Ambrose burst out.

"What is the use of our bandying words?" she asked with cold scorn. "Nothing you can say to me or I to you can help matters now."

"Good Lord, but women can be stony!" Ambrose cried involuntarily.

Colina took it as a compliment. Her eye brightened with a kind of pride. "I don't know what men are!" she cried. "Apparently you want to fight me with one hand and hold the other out in friendship. Only a man could think of such a thing."

"You are right!" he said abruptly. "I am a fool!"

He left her with his head up, but inwardly beaten and sore. Somehow she had gotten the better of him, he could not have told how. He was conscious of having intended honestly. This cold parting was worse than the most violent of quarrels.

Simon Grampierre was waiting on a point of his land that commanded a view up and down river. Here he had set up a lookout bench like that at the fort. At sight of Ambrose he shouted from a full breast and hastened down to the waterside. He received him with both hands extended.

"You have come!" he cried. "It is well!"

Ambrose was surprised and a little disconcerted to see the grim old patriarch so moved.

"Where is your outfit?" Simon asked anxiously.

"Half a day behind me," said Ambrose. "It is safe."

"Have you flour?" asked Simon.

"Flour? No!" said Ambrose staring. "With twenty thousand bushels of wheat here?"

"Have you got a little mill?"

Ambrose shook his head. "There was none in Prince George," he said. "I had to telegraph to the East. It had not arrived when I was ready to start, and I couldn't wait.

"I made arrangements for it to be forwarded: a friend of mine will bring it in. Martin Sollers promised to hold the last boat at the landing until October 1st for it."

"Wa!" said Simon, raising his hands. "That is bad! We need flour. We cannot wait a month for flour."

"What's the matter with the mankiller?"

"Broke," was the laconic answer. "We fix it. Every day it break again. Now it is all broke."

"Well, every family will have to grind for themselves," said Ambrose.

Simon shrugged. "We have a new trouble here."

"What is it?" Ambrose anxiously demanded.

"The Kakisa Indians," Simon said. "They are the biggest tribe around this post, and the best fur bringers. They live beside the Kakisa River, hundred fifty miles northwest.

"All summer they come in two or six or twenty and get a little flour, little sugar, tea, tobacco from me. They want to trade with you because Gaviller is hard to them like us. They are good hunters, but he keep them poor.

"In the late summer they come all together to get a fall outfit. They are here now. They want a hundred bags of flour. They come to me. I say I have got no flour. They go to the fort.

"Gaviller say: 'Ambrose Doane bought all the grain. You want to trade with him; all right. Make him sell you flour now.'

"They are here a week now—sixty teepees. I feed them what I can. It is not much. They are angry. They begin to talk ugly."

Ambrose would not let Simon see that he was in any way dismayed by this situation. "Where are the Indians camped?" he asked coolly.

"Mile and a half down river. Across from the fort."

"Very well," said Ambrose. "Tell them at your house to keep watch here until Tole and Germain come with the raft. Six men should be ready to help them land and unload. You come with me in the dugout, and we will go down and talk to the Indians."

A gleam of approval shot from under Simon's beetle brows. "Good!" he said. "You go straight to a thing. I like that, me!"

Ambrose found the teepee village set up in the form of a square on a grassy flat beside the river. The quadrangle was filled with the usual confusion of loose horses, quarrelsome dogs, and screaming children.

Simon called his attention to a teepee in the middle of the northerly side distinguished by its size and by gaudy paintings on the canvas.

"Head man's lodge," he said. "Name Joey Providence Watusk."

"A good mouthful," said Ambrose.

"Joey for English, Providence for French, Watusk for Kakisa," explained Simon.

He called a boy to him, and made him understand that they wished to see the head man.

"I send a message that we are coming," he explained to Ambrose. "He lak to be treated lak big man. It is no harm when you are trading with them."

Ambrose agreed. "So this what's-his-name fancies himself," he remarked while they waited.

"It is so," said Simon, grimly. "Thinks he is a king! All puff up with wind lak a bull frog. He mak' me mad with his foolishness. What would you? You cannot deal with the Kakisas only what he say. Because only Watusk speaks English. He does what he wants."

"And can nobody here speak Kakisa?" Ambrose asked.

"Nobody but Gordon Strange. It is hard talk on the tongue."

"What else about him?"

"Wa! I have told you," said Simon. "You will know him when you see! All tam show off lak a cock-grouse in mating-time. He is not Kakisa. He is a Cree who went with them long tam ago. Some say his father was a black man."

"So!" said Ambrose. "And they stand for that?"

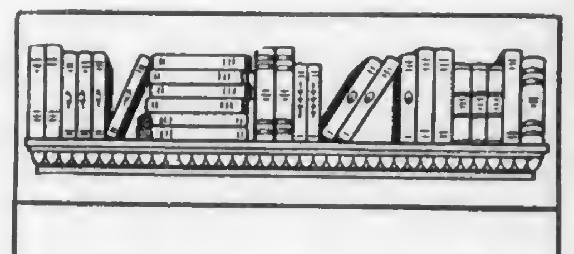
Simon shrugged. "The Kakisas a funny people. Not mix with the whites, not mix with other Indians lak Crees. They keep old ways. They not talk about their ways to other men. So nobody knows what they do at home." Simon lowered his voice. "Some say cannibals."

"Pooh!" said Ambrose, "that yarn is told about every strange tribe!"

"Maybe," said Simon, cautiously "I do not know myself."

The Indian boy returning, signified that Joey Providence Watusk awaited them.

(To be continued.)



PIECES *to* SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

THE WORLD WOULD BE BETTER

If men cared less for wealth and fame,
And less for battle-fields and glory;
If, writ in human hearts, a name
Seemed better than in song and story;
If men, instead of nursing pride,
Would learn to hate it and abhor it;
If more relied on love to guide,
The world would be the better for it.

If men dealt less in stocks and lands,
And more in bonds and deeds fraternal;
If Love's work had more willing hands
To link this world to the supernal;
If men stored up Love's oil and wine,
And on bruised hearts would pour it;
If "yours" and "mine" would once combine,
The world would be the better for it.

If more would act the play of life,
And fewer spoil it in rehearsal;
If Bigotry would sheathe its knife
Till good becomes more universal;
If custom, gray with ages grown,
Had fewer blind men to adore it;
If talents shown in Truth alone,
The world would be the better for it.

If men were wise in little things—
Affecting less in all their dealings—
If hearts had fewer rusted strings
To isolate their kindly feelings;
If men, when Wrong beats down the Right,
Would strike together and restore it;
If Right made Might in every fight,
The world would be the better for it.

Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., May 9, 1916.

A greater activity is noted on the markets in all lines of fruits and produce. Several varieties of Jersey vegetables are arriving and commanding good prices. The markets are strong on all shipments from the South and practically all goods are arriving in first class condition.

Old potatoes are pretty well cleaned up and the balance of the Pennsylvania stock offered is selling at $1.15 to $1.20 per bushel. York State potatoes are selling at $1.05 to $1.10 and Western potatoes are going at about the same figure. The new crop of potatoes from Florida is arriving more freely this morning. There were eight cars unloaded on this market which were sold at $5.50 to $5.75 per barrel. Second grade new potatoes are selling $4.25 to $4.50 per barrel. There is an increasing demand for the Florida potatoes and a large proportion of the consuming public appear willing to pay better prices for new stock.

Sweet potatoes are still arriving from New Jersey and selling at 50 to 60 cents per basket; in hampers they are selling at 75 to 90 cents. The stock might be termed as only fair.

Jersey Vegetables

The Jersey farmers who planted spinach last fall have been reaping the benefit in the last ten days. On Tuesday of last week sales were started at 35 cents per basket and rose each day in price until on Saturday it sold at 60 cents per basket. The new crop of spinach should be ready the early part of next week.

Jersey asparagus has been welcomed on the market and has met with good prices. Extra fancy grades have been averaging between $4 to $4.25 per dozen, fancy grades from $3 to $3.25 per dozen and the prime stock is sold at $2.75 to $3. A number of the growers bunch their asparagus with grading and in such cases where the stock run a fair average size it has sold at $3 per dozen. Crates of one dozen bunch capacity are proving popular and the growers in several sections are making strong endeavors to buy in large quantities second handed California and South Carolina crates. Those who are careful in the grading of their asparagus find it worth while to tie the bunches with red tape rather than with ordinary twine as it helps in many cases to secure better prices.

Scullions are arriving freely from near-by points in Pennsylvania and New Jersey and selling around $1 per hundred bunches.

Vegetables

Rhubarb sold in the early part of last week at $2 per hundred bunches; today similar stock is being offered at $1 to $1.50 per hundred bunches.

Root crops are practically cleaned up and the stock remaining on the market is of inferior quality. Most of the onions received on the market are from Texas. Twenty-three cars were on the tracks this morning and six of these were unloaded and sold at prices ranging from $1.60 to $1.65 per standard crate; second size onions sold at $1.25 to $1.35.

Southern Vegetables

Twenty-four cars of Florida tomatoes arrived this morning, 13 of which were placed on sale. Receipts have been only moderate in proportion to the demand and the quality has been only fair. Prices on fancy stock range from $2 to $2.25 per crate with extra fancy stock selling at $2.50.

Peas are arriving very plentifully and about an average of 200 baskets are being sold daily, with prices ranging from $2 to $2.25 per basket. Beans are in limited supply and the quality is quite poor. The prices secured are from $2 to $2.50 per basket. South Carolina cabbage is maintained at a high figure of $2.75 to $3 per crate. Cucumbers are selling readily at $4 to $5 per hamper and the quality is only fair. Norfolk spinach is in very light receipt as this is the season just between the early crop and the new crop. The stock arriving is selling at $2 to $2.25 per barrel.

Fruits

Strawberries are commanding a great deal of attention and they are finding a strong market here. Receipts in the last four or five days have been ranging from six to ten cars and the principal arrivals are from North Carolina. Fancy Klondyke berries are selling at 12 to 15 cents per quart; Missionaries, 10 to 13 cents. The demand is unusually good and the quality generally good. The chief difficulty with the North Carolina berries is that they are undersized and wasty. One car from Louisiana showed fine quality and brought a premium of two cents per quart above the average of the South Carolina berries.

Apples are selling slowly and the market is ruling somewhat quiet. Most of the fancy stock has been sold and the large proportion of the stock offered is of inferior quality. New York Greenings free from scald are selling at $2.25 to $2.50; Baldwins, $2.50 to $3; Ben Davis, $1.50 to $2.00.

Poultry

The live poultry market is in fair shape and fowls and chickens of desirable quality are ruling strong with the supply only moderate. Fowls are selling at 19 to 20 cents. Receipts on spring chickens are on the incline and the market more quiet. Stock weighing one to two pounds apiece brought 34 to 36 cents; White Leghorns, according to quality, 30 to 32 cents. Live ducks are moving freely at 16 to 18 cents with the larger sizes bringing the higher quotation. Geese are selling at 14 to 16 cents.

The market on dressed poultry is slightly stronger and fowls are in fair supply. Fresh killed dry packed fowls, fancy selected, are selling at 22½ cents, fowls of lighter weight are selling from 20 to 22 cents. Fancy Jersey broilers sell at 50 to 55 cents, other near-by weighing from two to three pounds to the pair, 40 to 45 cents and larger sizes, 35 to 38 cents.

Eggs

Receipts of eggs have been liberal in the past week and a large quantity are being placed in the refrigerators. The demand is good for desirable fresh eggs and the market is holding firm. Near-by extras are selling at 26 cents per dozen; near-by firsts, 23 cents; near-by current receipts 22 cents. Fancy selected candled fresh eggs were jobbed out at 27 to 29 cents per dozen.

—Selmarad.

YORK PRODUCE MARKETS

York, Pa., May 8, 1916.

On account of the late season, the attendance of the farmers at the markets during the early part of the week was very light. All were busy trying to make up for lost time. The Friday market was very lifeless. Saturday afternoon proved the banner market of the week. There was a good showing of greens and the inquiry was brisk. Eggs were plentiful but the buying light.

Eggs.—20@22c per dozen.

Butter.—Country, 32@35c lb; separator, 34@35c lb. Milk, 6 cents per quart.

Poultry, Hens, 13@17c lb; dressed, 50c to $1.25 each.

Vegetables.—Potatoes, 15@20c ½-pk; $1@1.40 per bu; new, 30@40c ½ pk. Lettuce, 3@8c a head. Cabbage, 5@10c; new, 5@8c head. Beets, 3@5c a bunch. Onions, 3@5c bunch; 10@12c ½-pk. Radishes, 4@6c bunch. Lima beans, 16@18c quart. Soup beans, 10@15c quart. Lard, 14@15c lb. Turnips, 8@110 ½-pk. Sauer kraut, 8@10c quart. Spinach, 8@15c ½-pk.

Fruit.—Apples, 15@40c ½-pk. Pears, 15c ½-pk. Strawberries, 20@22c a box.

Retail Grain Market.—Wheat, $1.23; corn, 90c; oats, 60c; rye, 90c; bran, $1.40 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.13; corn, 80c; oats, 55c; rye, 80c; bran, $27 per ton; middlings, $32 per ton.

NEW YORK PRODUCE

New York City, May 8, 1916.

An increased supply of butter has forced a decline from last week, but there is still a good demand for all grades. There is a firmer tone in cheese trading and prices have advanced. Arrivals of eggs have been liberal but prices remain firm because many are going into storage. Trading in poultry is generally good and prices have changed but little. Warm weather is interfering with apple trading and forcing sales somewhat. Prices are lower. Old potatoes are weaker, and new ones are generally small but plentiful.

Butter. — Creamery extra, (92 score) per pound, 31c; higher score, 31½@32c; thirds to firsts, 28@31½c; state dairy, 27½@29c; packing stock, 24@25c.

Cheese. — Whole milk specials, 19¼@19½c; daisies, 18@18½c; skims, 11½@14½c.

Eggs. — Fresh gathered, extra, 24@24½c; dirties, 18@19c; nearby whites, fine to fancy, 24@25c. Ordinary to good, 23@24c; browns, 24@24½c.

Dressed Poultry.—Philadelphia and Long Island, fancy 3 to 4 pounds to pair, 50c; Philadelphia fancy roasters, 26@30c. Fowls, 19@22c; old roosters, 16c; squabs, $2.50@5.50 dozen. Spring ducks per lb. 27@28c. Turkeys, dry picked, 30@33c.

Hothouse Products.—Mushrooms in moderate supply but stock continues very poor and selling low; average receipts sold from 25c@$1, latter figure only exceeded for a few strictly fancy white which brought $1.25@1.50. Cucumbers quite plenty but in good demand and firm. Cauliflowers steady. Lettuce in light supply. Few radishes arriving. Tomatoes scarce. Asparagus, Jersey and Pennsylvania, green, colossal, dozen, $4@4.50; do., green, extra, $3@3.50; do., green, prime, $2@2.50; do., green, culls, $1.50; do., white, colossal, $3.50; do., white, extra, $2.50@3; do., white, prime, $1.75@2.25; do., white, culls, $1.25@1.50.

Apples.—These prices show the range from "B" to "A". Winesap bbl., $2@4.00; Greening, bbl., $2@3.50; Northern Spy, $2@4.25; Baldwin, bbl., $2@3.25; Ben Davis bbl., $1.50@2.

Country Dressed Veals:

Choice	14½@15
Prime	13½@14
Fair to good	12½@13
Coarse, heavy	12½@13
Common	11 @11½
Buttermilks	10 @10½
Grassers	9½@10

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., May 8, 1916.

Receipts for the week ending Saturday evening, May 6:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,190	5,565	6,285
Previous week	3,167	10,954	6,576

Calves. — Total receipts of calves for this week were 1,747 against 1,435 last week.

Beef Cattle.—Tho there was a slight undertone of weakness pervading the market at its close, prices were keeping steady all along the line. The choicest calves showed an upward revision, and bulls and cows of the desirable class commanded full rates. Trade was fairly normal. Lancaster County and Chicago cattle were mostly in evidence.

Best steers	$9.50@9.75
Choice	9.00@9.25
Good	8.50@8.75
Medium	8.00@8.25
Common	7.50@7.75
Bulls	6.00@8.00
Fat cows	5.00@7.25
Thin cows	3.25@4.50

Veal Calves.—

Exceptional lots	$10.50@11.00
Good to choice	10.00@10.25
Medium	9.50@9.75
Common	7.00@8.00
Southerns and barnyards	5.00@6.00

Sheep and Lambs.—Supplies were on the increase, yet values were well sustained in every grade. Inquiry for all satisfactory stock brought about a fair disposal.

Wethers, extra	$9.00@9.25
Choice	8.50@8.75
Good	7.75@8.00
Medium	7.00@7.25
Common	5.00@6.00
Ewes, heavy, fat	7.00@8.00

Clipped—$1.50 per 100 lbs. lower than wool stock.

Lambs, extra	$12.00@12.25
Good to choice	11.50@11.75
Medium	10.50@11.00
Common	8.00@9.00
Hothouse, apiece	6.00@7.75

Clipped—$1.50 per 100 lbs. lower than wool stock.

Hogs.—The market closed steady at the ruling values, with offerings well absorbed. Westerns, gross weight, $11.20; net weight, $14.

City Dressed Stock.—Every kind of high-grade meats commanded full prices under moderate trading.

Steers	11 @14½
Heifers	11½@13½
Cows	8 @12
Veal calves	13 @14
Extra calves	16 @
Southerns and barnyards	9 @12
Country dressed	12 @13
Extras	15 @
Sheep	14 @15
Extra wethers	16 @
Lambs	16 @18
Extra lambs	19 @
Hogs	14¼@

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., May 8, 1916.

Cattle.—The supply on sale was 75 loads compared with 65 loads the week before. The market ruled slow and lower on all grades, the better grades selling 10c lower, while the plain and coarse sold at more of a decline. Bulls, heifers and cows sold steady to a shade lower. Best fresh cows steady; other grades and springers slow. Today's supply was 80 loads, and with only a moderate demand the market was slow and lower.

Good to choice	$9.35@9.60
Good, 1300 to 1400 lb.	9.10@9.30
Medium to good, 1200 to 1300 lb.	8.80@9.10
Tidy, 1050 to 1150 lb.	8.75@9.25
Fair to medium, 1000 to 1100 lb.	8.25@8.75
Fair, 900 to 1000 lb.	7.50@8.25
Common, 700 to 900 lb.	6.25@7.25
Rough, half-fat, 1000 to 1300 lb.	7.00@8.00
Common to good fat oxen	6.00@7.75
Common to good fat bulls	5.00@8.00
Common to good fat cows	4.50@7.50
Heifers, 700 to 1100 lb.	4.75@8.50
Bologna cows	3.75@4.50
Fresh cows and springers	$25@80

Calves.—Veal calves in fair supply and market closed $1.50 per cwt. above Monday's prices. Today's supply was 700 head, which sold active and higher.

Veal calves	$8.00@10.75
Heavy and thin calves	5.00@7.00

Hogs.—The supply of hogs on sale during the week has been fair and with a good demand the market ruled stronger, the close for the week being 15c per cwt. above Monday's prices on good weights and steady on pigs. Today's supply was 45 double-deck loads, which sold 45 cents lower.

Prime heavy	$10.20@
Heavy mixed	10.20@
Prime medium weights	10.20@
Best heavy Yorkers	10.20@
Light Yorkers	9.50@
Good pigs	8.75@9.00
Common to good roughs	8.60@9.10
Stags	7.00@7.25

Sheep and Lambs.—The supply of sheep and lambs has been light and with a good demand for handy weight lambs those grades closed 40c per cwt. higher, while best grades of sheep were steady. Heavy lambs slow. Today's supply was 14 double-deck loads. With a good demand, the market was active on all grades of sheep and lambs at steady prices. The supply of spring lambs was light and prices steady.

Prime wethers (clipped)	$7.80@8.00
Good mixed (clipped)	7.50@7.75
Fair mixed ewes and wethers	6.50@7.25
Culls and common (clipped)	3.50@5.50
Heavy lambs	6.50@10.40
Spring lambs	10.00@16.00
Culls to choice yearlings	6.00@9.50
Clipped lambs	6.00@10.25

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., May 8, 1916.

Hay and Straw.—Hay holds steady and firm under light offerings and a steady demand. There is no let-down in price and practically all grades are taken readily. Straw is firm but not as active as hay.

Grains.—Wheat holds up to the recent advance. There was a further advance of 1 cent per bushel today under a fairly strong speculative market. Local demands are light. There is a fair demand for corn and the market rules firm under light offerings. Offerings of oats are light and prices steady.

Hay.—No. 1 timothy, medium bales, $24@25.50; No. 2 do., $23@24; no grade, $11@16. Light mixed clover, $23@23.50; No. 1 do., $22@22.50. No. 2 do., $19@20.

Straw.—No 1 straight rye, $15.50@16; No. 2 do., $14.50@15; No. 1 tangled rye, $12.50@13; do., No. 2, $11.50@12. No. 1 wheat straw, $10.50@11; No. 2 do., $9.50@10. No. 1 oat straw, $10.50@11. No. 2 do., $9@9.50.

Wheat.—No. 2 red, $1.14@1.17; No. 3 red, $1.14@1.17; rejected A, $1.11½@1.14½; rejected B, $1.10@1.13.

Corn.—No. 2 yellow western, 84@84½c; steamer yellow, 82@83c; western, No. 3 79@80c; No. 4 yellow, 76@77c; ear corn, 80@82c per 70 pounds.

Oats.—No. 2 white, 51½@52c; No. 3 do., 49@50c; No. 4 do., 47½@48c; standard white, 51@51½c; sample oats, 43½@44½c.

Feed.—Winter bran, 100-lb. sacks, $26.00@26.50; spring bran, do., $23.50@24.

Flour.—Car lots, winter clear, $5.10@5.30; straight, $5.40@5.60; patent, $5.75@6.00. City mills, choice to fancy patent, $6.50@6.75; do., regular grades, $5.10@5.30. Rye flour, $5@5.50 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., May 8, 1916.

Hay.—There is still an excellent demand for strictly No. 1, good No. 2 and light mixed hay with receipts light, billings likewise. All these grades can be readily placed to advantage. Market is not so strong on No. 3 timothy. Shipments of this grade being placed at quotations, in some instances higher. No. 1 timothy, $23@23.50; No. 2 timothy, $20.50@22; No. 3 timothy, $16@17; No. 1 light mixed, $20@20.50; No. 1 clover mixed, $17@18; No. 2 clover mixed, $14.50@16; No. 1 clover, $15@15.50; No. 2 clover, $10@12; No. 3 prairie, $13@13.50; No. 4 prairie, $9.50@10.

Straw.—Receipts extremely light while the demand is good; market is advancing. No. 1 oat, $9.50@9.75; No. 2 oat, $9@9.25; No. 1 wheat, $9.25@9.50; No. 2 wheat, $8.75@9; No. 1 rye, $10.25@10.75; No. 2 rye, $8.75@9.25.

Ear Corn.—Demand fair while receipts are light; market stronger. New stock. No. 2 yellow, 82@83c; No. 3 yellow, 77@79c; No. 2 high mixed, 80@81c; No. 2 mixed, 78@79c.

Oats.—Oats higher in sympathy with western markets but the demand is not very strong at this end. No. 2 white, 49½@50c; standard, 48½@49c; No. 3 white, 47½@48c; No. 4 white, 45½@46½c; Rejected, 42@45c.

NEW YORK HAY AND GRAIN

New York City, May 8, 1916.

Hay and Straw.—Hay is scarce and prices are soaring. All harbor points are very lightly supplied and the situation is wholly in sellers' favor. Quotations are advanced a dollar per ton over last week and exceptional sales at most favored points are somewhat higher than quotations. Values at Brooklyn sheds are nominally $1 to $2 lower than at other points thru difficulty of moving goods. Clover is not wanted. Alfalfa is selling in a general range of $18 to $22, the outside price being paid only for best second cutting. Rye straw is steady.

Grains.—Wheat is carried along on speculative attention to growing crop reports. These reports are generally very pessimistic, noting damage by winter freezing, by Hessian fly and by green bug. Spring wheat conditions are greatly improved. Corn is steady and a fair quantity is moving. Oats are strong.

Hay.—Large bales.—No. 1 timothy, $28@29. No. 2 $25@27; No. 3 $21@23; fancy clover, light mixed, $24@26; No. 1, $20@22; No. 1 clover, clear, $18@19; lower grade, $12@16.

Straw.—Per ton, No. 1 rye, $15@16; do., No. 2, $13.50@14.

Wheat.—No. 1 Northern, $1.32½; No. 2 $1.30½; No. 2 hard winter, $1.24½.

Corn.—No. 2 yellow, 90½c; No. 3 yellow, 85¾c.

Oats.—No. 3 white, 51@51¼c; No. 4 50@50¼c; ordinary to fancy, 50½@51¼c.

Rye.—$1.05.

Mill Feed.—Coarse Western spring one hundred-pound sacks to arrive, $22.60. Standard middlings, $23; flour, do., $28.60 to arrive. Red dog, to arrive, 140-pound sacks $30@30.50. Oil meal, $32@32.50. City feed bulk bran, $23. Heavy feed in bulk, $23.50. Red dog, $32.50. Flour middlings, $32.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., May 8, 1916.

There was a drop of 2 cents per pound of butter during the week. There is a fair business at the decline and supplies are pretty well cleaned up. Ladles are quiet but are steady under small supplies. Prints are 2 cents lower but are selling fairly well at the decline. The cheese rules firm under light offerings but the demand is only moderate.

Butter.—Solid packed creamery, fancy specials, 33c; extras, 31@32c; extra firsts, 30@30½c; seconds, 29@29½c; ladle packed, 27@28c; nearby prints, fancy, 34c; average extras, 33c; do., firsts, 31@32c; do., seconds, 29@30c; special fancy brands of prints, 37@40c.

Cheese.—New York full cream, fancy, 19@19¼c; fair to good, held, 18@18½c; do., part skims, 11@16c.

NEW YORK MILK MARKET

New York City, May 8, 1916.

The market is rather closely balanced. This is an unusual condition for May. Usually there is a considerable and growing surplus at this time. There were days last week, when the weather was warmer than it had been, that some of the dealers were obliged to look around for an addition to their supply. The demand for cream has shown a considerable increase. The close balance is credited to the demand for butter, cheese and condensed milk. The demand for cream showed a considerable increase, the receipts exceeding those of the previous week by 995 cans. The market value is between 3¼ and 3½ cents a quart for Grade B in the so-called 26-cent zone.

The receipts of milk and cream in 40-quart cans for the week ending May 6, were as follows:

Railroad	Milk	Cream
Erie	42,006	2,892
Susquehanna	7,603	728
West Shore	20,540	1,149
Lackawanna	62,290	2,175
N. Y. Central (long haul)	92,198	2,375
N. Y. Central (short haul)	22,950	44
Ontario	34,673	4,602
Lehigh Valley	36,693	1,835
Homer Ramsdell Line	3,895	42
New Haven	5,348	21
Pennsylvania	7,275	275
Other sources	1,295	32
Totals	336,766	16,170

CHICAGO HORSE MARKET

Chicago, Ill., May 8, 1916.

Horses were marketed moderately last week and sold with fair liberality at generally unchanged prices, army horses being much the most active. Most horses sold below $225, with limited sales of desirable drafters at $240@285 and fancy ones of extra heavy weight quotable up to $300 or even higher. Commercial chunks were in demand at $165@235, and inferior animals sold down to $60@75. Wagoners sold at $165@200 and expressers at $170@210. Most farm workers went at $100@145.

ELGIN BUTTER MARKET

Elgin, Ill., May 6, 1916.

Butter sales today were made at 30 cents per pound; 100 tubs sold at that figure.

TOBACCO MARKET

The long rejected 1909 tobacco product is at last in evidence and the long deferred hopes of holders are being realized by an increasing demand and prices that as yet are not remunerative but better than ever before, and far better than has been expected for some time. Many holders have now assumed the independent stand and are refusing advanced offers expecting further increased prices. Prices of such tobacco have advanced from $6@7 to $10@11 per cwt. It might be well for holders to note that a good time to sell is when there is an active demand and that as a matter of course declines must follow advances sooner or later. The history of speculation is profuse in its record of those who could have taken a profit but holding for further advances were compelled to quit with unsurmountable losses.

The late spring has been the cause of a belated, altho fairly good, prospect for plants. However, a late start presages a late harvest, extending to the danger line from frost and blustery curing weather late in September. Fully the usual number of beds have been made in all localities. Departing somewhat from the usual custom in planting production, a Diamond Station farmer has planted some four hundred seed beds, the total area of which is approximately one acre and the products of which should be enough to plant one thousand acres. Of course it will be understood that these plants are grown for sale and not for personal use of grower. A pleasing outgrowth of the present hampered fertilizer situation is the apparent better conservation of stable manure and the increased use of lime in many localities.—H. E. Tweed, May 8, 1916.

Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the cause in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Obstructed Teats.—I have a cow that I purchased the 16th of March, just one week after she freshened. When I brought her home I discovered a small lump at the base of each two teats on one side which seem to obstruct the milk flow. Any hard pressure on them seemed to make trouble and cause them to enlarge. This cow appears to be well. I would like to know what can be done for her. E. L. S., Port Murry, N. J.—The best results are obtained by applying iodine ointment directly over bunches or by dilating teat canal and leaving them alone. Careful milking of such a cow is very important, because it is easy to increase this trouble.

Thrush.—I have two horses that have thrush. One has been affected with it since last fall. The treatment I applied partially cured them, but since I commenced spring harrowing, the feet have a bad odor. I also have a two-year-old filly that I am working on manure spreader and harrowing some. Should I have her shod? I have also thought that her urine was a little thick. W. A., Montgomery, N. Y.—Apply calomel to diseased frog daily and it will soon cure the thrush. Your stable should be kept clean and free from wet and filth for this is the most common cause of thrush. If your filly's fore feet are inclined to become tender from the hoof breaking off, then have her shod in front. It will hardly be necessary to shoe her behind.

Indigestion.—I have a heifer that freshened March 13th, at 26 months of age. She seemed well for the first two weeks, giving 28 pounds of milk per day. Since then she has refused to eat and is down to about 12 pounds per day. I was feeding bran, white middlings and a commercial feed mixed. She ate a little, but her teeth seemed sore and hurting her. She was always in good condition, but is very poor at present. She seems to be hungry, but does not eat. J. G., Mahoning City, Pa.—Give her 1 pound Epsom salts to open bowels, providing you believe she requires a laxative or cathartic. Give her 1 dr. ground nux vomica, 2 dr. hyposulphite of soda and ½ oz. ground gentian at a dose, either as a drench in a quart of water or in feed 3 times a day. Examine her mouth to see that she has not some foreign matter hurting teeth.

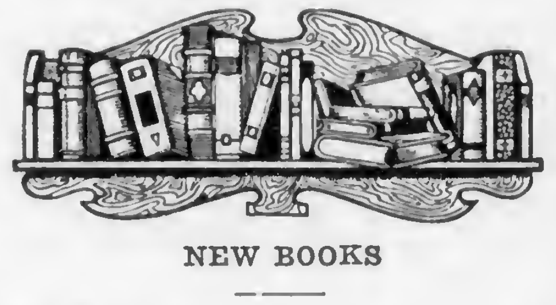
Delayed Birth.—What should be done with heifer that has shed afterbirth without giving birth to calf? P. W., Callicoon Center, N. Y.—I suggest that the heifer be left alone and when the proper time arrives she will perhaps calf all right. If not, it should be taken from her; however, I am not sure but she may have had one calf and another yet remains in uterus. It is not difficult to ascertain her condition by an examination per rectum.

Heifer with Five Teats.—I have a heifer, freshened recently for the first time, with a fifth teat practically grown into the rear of her right hind teat. The end of the fifth teat comes out of the main teat about three-quarters of an inch from udder. This little teat only secretes a teaspoonful or two of milk, but even that makes it rather difficult and unpleasant to milk her. She is a very promising animal and if there is any way that this extra opening can be sealed I would be grateful for the information. F. D. R., Gwynnbrook, Md. — This rudimentary teat should have been cut off when she was young, or it should be done when she is not milking; however, it can be cut off or tied off at any time, but the wound will be slow in healing and the flow not easily checked.

Incipient Coffin Joint Lameness. — I have a horse, 8 years old, that is stiff and lame in left fore leg. While standing still he is inclined to rest on toe, but appears to drive out of lameness. However, when allowed to stand still a few minutes he shows lameness in starting. J. A. H., Newfield, N. J.—If he points fore foot and places it some distance ahead of the opposite one, the lameness is in coffin joint, but if the leg is flexed while standing and not held in front of body, then I should suspect a rheumatic shoulder ailment. Apply equal parts turpentine, aqua ammonia and olive oil to either coronet or shoulder every day or two.

Foot Lameness.—I have a 6-year-old horse that is lame in right hind leg. He has had gravel in foot and it has left a hard callus at the top of hoof. There is a small hole in the frog and I would like to know what can be done for him. He walks sound, but shows considerable lameness when trotting. J. G. A., Bliss, N. Y.—Apply tincture iodine to bunch on coronet daily and apply iodoform to hole in frog, once a day.

Chronic Sore Eye.—I have a 15-year-old mare. One of her eyes discharges all the time. The discharge is sometimes like water and sometimes of a whitish color, but there is no sore on the eyelids; furthermore, I do not believe the ailment painful. I do not know how long she has been troubled this way as I have only had her five weeks. The eye has run ever since I bought her. There is a bare patch under the eye which indicates that she has had trouble for some time before I bought her. G. W. P., Belvidere, N. J.—Dissolve 40 grains borate of soda and 40 grains of boric acid in ½ pint of clean boiled water and apply to eyes, twice daily. Apply 1 part oxide of zinc and 5 parts vaseline to bare patch under eye, once a day. It is perhaps needless for me to say that a bright light always irritates a sore eye.



NEW BOOKS

The Small Grains. — By Mark Alfred Carleton, and edited by L. H. Bailey, as one of the Rural Text-Book Series, Published by The Macmillan Company, New York. 700 pages, 184 illustrations and 20 tables. For sale thru Pennsylvania Farmer. Price, $2.

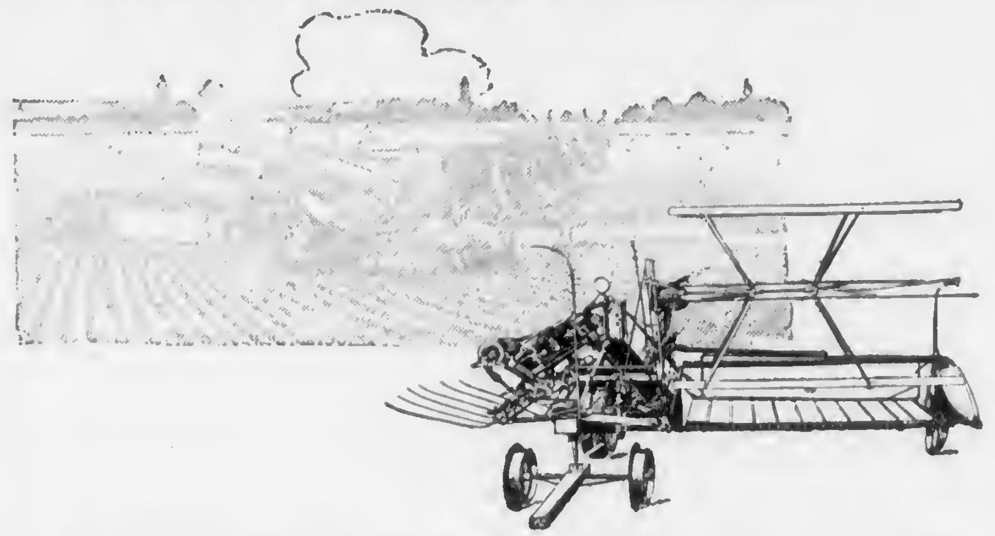
An exhaustive discussion of small grains describing the different grains and the different varieties of each. Cereal cultivation in different sections of the country is described; also, the pests, both weed and parasitic, that must be combatted.

Farm Shop Work.—By Brace & Mayne. Bound in cloth, copiously illustrated with line drawings, 5½x7½ inches, 291 pages. Published by American Book Company. For sale thru Pennsylvania Farmer, Price, $1.00.

This volume is written primarily for classes in manual training but is valuable to farmers having repair and construction problems in farm work. It covers wood-working, blacksmithing, cement and concrete work, leather work, etc. It is well written and directions easily followed, for either construction or repair work.

Principles of Plant Culture.—By the late E. S. Groff, edited by L. H. Bailey, and published by The Macmillan Co., New York. Contains 295 pages, including 177 illustrations and a complete index. For sale thru Pennsylvania Farmer. Price, $1.50.

The man who not only knows how, but why his work is done and can understand the workings of natural law as he sees it manifested in the growing plant, gets more enjoyment out of his work than does one to whom all processes are as a sealed book. To most successful farmers, agriculture is an art rather than a science. Art is knowing how to do a thing without reference to reasons. Science considers the reason for doing things. The natural tendency in bright, normal children is to seek to know why. They ask why the seed sprouts, the flower opens, and the egg hatches. It would be well for us if we would continue thru life the disposition to ask the eternal question, "Why?" This work takes up the subject of plant culture at the beginning and explains the structure of plants and the laws that govern seed germination and growth; explains the functions of leaf, bud and flower and how species are perpetuated. The author also discusses clearly the different methods of propagation, giving cultural directions as well, making a valuable hand-book for practical use as well as an instructive work for the student.



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RIGHT OF THE ROAD

III. Rights of Adjoining Land Owners

By Albert Bolles

The adjoining owner can dig a ditch, sink a drain or any watercourse below the surface of his land covered with a way, using care not to deprive or impair the public right of passage. He can also extract any minerals there may be under the surface of the highway. Long ago a court declared that while the land owner's title to his land was qualified by imposing the right of a public highway on it, "The proprietor still retains his exclusive right in all mines, quarries, springs of water, timber and earth for every purpose not incompatible with the public right of way."

When land is taken for a highway the public acquires as an incident to its right of way, the right to use in a reasonable manner, the soil, gravel and stone found within the limits of the way to construct it and keep it in repair. But to what extent may materials be removed from the land of one owner to construct or maintain the way over another owner? The courts say that this right to remove and transport materials from one place to another on the highway, regardless of the ownership of the adjoining land owners, must be exercised in a reasonable manner. In other words, the public highway authorities have no right to act arbitrarily as if the public owned the entire highway. In the present movement to rebuild the highways of the state, the rights of land owners in this regard may be disregarded. Very likely in the general desire to have the highways improved, land owners may gladly relinquish their rights, but it is well to understand them, as there may be occasions of a wanton and unnecessary disregard of them.

An abutting owner whose title extends only to the middle of the highway, cannot maintain an action for an obstruction on the opposite side of the road, the only effect of which is to render access to his property more difficult and inconvenient, and to force travel near to his lot. Still, if it interferes materially with the means of access to his land, he may maintain his action. As a court said on one occasion: "The owners of real estate abutting upon a highway have a peculiar and distinct interest in the highway in front of their real estate; this interest includes the right to have the higway kept open and free from obstructions which prevent or materially interfere with the means of ingress to and egress from their real estate."

It may be added that an owner of a lot adjoining a public highway who does not own the title to the highway, has the right to go to and come from it, and also to maintain a gateway.

The public in their use of a road are not confined to the width of the actual beaten part, but if a traveler, without necessity, drives outside of it for the express purpose of injuring the grass growing there, he is liable to the abutting owner as a trespasser. Again, an individual may be held liable for widening or repairing a highway outside its travelled portion, tho the public authorities may have rightfully done the same thing. Likewise one adjoining owner cannot build a driveway on the land of another within the limits of a highway and outside the usual course for his private convenience. In making and using such a driveway, he is not regarded by the law as a traveler on the public highway, but as an individual going for his own private convenience and without any rights or protection as a public highway goer.

Sometimes a public highway becomes impassable by flood or other accident, or neglect to repair. May a traveler then go on the adjoining land in order to pass around the obstruction and continue his journey? Such a temporary and unavoidable use of private property is regarded an incidental burden that it must bear. Having its origin in necessity, the right to so use it must be limited by the cause that created it. It does not exist from convenience merely, nor when by the use of due care other ways can be used. Furthermore, if necessity require, in order to extricate one's team from a bog in the highway, he may lay down the fence by the wayside and pass thru the field.

While it is not within the scope of these articles to consider the damages that may be demanded for taking land for highway purposes, it may be remarked that additional damages may sometimes be demanded for making a larger public use of one's land than was first intended. This point is made in view of the probable reconstruction of many of our roads within a few years. Doubtless most of the improvements will be welcomed, but there may be grades, new alignments and other changes effected of a serious nature to some of the adjoining owners. The use of the telegraph and telephone is such a need that the erection of poles on the highway is not regarded as an additional burden, for which the land owner can be compensated. Nor can he get any compensation for poles erected to convey electric light.

Lastly, an adjoining owner has the same remedies against individuals for injuries done by them to his land in the highway as for injuries done to his land lying outside of it.

RAILROADS' RESPONSIBILITY

The supreme Court of the United States handed down a decision recently in the case of the New York, Philadelphia and Norfolk Railroad against the Peninsular Produce Exchange of Maryland which will have an important bearing upon the future movement of perishable freight from the Eastern Shore territory.

In effect, the court held that the Carmack amendment to the act to regulate commerce provides that an initial railroad must assume liability for damages sustained by shipments on account of delayed delivery as well as liability for damages from any other cause. This is what the producers contended for and is a great victory for the shippers all over the country.

The judgment in the test case was insignificant in proportion to the issue involved. The court awards $153.60 damages to the exchange, the loss sustained in a shipment of berries from Marion, Md., to New York.

It was shown that the New York, Philadelphia and Norfolk and its connections failed to deliver this shipment to New York on a given market day, and as a result the price dropped two cents a quart. Suit was brought by the exchange for the damages. This was awarded by the lower Maryland court and again by the Maryland Court of Appeals. The Supreme Court upheld the Maryland tribunals.

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Garden Insects and Their Control

By SHELDON W. FUNK
Advisor in Market Gardening

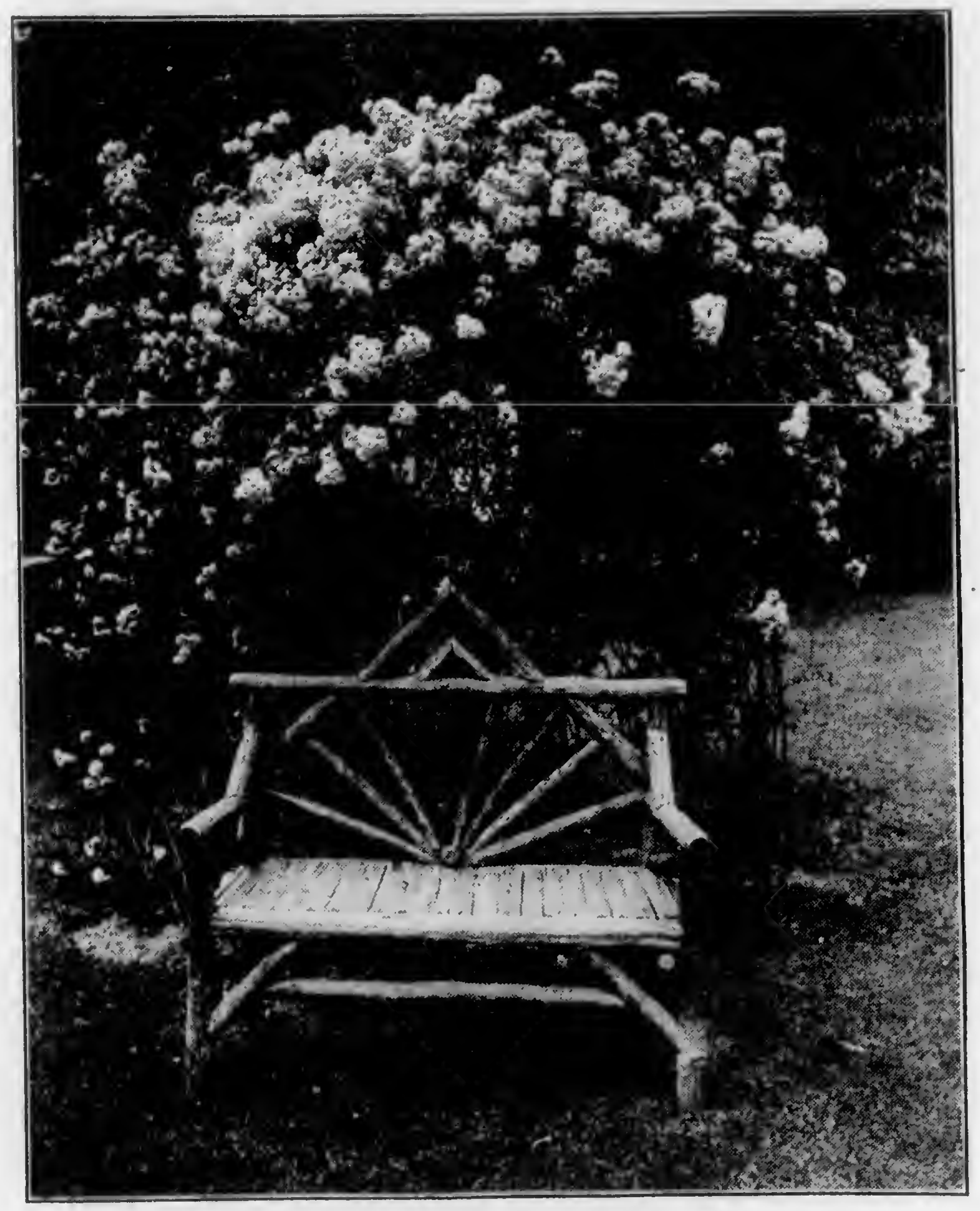
With the opening of the growing season we can expect the arrival of a great many insects of different kinds to trouble us in the vegetable and flower garden. Many of these insects are difficult to control, but in almost every case a little preparation means half the battle and "A stitch in time saves nine." If we acquaint ourselves with the customs and habits of a few of these insects, their eradication will be easier.

These insects are divided roughly into two great classes, the chewing insects and the sucking insects. Before trying to destroy any insect, first determine to which class it belongs and you will then know how to proceed.

Chewing Insects

Those belonging to the chewing class have chewing mouth parts and can be controlled by placing an arsenical or a stomach poison on the parts of the plant on which they are feeding. Our principal arsenicals are: First, arsenate of lead, paste and powder, used at the rate of 2½ pounds of paste or 1¼ pounds of powder to 50 gallons of water. (The powder is twice as strong as the paste.) Second, paris green, used at the rate of 1 pound to 50 gallons of water. Where paris green is used, it is best to apply it with bordeaux mixture, or if you do not have the bordeaux, add 3 or 4 pounds of lime to the 50 gallons. The lime neutralizes the free arsenic acid and prevents burning. Be sure that your paris green is fresh, and keep material well agitated. Being a heavy powder, it settles to the bottom very rapidly. There are quite a number of other poisons used for chewing insects, such as hellebore and London purple, but I prefer the arsenate of lead or paris green. Of the two, the arsenate of lead is perhaps the better. It adheres to the foliage better than does the green and there is no danger of its burning the foliage of your plants.

In applying a poison of any kind, be sure to apply it as soon as the insects make their appearance and be careful to cover the entire plants. If you wait until the insects have destroyed a considerable portion of your plants and they have a good start, you will have difficulty in controlling them.


A COZY DECORATIVE LAWN SEAT.

Use either of the above materials in the proportions which I have mentioned for such insects as the potato bug, green currant worm, rose slug, grape berry moth, grape curculio and other insects which injure your plants in like manner. The poisons should be used with bordeaux mixture whenever possible. It controls many of our fungous diseases besides causing the materials to stick better.

Sucking Insects

The second great class, or the sucking insects, instead of having chewing mouth parts have a long beak or proboscis with which they penetrate the plant and draw out the sap. Here our arsenicals are of no value, because it is impossible to get the poison into their bodies. We must therefore use a contact material; that is, one that will corrode their bodies, close up their breathing pores or drive the insects away. Our principal materials used in the garden for the destruction of the sucking insects and some soft-bodied chewing insects, which may be more readily destroyed by this means than by the use of arsenicals, are tobacco decoctions, smoke and dust, kerosene emulsion and whale-oil soap. Of the tobacco remedies the decoction and the dust are the most practical. To make the tobacco decoction, boil or steep 1 pound tobacco stems in 2 to 3 gallons of water, dip the plants into this or spray them thoroly. Where you have trouble with such sucking insects as plant lice, for instance, on plants indoors, it is less obnoxious to use the tobacco dust. The dust is also used where insects attack the roots of plants, as in the case of the wooly aphis. Apply the dust to the roots of the plant and work into the soil. This material may be purchased from any of the large seed houses. Water your plants, then apply the dust to the leaves, allow it to remain for two or three days and the plant lice will largely disappear.

To make kerosene emulsion, dissolve ½ pound hard, or 1 quart of soft soap in 1 gallon of boiling water, add 2 gallons of kerosene and churn with a force pump for 5 or 10 minutes, or until it forms into a creamy solution. This is known as a stock solution and in spraying plants in the summer time one gallon of this emulsion should be diluted with from 10 to 15 parts of water.

Wale-oil soap is also a good remedy for sucking insects and is less troublesome to prepare than the kerosene emulsion. Dissolve 1 pound of the soap in 5 or 6 gallons of water and spray the plants well. The leaf hoppers, together with the aphids or plant lice, are the most common sucking insects. They come in many colors and we find one or two species of them attacking almost all of our garden plants.

Remember that in spraying for sucking insects you must strike the insects themselves or your results will be unsatisfactory; merely wetting the plants is not sufficient. Altho the above materials will control the great majority of our chewing and sucking insects, many require some special treatment and we will now take up a number of these.

Rose Chafers.—One of the most voracious as well as the most difficult insect to destroy is the rose chafer, commonly called rose bug or cherry bug. This insect does a great deal of damage on roses, grapes and cherries; in fact, anything growing in its path suffers. It is most common on light sandy soils but is scattered pretty nearly over this entire section. The rose chafer is a chewing insect but a large amount of poison is required to kill it. The bug is also wary about what it eats and for that reason our common arsenical sprayings have not been very successful. The following remedy has given best success in my experience: 10 pounds of arsenate of lead paste, 8 quarts of molasses and 50 gallons of water. Apply this material as soon as the insects appear. The insect is fond of sweets and in eating the molasses gets the arsenate of lead.

Striped Cucumber Beetle.—Another insect which has caused much damage is the striped cucumber beetle. This is also a chewing insect but our arsenicals are not successful in controlling it because it does its work when the plants are small. About the only way to get rid of this little fellow is to make a repellent of some kind, the best of which is good, strong tobacco dust. Apply the dust when the plants first come up and in the morning when they are wet with dew. If the beetles are not very bad they may be controlled by air-slaked lime to which enough kerosene, carbolic acid or turpentine has been added to give it a strong smell. Common soot gives fairly good results. Always sow several time as much seed as would be ordinarily needed. If the cucumber seed is not sown until the latter part of June, you will have no trouble with this little fellow.

Where you are growing large quantities of early cucumbers or melons I find the best method is to start the seeds in three to four-inch pots in the greenhouse. We leave them there until the plants are from two to three inches tall and then set them in the field. The beetles seldom bother these plants and altho the first cost is a little greater we save time in the end.

Cucumber or melon plants often do nicely until

(Continued on page 4.)

The Farm Woodlot: It's Possibilities and Needs

What We May Do To Better It.

The timber situation in this country is such as to demand increased action on the part of national government, state government and individual land owners. Just how soon we in the United States shall be brought face to face with a timber famine the writer is unable to predict, but the day is not remote when one of our greatest natural resources, that of timber, will have been exploited and when prices of lumber now high will be doubled, tripled and further multiplied to such an extent as to inflict great hardship on all classes of people.

True enough, many substitutes for wood are being discovered, but it can never be wholly replaced and no one should content himself with this thought.

Picture China today, a land once blessed with natural forests, converted into an almost treeless waste thru unrestricted cutting and lack of replacing. As a direct result the hillsides are eroded and gullied and are permanently lost to agriculture, while rain water being unchecked by wooded slopes rushes into streams and causes the devastating floods about which we so often read.

To an uncomfortable degree the experience of China is already being shared by our own country.

This means that measures of conservation will have to be increased and that reforestation must be carried out on millions of acres that are better adapted to tree crops than to any other purpose.

Work of a broad scale in connection with reforesting areas will continue to be the task of nation, state, railway companies, municipalities, etc., but inasmuch as the farm wood lots taken collectively represent over one half the forest trees of this country, it would seem worth while to recognize their importance and to study methods of conservation and improvement.

The Treatment of a Farm Woodlot

The woodlot should be regarded not only as a source of fence posts, rails and oven wood, but as a source of farm revenue.

By the latter it is not meant that wholesale cuttings should take place but rather that when mature tree can be taken out in such a way as to make room for promising younger specimens this should be done for the general good of the woodlot and profit of the owner.

Where chestnut trees remain alive in this country, it would seem advisable to cut and market to best advantage or have them sawed into whatever dimension of lumber is likely to be needed in the future construction of some farm building. While not of the best, chestnut shingles from seasoned logs cut in August are acceptable for barn and shed roofing and offer one practical home use for wood of this variety. It is certainly better economy to dispose of the remaining chestnuts of marketable size than to allow them to succumb to the inevitable blight after which they are worthless.

THRIFTY YOUNG CATALPA TREES.

The proper management of a woodlot contemplates, first, the removal of all dead and dying trees, and second the removal of any sassafras, wild cherry, sumac or other so called ''forest weeds'' that may be found.

The next step will be to make an improvement thinning of the old mature trees of every species along the line previously mentioned. In doing this the more rapid growing species such as red oak, bass wood and locust should be favored.

Again, all down stuff such as fallen trunks and heavy branches should be cleared out and as a provision against fire the woods floor should at all times be kept free of tree tops or other brush incidental to cutting.

Very often after the thinning, open spaces are left which allow sunlight to come in and invite forest weeds and shrubs. It is these open spaces which should be planted to seedlings with a view to reforestation. The kind will depend somewhat on the situation and soil, but where more or less shade exists this fact will have to be taken into consideration.

For the purpose described perhaps the white pine is as well suited as any, while Norway spruce and red oak are known to do well under such conditions. These trees will stand considerable shade in youth, but after they have reached an age of from eight to twelve years they must stand practically in the open for best results. Seedlings are usually planted about six feet by six feet and while this may impress one as being very close together, the result is a perfectly straight trunk with no side branches except near the top.

A FOREST HILLSIDE. NO SOIL WASH AND FERTILITY INCREASING.

Forest plantings are not restricted to areas now in trees. There are in Chester County especially in the northern half many rocky hillsides, knolls and the like, which are impossible to farm and which are of very little value as pastures.

Here the opportunity for tree planting is good.

WASTE LAND SUBJECT TO FREQUENT BRUSH AND GRASS FIRES: PROMISING FIELD FOR REFORESTATION.

in making a selection one should consider the more rapid growing species as black locust, soft maples, red oak and catalpa.

Of these we may be obliged to omit entirely the black locust as a result of the borer ravages which have killed acre after acre of young trees set out by the Pennsylvania railroad alongside its tracks in Chester, Lancaster and other counties of this state. The catalpa which will be discussed later is no tree for poor rocky land or for stiff clays.

Perhaps of all those mentioned the red oak is the most desirable species. It thrives under a variety of conditions, is the most rapid in growing habit of all oaks and furnishes a high quality of wood for use in building and the making of furniture.

It requires but little time and expense to plant a few hundred seedlings of this variety.

Red and silver maples have their value but are not as widely adapted as the red oak and cannot be expected to grow into equal value.

Of the slower growing varieties we have the black walnut, white pine, and the yellow and white oaks.

It is needless to comment on the present value of black walnut lumber or its possible value in years to come, but there is so little work connected with planting two or three hundred walnuts that the idea should prompt us to act in many cases. There is one quite extensive and successful black walnut plantation in the northwestern part of Chester County.

White pine, tho at present threatened with a disease known as blister rust should be considered for a limited planting and may be set in the open with as good chances for successful growth as when planted in partial shade. There are so many uses to which white pine lumber is distinctly adapted that it must be in greatly increased demand as the supply lessens.

Seedlings of from three to five years in age are about right for planting, are small in size, easily handled and of little expense.

There is so little to be said of either the yellow oak (commonly referred to as black oak) or white oak as compared with the red species, that a recommendation of either is generally withheld. Rock or chestnut oak will grow rapidly on good soil and make excellent tie timber.

Hardy Catalpa Possibilities

The catalpa tree is native to the Ohio river valley where under certain conditions it has proven itself of great value as a quick growing tree. Where planted in rows and cultivated, the trees have reached fence post size in from ten to fifteen years of age. The wood is durable in the form of posts and poles but is unsatisfactory for ties.

In Pennsylvania this species has been tried with varying degrees of success, more failures having been reported than otherwise. Doubtless in a majority of cases the altitude has been too great and latitude too far north. The writer believes, however, that in south eastern Pennsylvania the catalpa has its place and should be planted on a moderate scale. This observation is based on a very successful plantation near Fulton House, Lancaster County and on a second near Chester Springs, Chester County.

For best results young trees are set in rows about four feet apart and four feet between the individuals. Trees will thrive only on soil that is fertile (preferably stream bottom land) and it is necessary at least the first six years to cultivate as one would an ordinary field crop.

The planting of forest trees has never engaged much attention at the hands of individuals from the fact that we are loath to do anything unless the act promises early personal gain.

It requires foresightedness to plant a seedling with the realization that from forty to sixty years must elapse before there will stand in its place a grown tree of proper marketable size. In most cases there will be no direct gain only as growing trees enhance property values. Someone, tho, in time will reap the benefit.

Older countries have maintained their forests thru legislation which does not permit of the exhausting of timber land without its renewal. In the absence of such laws in our own country the individual must assume a degree of responsibility and realize that in this matter he owes a duty not only to himself but to posterity.

The time to plant will be early spring. It is often possible to obtain seedlings free of cost by writing the State Department of Forestry at Harrisburg, or by addressing the School of Forestry at State College, Pa.

They may be had from any one of several nurseries at a very nominal cost.

Where the opportunity presents itself let us think over the matter seriously and plant some trees—yes, many of them.

Cut Out Unprofitable Crops

''Men who have been growing oats for grain have been losing money,'' we are told by experts who have investigated conditions in Chester Co., Pa. I have found the same thing to be true here in our section, so I have been cutting oats for hay rather than to harvest them for grain.

I use a one-horse drill having three feet and put in both oats and fertilizer at once, in the cotton middles about October 1. In this way very little oats will freeze out since this drill puts the oats in a deep furrow. Then the rains wash the dirt to it and very little is frozen out, as when drilled in the old way. Last spring we had frequent showers which made the oats come out fast so that much of the crop was five feet tall. Hence the six acre piece I had in oats turned off much hay and fine hay it was. While I did not weigh it, I estimated it at something over twelve tons, worth twenty dollars a ton baled here in our section. I kept a record of the cost of production and found it to be $1.75 per ton. I baled and sold about half, retaining the balance for my own use. I do not believe it a good plan to sell much hay from the farm. Practically all the roughness should be fed animals on the farm, while cream, butter or the finished product only should be sold.

PART OF THE 36-ACRE ALFALFA FIELD ON ASBURY MANOR, CUTS FOUR CROPS PER YEAR.

I believe that each farmer should keep a cost record of every crop grown, so that he may know which crop, if any, is produced at a loss. Then as soon as he learns which crop is unprofitable, he should cut out the unprofitable one and grow something else in its place. We farmers are in the same position with the manufacturer, who keeps an exact record of cost and production. Otherwise he could not know on which article he is making a profit, or perhaps losing money on another article. It is useless for us to continue to raise crops that our fathers have raised if conditions have changed and we now lose money on the raising of such crops. Leaks of all kinds must be looked for on the farm, and here is one way in which a serious drain of farm revenues may be checked. — P. C. Henry.

ASBURY MANOR, ONE OF THE FINE FARMS IN TUCKAHOE NECK REGION, CAROLINE COUNTY, MD. HOME OF FRANK WRIGHT.

Uncle Amos' Visitor

Uncle Amos was plowing for corn in the field by the road the other day, and I was fixing the fence between that field and the pasture. A team stopped in the road and a well dressed young man alighted, climbed over the fence and walked towards Uncle Amos. I could see that Uncle was a little bit out of humor that morning, probably because there had been so many chores to do that we were late in getting out to the field. He felt the urgent need of haste as the season for corn planting was rapidly passing. The day was hot and the plow team was wet with sweat, so Uncle did the visitor the courtesy of stopping, mopping his brow with his red bandana meanwhile as the stranger came towards him.

''Good morning,'' said the young man handing Uncle his card. ''I am sent out by the government as an expert on farm management. Have you any problems that are troubling you?''

''Yes, I have,'' said Uncle Amos, sitting down on the plow beam. ''I have several things I want to ask about. Here it is the 15th of May and all this field to plow yet for corn and nobody to do it but me. I can't get help for love nor money. I and the young man yonder with the game leg have 20 cows to milk besides a lot of other chores, which, with my rheumatism, shows me it is goin' to be mighty late before this corn is planted. All the young men of the country have gone off to the powder mills, mines, offices, factories, etc., because they can have shorter hours and bigger pay than we can pay. Now I have no doubt you can help me out for this is the biggest problem I have just now.''

''But that is not my business,'' said the stranger. ''My line is farm management—showing how you can raise bigger crops, get more milk from your cows and—''

''How do you know I don't know all them things? Why, last year I raised 150 bushels of corn ears on that adjoining field, and this one will do as well if I get it in in time and worked enough. As for more milk—shucks. Ten cans were shipped back last week because there was an over supply. And that ain't all. I find in figurin' up this spring that my milk checks barely balance my feed bills, allowin' market price for my hay and corn. Now if you can show me how to get more money for my milk I'll be obliged to you.''

''But that isn't—''

''Well, then maybe you can put me onto some way by which my taxes which amounted to $150 last year and which are nearly due again can be lowered so as to be on an equality with that railroad and the big factory over in town. I figure that I would pay $50 if I paid on the same basis they do, and that extra $100 would go a long ways towards makin' me able to pay bigger wages.''

''No, I can't help you any on the tax question. The fact is, I never studied that subject any, but I do know that the corporations pay most of the state tax while you don't—''

''Yes, they pay about four mills on the dollar of net investment while I pay 18. Farmers in some places pay as high as 26 mills. If the state would hand out justice as freely as it peddles advice we would be mighty glad to get it. Maybe you can tell me why we don't get the dirt road money that is due from the state, and the school appropriation also.''

''Well, I never gave that any attention, but I understand there was not enough money to—''

''I guess I know what you are goin' to say. That's ancient history. Why then don't they boost the corporation tax above four mills and get more money, or else cut out some of their tom-foolery the state is always doin' and not make travelers and children suffer? Oh, yes, there is another thing I have been worried about. Last week there was an inspector out here and told me I must move some of my buildings within 10 days so as not to polute that stream over yonder as the state had stocked it with fish. At the same time the refuse from the tannery below here flows into the same stream. Now the question is, why is the tannery company allowed to polute it while I must not?''

''That not a question for me, it is out of my line. I—''

''As I understand it you represent the government in its desire to help the farmer, and I would advise you to let the government know about the questions that are really puzzling him and which are makin' it almost impossible for him to make a good livin' and keep up the institutions of his neighborhood. Have you heard anything as to whether they are goin' to put the rural routes back as they were? There goes the carrier now—three hours late. Some days he can't get around at all. Sometimes it takes four days to get an answer to a letter sent to the county seat.''

''No, I have heard some complaints but it is not my duty to report anything like that. There are special inspectors for that purpose. But if you have any question on—''

''Yes, I have a question that has been troublin' me a good deal. Last year I had to build a new silo. I went to the bank and borrowed a hundred and fifty dollars at six percent. I could get it for only 90 days at a time. Had to renew it twice. They told me it was the best they could do accordin' to law. That tannery enlarged their plant two years ago. They issued ten-year bonds bearin' five percent and the bank took the whole of 'em. Why won't they do that for me?''

''I don't know. That is a question of finance, not agriculture. You do not seem to understand—''

''That's right. There are a lot of things I don't understand. I don't understand why the stuff I send to the city brings me only half as much as my friends there pay for it. Now if you fellows—''

''But, my friend, we are not paid to do—''

''The fact is you are paid and paid well for doin' what I don't need to have done. You remind me of a certain store-keeper. A customer went in one day and asked him if he had any sweet pickles. ''No,'' he said, ''but I have some of the finest woolen underwear you ever saw.''

''Well,'' began the young man, ''I am sorry—''

''Yes,'' answered Uncle, ''I am sorry you have no sweet pickles, but I don't need any woolen underwear. Get up, Joe. Go 'long, Bill.''

And the expert walked rapidly to his team.

Machinery left in the barnyard will rust itself to pieces in a year. Cows kept in a ramshackle stable during the winter and fed on half-spoiled silage will not give much milk. Protect your machinery—keep your stock in a well-built stable—feed them on sweet, juicy silage from a well-built silo—and big profits are bound to result.

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Horticulture

GARDEN INSECTS AND THEIR CONTROL

(Concluded from page 1.)

they are 6 or 8 inches tall, when they stop growing, wilt and die. When you pull up such plants you find they have no roots. In this case, eggs were laid in the soil, close to the plants, by the cucumber beetles; these eggs hatched into little white maggots, which entered the plants and chewed off the roots. The only way to overcome this trouble is to first get rid of the beetles and then there will be no larvae to trouble you.

Potato Flea Beetles and Squash Bugs.—The first of these two insects is a chewer, and does considerable damage on tomatoes and potatoes. The second is a sucking insect and destroys a great many squash and melon plants. I know of no good way of killing either one of them, but if you will cover your plants thoroly with bordeaux mixture containing arsenate of lead or paris green, you will find that the insects will seek other feeding grounds. They do not like the bordeaux.

TOMATOES STAKED UP TO HASTEN EARLY RIPENING.

Asparagus Beetles and Cabbage Worms.—Some of our plants, such as asparagus and cabbage, for instance, are waxy and here the ordinary material does not stick very well. In spraying for the asparagus beetle it is always best to use a resin sticker, so that the spray will adhere to the plants. To make this sticker, boil together, out of doors, 2 pounds of resin, 1 pound of sal soda crystals and 1 gallon of water until it becomes a clear brown color. Add this sticker to 50 gallons of bordeaux mixture and arsenate of lead and you will find that your spray will adhere much better.

In controlling the green cabbage worm, I prefer to use a dry poison instead of a spray. Take sifted, air-slaked lime and add enough paris green to give the lime a greenish tint. Then puncture the bottom of a baking powder can full of holes until it resembles a salt shaker. Put the material in the can and "salt" each head as soon as the worms make their appearance. There is no danger in eating this poisoned cabbage because the poison can not get on the inside of the head, and even if it did it would be necessary for a person to eat about 30 heads at a single meal to kill him.

Stalk Borers.—Some insects such as the potato stalk borer and the squash vine borers tunnel thru the stems of the plant and destroy it in that way. In this case about the only practical method is to destroy all plants and vines attacked by the borers. This does not help the current crop but it destroys the insects and prevents them from hibernating in the soil to come back a hundredfold next season. Where borers get into dahlia stems they can frequently be destroyed by running a thin wire up thru the channel.

Indoor Insects

In addition to the green plant lice there are a number of other insects that attack our common house plants. The little red spider is one of the worst of these. This little fellow attacks a great variety of plants, causing the leaves to turn yellow and eventually drop off. This insect is very small and it is only by a very careful examination that you can see him. He cannot stand a moist atmosphere and by giving your plant a shower bath every evening for a week or ten days you will drive him away. Powdered sulphur will also destroy him. Wet the plants and then dust the sulphur on the under side of the leaves.

The little mealy bug, seen as a white spot on the under side of the leaves of many plants, is often quite troublesome. The best method of controlling this insect is to brush the leaves about once a month with common alcohol. You can dilute it with a little water if you desire altho the clear material will not injure the foliage. As soon as the alcohol touches the mealy bug it kills him. The soft bodied shell louse is frequently found on palms or kindred plants. It can best be removed by brushing the leaves every few weeks with warm, soapy water.

Where you have trouble with insects attacking the roots of your flower plants, they may be driven out by the use of tobacco dust in the soil or by the application of lime water. Slake a lump of lime the size of your fist in a bucket of water, pour off the clear water and use it in watering your plants for about a week. This usually drives the little fellow away very rapidly.

Insects in Stored Seeds and Grain

Many bushels of beans, peas and other seeds are destroyed each year by the little weevil. This little fellow may be very easily controlled. Place the grain in a vessel or bin that can be made air-tight. Pour into a saucer one ounce of carbon bisulfid for every bushel of seed. Close the lid or cover tightly and allow it to stand for 24 hours and you will have no trouble with weevils. The seed should be fumigated in a room where the temperature is not below 60 degrees Fahrenheit or the carbon bisulfid will not be as effective. Allow no fire or light near until the seed has been well aired, as the gas is explosive.

Soil Insects

This is another class of insects which do much damage in the field and garden. The cutworm, cabbage maggot, white grub and wire worm are the most common of these pests. Late fall plowing tends to destroy a large number of these insects and in the case of the latter two, there is nothing else very practical that can be done. The cutworm can be controlled very satisfactorily by the use of a poisoned bran mash. To make this, stir 2 quarts of cheap molasses into a gallon of water, then mix 1 pound of paris green with 25 pounds of bran. Pour the molasses water over the bran and stir until it forms a stiff mash. Put a half teaspoonful of this material at each plant, or better still, scatter the poisoned bran over the soil in the evening, several days before you are ready to set your plants. If you have chickens or pigeons around the premises, put the bran under boards or you are liable to poison the fowls.

Of all the insects in the garden, the cabbage maggot is one of the hardest to control. This maggot is the larva of a small fly which deposits its eggs on the stem of the plant or in the soil, near the stem. The eggs hatch in from three to ten days. The maggots are most prevalent during the latter part of May and the beginning of June. This insect not only attacks cabbage but cauliflower, radishes and turnips as well. There are quite a number of remedies but they are not very practical. Fall plowing should be practiced and the crops should always be rotated.

In the case of cabbage, the best thing I have ever found is to let a little good strong tobacco dust run down thru the leaves of each plant, soon after they have been set in the fields, until it forms a little mound around the stem. This seems to prevent the fly from laying her eggs at the plant. They can also be controlled by pouring a little tobacco liquid or water into which a little carbolic acid has been placed, around the stem of the plant. Another good practice is to disk a goodly amount of tobacco stems into the soil in the spring of the year. Where the tobacco stems are not available, try coarse salt. Care must be taken not to apply too much salt or the plants will not do well.

In conclusion: First, be sure about the insect that you wish to control and then, start in time. Insects increase very rapidly; the longer you let them go the more trouble they will make.

Timely Fruit Notes

By Dr. J. P. Stewart

Sweet Apples for Pigs

"I wish to set out about 20 sweet apple trees this spring to see if I can't reduce the high cost of living for hogs. I have a lot of red shale, rather steep, that is well adapted for this purpose. I wish to set a succession of varieties from the early Harvest sweets to the latest which I guess is the Samon sweet. What varieties come between these two and at what season do they mature? (The sweeter the better)." P. X. G., Sullivan County, Pa.

The most desirable varieties of sweet apples that I know of are as follows, named approximately in order of ripening: Sweet Bough, Golden Sweet, Victoria, Jersey Sweet, Ramsdell Sweet, Lady Sweet, Bailey Sweet, Winter Sweet, Winter Paradise, and Tolman. This is probably more than you will need, but sweet varieties are not as readily obtained from nurseries as the other kinds, and hence I am making the list full so that you can be sure to get a satisfactory succession.

Blotched Fruit and Its Prevention

"At your suggestion a couple years ago, I adopted sod mulch in my apple orchard instead of clean cultivation, as the orchard is on a hillside and washed some. The past season some of our trees bore fruit that was considerably blotched or sooted. I wondered if the sod mulch had anything to do with this condition or is it due entirely to too much foliage? We do not use stable manure but a 4-8-10 mixture. I would feel very grateful to you for advice that would prevent the recurrence of this condition, as we are trying hard to raise perfect fruit and have succeeded very well until this trouble appeared." D. E. M., Blair County, Pa.

Replying to this inquiry, I would say that the soil treatment had nothing to do with the blotched condition of the fruit. The latter is probably largely due to a fungus known as "sooty blotch", which was especially favored in its development by the extra moist season that we had last year. This fungus is also most abundant as a rule on the lower and more shaded portions of the tree. Part of the "blotching" in the present case may also be due to the "scab" fungus, which was likewise very abundant as a result of the moist season last year.

SETTING CABBAGE PLANTS.

In either case, however, these fungus troubles can be fully controlled by about three thoro sprayings with lime-sulphur at a density of 1.008, or about 1 to 38 of the best commercial materials. The first of these applications should be made just as the blossoms are showing pink, the second immediately after the petals fall and the third two or three weeks later. Other pests can be controlled at the same time by adding the necessary ingredients as shown in the spraying schedules published in this column of the Pennsylvania Farmer for March 11, page 4.

Selection of Varieties with Reference to Cedar Rust

"In planning a commercial orchard in this section I find that I will have to contend with a considerable number of red cedar trees and consequently cedar rust of apples. I had planned to set the following varieties: Baldwin, Stayman Winesap, Duchess of Oldenburg, Wealthy, and Rome Beauty or McIntosh Red.

"Could you tell me if any of the above list are especially susceptible to the cedar rust, and if so, what varieties would you advise substituting? I have understood that the Wealthy is in danger of extinction in some sections on account of the rust.

"The orchard is in Monroe County, Penna., on hillsides having good water and air drainage. The soil is a gravelly loam, quite stony, with a coarser gravel sub-soil underlaid at no great depth by rock. What would be your choice between Rome Beauty and McIntosh Red for this section?" P. E. L., Munroe County, Pa.

Of the varieties you mention, the Wealthy and Rome Beauty are usually very susceptible to attacks of cedar rust, while the Stayman Winesap, Oldenburg, and McIntosh are generally quite resistant. We have no definite data on the Baldwin in this respect, but from general observation, I would consider it at least fairly resistant to this disease.

Other varieties that are known to be resistant to cedar rust are the Red Astrichan, Fameuse, Winesape, Paragon or Black Twig, Yellow Newtown, and Grimes. Still other varieties that are known to be susceptible are York Imperial, Jonathan, Yellow Bellflower, Minkler, and Ben Davis. The Northern Spy is also fairly susceptible.

Under your conditions I would consider the McIntosh distinctly preferable to Rome Beauty. In general you are probably a little too far north for the other resistant varieties mentioned, the Red Astrachan, Fameuse, and Yellow Newtown. Of these the last should do very well under your conditions, if given good care.

GATHERING EARLY VEGETABLES FOR MARKET

The rule for gathering vegetables is to get them as cool and dewy fresh as possible. As soon as they are picked, they should be taken to the shade and arranged in market packages. Dirty vegetables should be washed in clean cold water. The packages should be clean and as dainty as strength for shipping will permit.

Peas and beans are marketed in half-bushel peach baskets, in bushel hampers, or in boxes. They require to be well shaken down and then heaped as they shrink and settle greatly. if the dew is upon them when picked and they are kept as cool as possible, they retain their freshness much longer.

Lettuce may be gathered at night, sprinkled with very cold water and put in a cool place until morning, or gathered in the morning wet with dew and quickly shipped to its destination. Lettuce should reach the consumer within twelve hours after gathering in summer; spinach likewise.

White flat turnips are tied in bunches of seven, sheared of their tails, scrubbed clean and barreled in uncovered slat barrels.

Carots are topped, washed and shipped in covered bushel baskets or in barrels.

The cucumber is another vegetable that loses quality if picked when the sun is high and hot. The vines also suffer by the trampling of the pickers. The early morning is the time to gather them.

Radishes are picked while crisp and cool, washed and bunched and shipped with as little delay as possible.—M. R. Conover.

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THE AVERAGE YIELD

Statistics are a necessary evil. To be a safe guide in the formation of opinion, all the facts contributing to them should be known. A case in point is the use that is made of them to show that the American farmer is declining in his ability as a producer. The statistics are pointed to as showing that the average yield per acre has been declining steadily for a number of years. All the facts show that, while this is true, it is because less productive land is being added to the cultivated area all the time, thus reducing the average yield per acre for the state or country, but it does not prove that the original farms are less productive than before. The Yearbook for 1915 points this out and shows that a year of high prices for any cereal is almost invariably followed by a decline in average yield per acre, because areas of less fertile land are planted to the crop. It is found that when the acreage remains constant, the average yields do the same. So, when figures are quoted on this subject, it is well to know all the facts before jumping to the conclusion that the farmers as a whole are becoming less efficient, or, that the productivity of the land is being rapidly depleted.

FARM IMPLEMENT PRICES

Farmers are paying war prices on many classes of commodities. Wise buying is the secret of many a man's success, and wise buying at this time requires careful management and a close study of market conditions. Many articles but remotely associated with the war trade have made large and unexpected advances. On such articles it is impossible to foresee price tendencies and prepare for market changes. But on commodities in staple demand by the warring nations prices have doubled and quadrupled in the past eighteen months and there is little probability of a decline until some time after the war is over. Among these commodities are the metals, and particularly steel. There is an enormous war demand for steel which has not only paid higher prices but paid a premium for quick delivery. Steel manufacturers naturally permit this abnormal demand to set the price on all steel, and manufacturers of articles for domestic use are the temporary victims who pass the cost burden on to the consumers. The price of steel is certain to affect the farm implement business sooner or later. Implement prices have not advanced to date, but manufacturers, as a class, were working on materials purchased on early contracts and have not been affected by recent price advances. When these contracts are renewed and next season's implements are offered it seems most probable that there will be a general advance in implement prices. It is difficult to anticipate all farm machinery needs a year in advance, but early buying is likely to save money.

FREE SEED GRAFT

Everybody outside of Congress is tired of the petty free seed graft. Farmers are particularly tired of being represented as willing recipients of this empty favor. A reader comments as follows:

"Your editorial 'Where Ignorance is bliss' hit the nail squarely on the head. We country people no longer welcome the free seed gratuity from Washington, D. C., and whover claims that wideawake and progressive farmers bother with the "little mess of pottage" sent from Washington betrays a condition of blissful ignorance. So many city writers presume to know all about the present conditions of affairs in the country, while they really do not know much at all. Here is a recent example. A member of Congress, solicitous of his political fences back home, sent a whole sack of the free seeds to a certain postmaster. There were no names upon the packages and the postmaster was evidently to give them away as fast as he could. But he could not get rid of them, so he inserted a notice in the county paper to the effect that anyone calling at the office could get the above seeds for the asking. And still most of the packages are there on the table in his office and in his way. That shows how fast the free seeds go. Farmers no longer bother with them. Let us all make an effort to have the money wasted on seeds put to some good and permanent use.—P. C. H."

FERTILITY AT LITTLE COST

Upon the outbreak of the European war, Americans were brought face to face with the fact that we were dependent upon foreign countries for many of the every-day necessities—things which might easily have been produced at home. In some respects the farmer has followed the national example in the matter of fertility, and has depended upon outside sources when much more could have been done on his own farm, and done more economically. We have no desire to recommend the use of less amounts of fertilizer, but at the risk of becoming tiresome it is our intention to continue urging the practice of planting cover crops to plow down, especially legumes. The possibilities of this economical method of increasing the productive power of the soil are woefully neglected and seem to be appreciated by too few. Aside from the necessity of humus in the soil from a mechanical standpoint the amount of the most costly fertilizing element, nitrogen, that may be added to the soil at little cost is almost unlimited. A sufficient amount of nitrogen is absolutely necessary to give vigor and quantity to crops, and is more frequently the limiting factor than any other element. The air is the great reservoir of nitrogen, and Nature has provided a free and efficient means of extracting it from the air and adding it to the soil, providing man will furnish a laboratory for the expert chemists, the bacteria, to work in. The laboratory is the roots of legume plants—clover, peas, beans, vetches, etc. These workmen—bacteria—have no means of moving from place to place, so man must also see that they are transferred from their place of growth to the field where he wants them to work. We call this inoculation, and is accomplished by moving the soil in which they exist to the desired place, or, by buying the bacteria from those who produce them artificially. One of these methods must be employed when seeding a field to a new legume if the soil is to be enriched. While it is possible to raise a fair crop of legumes without the bacteria, it is done at the expense of the nitrogen already there and the soil is not enriched unless the bacteria are present on the roots.

A QUESTION OF GRADING

We received by parcels post the other day a box of potatoes, sent by a farmer who was dissatisfied with the price remitted by the commission merchant. The box contained what he said were fair samples of the potatoes and grading of same as sent to the commission man—being divided into first and second grades. The commission man reported having sold the first grade at 90 cents per bushel and the second grade at 80 cents. The farmer protested that these prices were too low and assumed that in all probability the first grade were sold at $1.10 or $1.15 per bushel. When this case was brought to the attention of the commission man the reply was that none of the potatoes were of first class stock, being discolored and badly wilted. The samples mentioned above were submitted to three experienced men, one of whom is an expert grader and knows the market requirements from A to Z, and none of them knew the parties to the case. At this time, four weeks after the shipment was made, the sample potatoes were so wilted as to be unfit for sale, but the judges disregarded this point and graded them as to size and uniformity alone, according to the market requirements. Upon grading the 19 sample potatoes which the shipper said fairly represented his first grade the judges found: 60 percent first grade, 31 percent second grade and 9 percent grubs (grub eaten). Taking into account the size and discoloration but not the probable wilted condition at time of shipment, the judges were unanimous in the decision that 90 cents per bushel was a fair price based upon the market quotations at the time of the shipment. The sample of seconds, for which the commission man reported 80 cents per bushel, were pronounced culls as they were too small for any practical use. We realize that it is a difficult matter to make a satisfactory adjustment in a dispute of this kind because of the unenviable reputation which commission men have achieved, because some of them have dealt dishonestly with shippers. But we contend that it is unjust to pronounce a wholesale condemnation upon any class of men because of the dishonesty of a part. There are many commission firms that have been in business for years and only honest dealing makes such long continuation possible. We are convinced that disputes with such firms arise over the question of grading more frequently than upon any other subject. It must be remembered that the demands of the market, especially for first class stuff, are absolute and exact, and that uniformity and appearance are the first requirements. It is well to remember that prices will be based upon the present plan until some other is adopted, and not upon the variable grading at individual farms. In the case at hand, the samples showed that the shipment fell short on both these points—only 60 percent meeting the requirements for first grade. We have no doubt the shipper was perfectly honest in his contention and in the thought that he was defrauded, but we are compelled to decide against him and believe that the trouble lies in the fact that he did not have a clear conception of what the market declares is first grade. If he had graded properly there is no doubt that the shipment would have brought him more money. How long it seems to take to drive this lesson home!

THE DAIRY CONFERENCE

The dairy conference held at Washington May 5 and 6 was a splendid example of what a group of earnest men can do when directed toward a definite purpose. The conference was remarkable in the attentive interest of every delegate. There were nearly 400 men assembled from practically every section of the country and representing every branch of the industry. Few of these were paid delegates. Most of them contributed their time and paid their own expenses. Their time represented money. But the conference sought the improvement of conditions vital to their industry, and they gave their time to the cause. The resolutions, published on page 8 of this issue, are a summary of the conference action. They represent the expression of delegates after all discussions were concluded, and they point to constructive improvement in the dairy business where it has been most seriously hampered. Taking up the most important resolutions in order the concensus of opinion as expressed in discussions may be quite definitely stated. Contagious abortion is recognized as one of the most serious animal diseases confronting dairymen, and dairymen are practically helpless because of lack of successful control measures. The conference felt that the disease had not received the amount of governmental investigation and research that its economic importance justified. Tuberculosis is an acknowledged menace and the tuberculin test, while not perfect or infallible, should be used as the best available diagnosing agent. Its use and elimination of reacting animals should be voluntary rather than mandatory, but where enforced all animals slaughtered should be paid for in accordance with market value of the animal when test was applied. The report of the Bureau of Animal Industry of 1912 was severely condemned as unwarranted and untrue and Bureau officials were criticised for permitting its use by hostile interests and taking no steps to correct erroneous impressions. A division of the Bureau of Animal Industry to give more specific and more efficient attention to the dairy industry was considered necessary. It was felt that this Bureau has not kept pace with the industry in recent growth and development. Regulation was the chief bone of contention. It was held that past regulation has been impractical and has not served to correct faults in the trade. The need is as little mandatory regulation as possible, and that of instructive rather than destructive nature, and enforced by practical men who know the details of the business. Federal regulation on a large scale was condemned as impractical and too expensive. Pasteurization of products was upheld and its universal adoption encouraged. The conference voted to have its resolutions presented to the Secretary of Agriculture by a representative committee, and carried directly to Congress if necessary. Its members demand recognition of their needs.

HARRISBURG NOTES

Students for the Farm.—State Bureau of Employment has had numerous applications from students for jobs on the farm. Most of these have come from students of agriculture, but many other students want to work in the fields during the summer. The students express a preference for farms that will give practical experience, but others are willing to tackle any branch of farm work either from necessity or desire to gain from observation or experience. The Bureau was able to secure a number of farm hands this spring, altho because of the marked industrial activity workers are scarce. The commonwealth has an agency which can be called upon to give aid in securing help for the farms. The requests of the students have attracted attention here and the chances for building up a valuable summer source of workers are being studied.

The State and the Dogs.—The State Department of Agriculture and the State Game Commission have united with the Attorney General's department in formulating a policy to get rid of unlicensed dogs. The trouble appears to be that the counties, which must pay the bills, are showing signs of objecting and of questioning the constitutionality of the laws. There are two laws requiring assessing and licensing of dogs outside of cities, the latest one requiring constables to kill unlicensed dogs at $1 apiece, the county to pay the bill, and for any person who kills a dog when the constable won't, to be paid $2, said $2 to be charged against any fees the constable may have coming to him from the public treasury. Like everything else in which the legislature failed to provide for some action by the state when the counties do not toe the mark, there is more or less friction. The state threatens to sue the counties and the counties declare the act is not constitutional. The net result will be prolonged proceedings in the courts. If the question of dogs had been taken up when the sheep proposition was first considered there would have been a chance for effective preparation for removal of the greatest enemy to the wool and mutton crop.

Roads and Potatoes.—Two subjects of leading interest to the farmers of the state are scheduled to be discussed when the State Board of Agriculture gathers its members for conference with the state field workers at Reading next week. They are highways and potatoes. The jump in the prices of potatoes has made this crop very attractive. The highway subject will be discussed by state officials and it is likely that some inkling of the administration's plan to finance highway building and construction, if it has one, will be given. Community work, marketing and similar activities will come in for discussion.

To Reduce Roosters.—In a short time the movement started about two years ago by Deputy Secretary of Agriculture A. L. Martin and Poultry Expert Theo. L. Wittman to call to attention of farmers and poultry raisers of the state the advantages of killing off roosters will be revived. The experts of the Department of Agriculture have been giving study to the results obtained in other states and by poultry raisers in Pennsylvania who are abreast of the times, and some concrete illustrations of the value of an anti-rooster policy will be presented. It will likely take the form of a proclamation to the poultry owners of the state to have rooster killing week.

Want the Farm Tour.—Recent reference in this column to the plans of Governor Brumbaugh to make a tour of typical farming districts of Pennsylvania some time in the late summer or fall when politics ceases to trouble and state affairs will get attention, has caused much questioning about what parts of the state will be visited. The plans for the tour have not been perfected to the extent that routes may be given, but it is likely that two or three days a week will be devoted to visiting different sections. For instance, eastern counties will be toured, then a visit paid to the apple belt. Another visit may be paid to the grape and onion district of the northwest and still another to some typical wheat district.

Drainage to the Front.—The experts of the State Department of Agriculture are giving much attention to drainage problems now, especially since lime applications have become so general thru the failure of the potash supply. In many parts of the state, according to reports received here, there are tracts which could be most profitably cultivated if drainage was given care. Instances have been reported where land actually bordering on suburban trolley lines is not being worked to advantage because of failure to adopt proper plans for drainage. Underdrainage, it is claimed at the Capitol, is paying for itself in a very short time.

Fruit Prospects.—While prophecies as to fruit crops are always more or less of a joke in the popular mind, there are some excellent forecasts being made to the state authorities by crop reporters. More attention is being given to the care of apple and peach orchards than ever known before and the raising of Damson plums is reported in the bulletin of the Department to have received much study with chances of it being made a very profitable branch of horticulture.

Inquiries About Hay.—In addition to answering many questions from persons who are seeking a line on horses and live stock because of chance of turning a bit of money in the event of the country having to go to war with Mexico and of the foreign demand keeping up, farmers in central Pennsylvania counties say that they have had many inquiries about the acreage devoted to hay. Experiments with alfalfa and Sudan grass have been made by quite a number of farmers who handled their hay with profit last year. However, the advice given by the state experts is to go slow on the African grass and to stick to alfalfa where it is shown to thrive. This state is one of the big hay growers and the state experts look for a heavy yield in 1916.

May Escape the Fly.—Much interest is being shown here in the early reports on the wheat and rye prospects because it is believed that the late plowing and seeding which farmers were forced to do last year will demonstrate the importance of the suggestion that wheat should be sown as late as possible to escape the Hessian fly. In some districts which have been under weekly observation it is reported that the prospects are good.

The Cost of Strikes.—By the time the state pays all the bills for the National Guard being called to Allegheny County it will amount to almost $60,000. This amount of money is only a small part of the loss to the community as a whole because of the industrial disturbances this year.

Fertilizer Reports.—The Department of Agriculture has issued in pamphlet form the results of the 1915 analyses of fertilizers. There were 854 samples taken and detailed statements are made regarding them. A table which is given some prominence shows comparative results from 1911 to last fall. Phosphoric acid is shown to have steadily risen in guaranty and potash to have dropped sharply since the war began in the various brands, while the report notes that there has been a remarkable increase in the brands appearing under the name of "dissolved bone." It is attributed to the cutting off of the foreign potash supply.

Supervisors to Help.—State highway authorities have called upon supervisors of the townships of the state to give their aid in every possible way on State Wide Good Roads day and to assist in organizing the workers so that the best results may be obtained. It is suggested that they plan the work in advance and select bad spots to be improved.

Circular on Corn Show.—The plans of Secretary Patton for the midwinter corn and apple show during the meeting of the State Board of Agriculture are rapidly taking shape and a circular of information will be issued when things are prepared. The interest in this show is felt at the Capitol to be justification for some special effort and the support given to the Secretary by people who will contribute prizes is a sign of the times. The corn classifications are to be as already outlined in this letter and the apple list is now being worked out.—Hamilton, Harrisburg, May 15.

NEW JERSEY FARM NOTES

Fielder Hits Gaunt.—Political dopesters saw another slam at George W. F. Gaunt, president of the Senate, during the past week, when Governor Fielder appointed a committee of citizens to make recommendations for revision of the road laws. Road legislation has been one of the ambitions of Senator Gaunt and he introduced bills this year to carry out his ideas. Report gained circulation, however, that he intended for himself one of the positions that he would have created, but the measures failed to pass. Thwarted in this attempt, Gaunt got thru a resolution for the naming of a legislative committee to take up the subject, but Governor Fielder vetoed it and took occasion to aim some pungent shafts at Gaunt and the Senator later returned the "compliment". Altho Senator Gaunt will be acting Governor during the absence of Governor Fielder at the Democratic National Convention, the mutual regard of the two has not advanced. Governor Fielder has gone right to Gaunt's place of residence to select a State Granger for his new committee.

Fire Destroys Forest.—Driven before a high wind, a fierce forest fire has laid waste several thousand acres of some of the finest timber land in South Jersey. Not only have the woods been destroyed, but several saw mills situated in the heart of the forest were also burned to the ground.

Agricultural Society Celebrates.—To inaugurate their 50th anniversary, the members of the Princeton Agricultural Society assembled at Princeton last Friday with their families and friends. The members were entertained by Mr. and Mrs. Moses Taylor Pine, at "Drumthwacket", their historic home which was the residence of former Governor Charles S. Olden, who began the efforts which founded the organization which held its original meeting in the old mansion. During the meeting several papers of interest were read by the members, together with the original minutes of the organization meeting.

Decide on Road.—After several weeks fighting as to the kind of material to be used on the Lawrenceville-Princeton road near Trenton, the Mercer County Board of Freeholders during the past week decided on "Warrenite".—L.

NEW YORK LETTER

The Cannery Bill.—The bill passed by the legislature that permitted the employment of women in canneries for 20 days of 12 hours each during the busy season was up for a hearing before the governor this week. There was a very large turnout of those who were opposed to the bill and several who were for it. Another feature of the bill was to permit the 54 hour for women in all factories to be suspended when accidental damage occurs to the machinery. And still another feature was the exemption of workers in the ice cream, milk and creamery industries from the one day's rest in seven law. While the governor said he would hold the matter open for a few days there is little doubt that be will sign the measure.

Deer Round-up a Failure.—The proposed deer round-up on Long Island was a failure. Only 14 were taken into captivity and eight of these died from exhaustion. It appears also that the number estimated to be on the Island must have been by some one seeing double, or even more. The state game protector does not believe there are more than 50 deer on the Island.

For a Bean Laboratory.—A laboratory is maintained at Perry, Wyoming County, for studying the diseases of the bean. The purpose is to carry on the work of investigation to cover the counties of Genesee, Wyoming, Livingston and Monroe, and it is proposed to interest the granges in financially helping to support the work. The grangers are asked to contribute 10 cents a member toward the establishment of a laboratory and for the extension of the work, under the direction of the state college of agriculture, in the counties named. It is believed if such a laboratory is established now and supported by the granges and farmers that later on a state-supported laboratory would be logical result.

Big Cheese Crop. — At the annual meeting of the Gouverneur dairy board last week the secretary reported the whole number of boxes of cheese sold last year as 68,848 and the weight of same to be 5,100,229 lbs. The total money received for the same was $731,631, making the average price 14.5 cents per lb. There were also sold 1915 tubs of butter, a total of 114,900 lbs., which brought $32,172. The grand total for butter and cheese receipts was, therefore, $763,803. The butter was figured at an average of 28 cents per pound. On the Watertown Produce Exchange the same day 5,000 boxes of cheese were sold for about $45,000.

It Pays to Feed Well.—According to the report from the Chautaqua County Farm Bureau, dairymen can feed a good deal more to their milk cows. A test covering 31 days was made by the Bureau with eight cows of the herd of Alvin Dewhurst, of Sinclairville. Four of these cows were kept on the same feeding ration they had been receiving prior to the experiment, namely a grain mixture of 2 lbs. wheat mixture, 2 lbs. corn meal and 1 lb. of gluten. The 8 cows were selected largely on the basis of milk-giving as each group of four was found to give 83.8 lbs. and 83.3 lbs. respectively. Group 2 was given a greatly increased ration, to the amount of 1 pound of the ration to each 3 pounds of milk produced. The ration was made up of 100 lbs. wheat mixture, 100 lbs. corn meal, 100 lbs. gluten, and 100 lbs. distillers' grains. It was found that after 31 days' test the total of milk given by group 1 was 2,426 lbs. and valued at $40.48, and by group No. 2, 3,004 lbs. valued at $50.08. The cost of grain for the first group was $9.48 and for the second group $15.47. The net profit from milk was $3.61 which amounts to about 60 percent profit on the increased cost of feed for the month. The cows had only a roughage of mixed hay, no ensilage. Mr. Dewhurst proposes to increase the ration fed to all his cows on this showing.—D.

COUNTY NOTES

Lancaster Co., Pa., (S.E.) May 12.—Cool and dry at present. There was much rain thru April, which kept the ground wet; but it is very dry on top now. Live stock is in good condition. Farmers with good meadows have turned their cows out to pasture. Cows and horses are in demand and bring high prices. Wheat is doing well. Some very fine clover and timothy fields are seen. Oats are coming up nicely. Potatoes are about all planted; quite a large acreage has been put out. There is quite a little plowing to be done yet. There is some corn planted, but many farmers have not yet begun. Still some wheat, hay and straw to be marketed. Wheat $1.10; corn, 80c; oats, 50c; hay, $22; straw, $10. Farmers are busy getting their ground ready to plant corn as soon as possible. Other work in keeping with the season is being done.—J. Henry Haverstick.

Venango Co., Pa., (N.W.) May 8.—April was very wet, stormy and unpleasant. Live stock in good condition and prices good. Spring pigs scarce. No planting done yet; ground too wet for working. Potatoes, $1.25 per bu; butter, 30c; eggs, 22c; veal, 12c; chickens, (alive) 14c; spring pigs, $3 each; hay, $25 ton; straw, $12 per ton. The condition of the weather has detained farm work very much. General conditions not as good as we would like to see them.—W. J. Pringle.

McKean Co., Pa., (N.) May 1.—The wettest April I ever saw; fields a regular swamp. Has been dry now 4 days but is raining again. Roads have been almost impassible. Some ground was dry enough to harrow today. Little pigs are bringing $4.50 to $5 each. All kinds of meat are in god demand. Good poultry is bringing 20c per lb. live weight. Milk cows are not in much demand.—R. C. Fuller.

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Resolutions Adopted at Dairy Conference

Following are the resolutions unanimously adopted by the Convention of Milk Producers and Other Dairy Interests of the United States, at Washington, D. C., May 5 and 6. A committee presented these resolutions to the Secretary of the U. S. Department of Agriculture and urged early and serious consideration:

Contagious Abortion

Whereas, contagious abortion among the dairy herds of this country is a very serious menace to the profitable production of milk, exceeding in its economic destructive character any of the other diseases to which dairy cattle are subject,

Resolved, that the Department of Agriculture is hereby urged to give attention in the most persistent and comprehensive fashion possible, independently and in co-operation with the state experiment stations, to this disease with a view toward controlling it and lessening its ravages. We request that the best qualified investigators be assigned to this exclusive task. In view of the tremendous economic importance of this problem, we request that it be approached at once from every possible hopeful angle.

Tuberculosis

Whereas, the presence of tuberculosis in cattle is a menace to the profit of the breeder and the dairy farmer; and whereas, its presence in the herd can, as a rule, be detected by the application of the tuberculin test by men skilled in its use and when administered under proper conditions;

Resolved, that this convention urges breeders and handlers of all classes of dairy cattle to weed out reacters from their herds as a matter of protection to their own financial interests, either consigning them to the butcher or segregating them in the herd, when they are of sufficient value to warrant such manner of handling; resolved, that this convention heartily endorses the state-accredited herd plan of inducing breeders voluntarily to offer their herds for official test and secure a certificate which will accredit their cattle to any state without retest; resolved, that reasonable compensation should be allowed by federal and state authorities for all animals slaughtered in the eradication of tuberculosis. This compensation should not be arbitrarily limited by statute, but should be fixed by appraisal in each case, or by court decision on proof of the value of the slaughtered animals.

False Reports

Whereas, in the Year Book of the Department of Agriculture for 1912 appeared a report on the dairy and creamery industry of the United States, based on an inspection of only 144 creameries and dairies among the thousands in this country; and whereas, unwarranted and untrue inferences have been drawn from such report by the consumers of American butter, and the information therein presented has been unfairly used by interests hostile to the dairy industry to damage it immeasurably;

Resolved, that the facts are thus made matter of record and that report declared woefully incomplete in its survey and wholly false in its conclusions; resolved, that its publication was all the more reprehensible because for many years constant progress has been made in pasteurization and in general improvement in handling cream and in the manufacture of creamery butter, until today much the larger percent of American creamery butter is made from pasteurized cream; resolved, that we approve and recommend general pasteurization of all creamery butter.

Division of Department

Whereas, the act of Congress of May 29, 1884, created the Bureau of Animal Industry specifically "to prevent the exportation of diseased cattle and to provide means for the suppression and extirpation of pleuropneumonia and other contagious diseases among domestic animals"; and whereas, by executive act the activities of this bureau have gradually been broadened to include various lines concerned with the breeding and feeding of live stock and the manufacture and distribution of dairy products; therefore

Resolved, that the Conference of Dairy Interests held in Washington, May 5-6, 1916, earnestly urges the Secretary of Agriculture to partition the present work of the Bureau of Animal Industry among three separate bureaus or offices, one concerned specifically and exclusively with animal diseases and to be called the bureau or office of Animal Health; one concerned with the encouragement of the breeds of live stock and the improvement of the utility stock on the farm other than dairy cattle, and one concerned specifically with dairy cattle and the dairy industry. Resolved, that the Secretary of Agriculture be urged to form the heads of these three bureaus or offices into a Federal Live Stock Board, which shall administer all live stock regulations, under direction of the Secretary of Agriculture. Resolved, that the Secretary of Agriculture be also urged to request from Congress another assistant Secretary of Agriculture, to whom the heads of these three bureaus or offices shall be responsible.

Milk Regulation

Whereas, at the present time the regulations under which the milk supply of the country is produced are promulgated by the health boards of states and cities, and are subject to more or less change under different administrations of the health bureaus, thereby causing dissatisfaction between the producers and the health officers, and placing unnecessary burdens of expense upon the producers in changing buildings to conform to varying requirements;

Resolved, that we call upon the Secretary of Agriculture to appoint a committee consisting of two milk producers, one milk dealer, and two sanitarians, known to be identified with milk-production methods in advanced form, to frame a set of rules and regulations covering milk production, which shall embrace methods to be used in the care and handling of cattle, shall describe methods that insure cleanliness of cow and milker, shall set forth treatment of milk from udder to delivery, shall outline barn construction and cleanliness of barns, all with due regard to keeping cost at the level of the means of the average producer. Resolved, that when a report from such committee shall have been approved by the Secretary of Agriculture, he is requested to use his good offices to have such report generally adopted by the states and cities of the United States.

Labeling

Whereas, the use of foreign fats in the production of dairy products of all kinds constitutes a fraud upon the dairyman and the ultimate consumer as well,

Resolved, that it is the sense of this conference that all products so made should be so marked as to disclose the materials used in their manufacture.

Co-operation

Whereas, the outstanding benefit derived from co-operative effort of agricultural interests has been demonstrated by this conference;

Resolved, that the different branches of these allied industries be urged to consider a closer union in co-operative legislative effort.

Denatured Alcohol

Whereas, the subject of denatured alcohol has always been considered as referring to the conservation of waste products; and whereas, we believe that it is a feeding proposition enabling the dairy farms to extract the fuel needed for consumption in the machinery and lighting of the farm and at the same time to furnish from his own fields a more nearly balanced ration; and whereas, the necessary experimentation for determining the cost of production and the kind of process and machinery suitable to this development will require expensive research;

Resolved, that this Conference of Dairy Interests calls the attention of Congress to this great field of conservation and approve legislation that will make possible the necessary experimentation.

Transportation Rates

Whereas, the railroads of New England are now before the Interstate Commerce Commission asking for an increase in rates upon the transportation of milk and cream; and whereas, it has been shown by testimony under oath that any increase in transportation rates will be reflected in the price paid to producers for milk and cream; and whereas, it has been shown by equally credible testimony that the farmers are receiving less for milk and cream than it costs to produce it; and whereas, the dairy industry of New England has declined rapidly, as evidenced by the disappearance of many creameries, large numbers of cows, and in certain localities the abandonment of the dairy business; and whereas, an increase in transportation rates in New England may work as an opening wedge in effecting an increase of such thruout the country,

Resolved, that this Conference of Dairy Interests tender its sympathy to the farmers of New England in the fight against such increase in transportation rates and respectfully ask that the Interstate Commerce Commission give careful consideration to the rights and equities of the farmers, to the end that dairying may not be handicapped by transportation rates or systems impossible for the producers to bear.

AMERICAN JERSEY CATTLE CLUB MEETING

On May 2 occurred the annual meeting of the American Jersey Cattle Club at its headquarters in New York City. The features of the meeting were the election of officers, the report of the secretary on the year's work, the strong financial showing made by the treasurer and, by no means least, the stirring appeal of President Muna for a heartier co-operation of members in the work of the club.

President Munn's ringing address to the end above stated made a strong appeal to the good sense of the members present and it was voted that it be printed and sent to every member of the club. He said that the average farmer was looking for greater efficiency in the dairy business, and he felt that Jersey breeders should lead in the great movement now on for the advancement of the dairy industry. He believed that the Jersey interests demanded a closer relation to Federal and state agencies, the agricultural

colleges, etc. He emphasized the necessity of Jersey breeders embracing the opportunity offered by the National Dairy Show, at Springfield, Mass., next October, to show their best stock, which in numbers, he said should be as 3 to 1 for any other breed.

The report of secretary R. M. Gow showed an encouraging condition of things as to the affairs of the Club. During the year the total number of animals registered was 32,882, of which 9,560 were bulls and 23,322 were cows. Only five of the former and 305 of the latter were imported animals. Transfers recorded were 30,331. The records show that 26,199 Jersey breeders have registered cattle with the club, and that 5,227 of these have opened new accounts with the club the past year. This indicates the results of the promotion work done by the administration of the past year.

The financial condition of the club is shown as follows: Total earnings, $106,714.85. Total expenses, 87,513.35. Balance, $19,201.50, which added to the balance on hand one year ago and the "unearned fees" $3,951.75, makes the net total $32,864.20. Three volumes of the Herd Register were published last year, which contained a total of 42,500 pedigrees. There are still on hand 20,755 unpublished entries. It is expected that another volume will be issued in July to contain 14,000 entries. The number of cows in the Register of Merit on April 28, 1916 was 4,888 and of bulls 387. The number of cows on test is 2,862 in 347 herds in 41 states. The three leading states in test work are Ohio with 354 cows in 43 herds; New York with 335 cows in 32 herds and Oregon with 297 cows in 38 herds. In order to stimulate a still greater interest in such registration, the entry fee of $2 has been abolished and any eligible animal may now be registered without cost. There were received 5,435 year's tests last year, and the average fat test was 5.36. The net expense for conducting the tests was $5,530.01.

The directors have appropriated $9,000 for premiums for the fairs this year, of which the National Dairy Show gets $900. The proposition to reduce the membership fee from $100 to $50 was not approved by a mail vote of the members of the club. The secretary estimates the income for the ensuing year will be $110,000, and the budget covering $107,000 was submitted.

The treasurer received during the year $1,900 for membership fees; $79,318 for registration fees; $17,484.50 for transfer fees; $2,632 for Register of Merit fees, and other receipts making a total of $120,377.55. The assets of the club, including real estate, are $205,817.19.

The election of officers resulted as follows, without use of proxies, and by unanimous choice: President, M. D. Munn, St. Paul Minn.; treasurer, John P. Hutchinson, Georgetown, N. J.; secretary (appointed by Directors) R. M. Gow, New York. Directors for three-year term, A. F. Pierce, Winchester, N. H.; Dupont B. Lyon, Sherman, Tex.; F. W. Sessions, Utica, N. Y. To fill vacancy (one year) F. J. Bannister, Kansas, Mo.

Mr. Skinner, of Chicago, spoke of the work of the National Dairy Council and its attempt to double the number of dairy cows on the farms of the United States. He also announced that the National Dairy Show at Springfield, Mass., would be the largest ever seen. The original plans for 750 stalls for cattle had been extended to 1,000 stalls. The enthusiasm of the promoters of the Eastern States organization in behalf of the next dairy show was significant of a big success.—J. W. Darrow.

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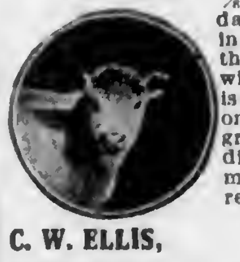

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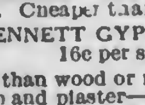

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The Need for Rural Credits

By C. R. NEFF

Master Centre County, Pa., Pomona Grange

What does the Hollis Federal Farm Loan Bill, known as Senate Bill No. 2986, offer that should appeal to the farmers of this country? For the privilege of a long time loan it requires that he shall put up a margin of five percent, assume a liability of twice that amount, and then guarantee that he shall not be charged interest, on money borrowed, at a rate to exceed the legal rate. It requires, morever, that the farm loan association shall do business thru the Federal Bank of its district. Under the bill the Federal Government offers to deposit in the Federal Banks $6,000,000 of government funds at two percent, but allows time drafts with farm bonds as collateral to be discounted by the bank at five percent. Doesn't this look like another case of the middleman's profits? Why should it be necessary for the government to make its loans thru an intermediary? Why not loan directly to the co-operative land bank and save to the farmer the additional rate of interest for which he is getting nothing whatever? Some of our farm journals are insisting that the farmers of the country shall bring every pressure to bear on their Congressmen to vote for the passage of this bill, on the ground that while it is not what we should have, yet half a loaf is better than nothing. But this doesn't look much like even half a loaf. Why not have a federal farm loan bill that is worth while? When the banks and trust companies are paying only four and one-half percent, or four percent for money, and the government two percent on postal sayings, shall the farmer consider it a sop to be guaranteed that he shall not be charged a rate to exceed the legal rate of six percent or even five percent on a security than which there is no better to be had?

There is a large class of persons who seem to be very much afraid that the farmer might get too good a thing out of a federal land banking system. They are forever decrying subsidies and favoritism, and special legislation, and class legislation, and all that sort of thing. Now the purpose and end of any farm loan legislation would not be and should not be in the special interests of the farmer, but in the interests of the business of farming. We certainly cannot understand why it is that so many people are so ready to assume that every activity undertaken by state or national government in the interest of agriculture is so much done as a special favor to the farmer. We have listened to speech after speech about how much our state agricultural schools were doing for the farmer, as tho he were the only individual who was getting any benefit from these institutions. The fact of the matter is that these institutions were not established nor are they conducted in the particular interest of the farmer or any other particular class, but in the interest of the business of agriculture. They are not class institutions but commonwealth institutions, and that is as it should be. What right would the commonwealth have to tax all classes of its citizens to support an institution for the sole benefit of one particular class?

If thru the teaching of our agricultural colleges better crops are grown, do not all classes participate in the benefits derived therefrom? No one knows better than the farmer himself what effect a larger production has on the market price of his products. He knows from repeated experiences that just as soon as the production of any farm product is increased five, ten, or twenty per cent the price of that product immediately drops in an equal and frequently, to his discouragement, in greater ratio, so that it is not the farmer so much as the consumer of farm products that gets the actual benefit of this increased production. Now the purpose of any federal farm legislation should be, and if properly enacted and properly applied would be, to increase farm production in this country.

The great handicap to farmers in this matter of increasing the output from their farms is the lack of capital, and the inability to get money at such a rate of interest as will warrant borrowing it. Any one who is at all acquainted with farming conditions in this country knows that the business of farming is not giving a return of anything near six percent, or five percent; that not one farmer in a thousand could borrow money to the extent of the capital he has invested in his business at that rate and come out on it.

If the government pays two percent on postal savings and two and one-fourth percent on its bonds, certainly it would not be a losing business to loan out money at a rate considerably below five percent. Why, above all things, should it be necessary to make these loans thru an intermediate bank? Why not loan either to the farmers directly or to co-operative banking institutions organized expressly for this purpose? Would it be impracticable for these co-operative land banks to be conducted on the principle of our present national banking system, making first mortgages or farm mortgage bonds security for the redemption of their notes of circulation as the bonds purchased by the national banks are security for the redemption of their notes of circulation? Could a more simplified method be possible? Certainly no better security than first mortgages on land is possible. Governments may become bankrupt and even cease to exist, but the land remains. Such a system would, of course, require that it be national. Indeed, it is extremely doubtful if any other than a national system can solve the problem. And then, too, it must be something that to the farmer is worth while; and to make it worth while to the farmer it must have the two fundamental conditions of reasonably long time credit, and low rate of interest.

If we could lay aside the bug-a-boo of class legislation it would probably not be such a difficult matter to have Congress pass a really efficient rural credit law. Why do so many people assume that what helps one class cannot possibly be of service to any other class? When the national banking system was first proposed it met most strenuous opposition, and yet it accomplished the very purpose it was intended to accomplish, namely, to strengthen the credit of the national government at a time when the government stood very much in need of it. When this government first began its protective tariff policy it did so not to serve the interests of any particular class of its citizens, but to build up industries that would help to make the nation great, and has done so to the advantage not of one class only but of all classes. When the government offers homesteads to farmers, it does not do so to favor a particular class, but that the public domain, instead of lying idle, might be brought under cultivation for the benefit of all its citizens; that the country might not only produce amply for its own needs but a surplus for export. It does not give homesteads for nothing but requires the fulfilling of certain conditions on the part of the person filing the claim in order to get title to the land. The government has gotten its compensation—and ample compensation, in the millions of acres brought under productive cultivation.

Within the past few years there has been a call from all classes from all over the country for an enlarged agriculture. Has the public in mind only the interest of the farmer, or is it wanting to lower the cost of living by lowering the price of farm products? It does not require the brain of a political economist to recognize the law of supply and demand as affecting prices. The Pennsylvania Railroad Company saw this before they sent out their instruction trains to teach the farmers how to grow bigger crops, and so did the International Harvester Company when they offered to spend a million dollars for the same purpose, and so does the banker, and the business man, and all the rest of the crowd that is so insistently urging the farmer to get more from his acres. Now the first essential to a prosperous agriculture is a prosperous agriculturist. There are in this county in the neighborhood of one hundred farms partly or wholly abandoned. In many instances the family lives on the farm and cultivates a truck patch to provide vegetables for home use, while the head of the family is off somewhere working by the day to provide the living for the family. These farms have become rundown. Every county in the state has a number of such farms. What is needed is capital at a low rate of interest to put them in condition to pay the cost of cultivating them. One of the greatest menaces to a prosperous agriculture in this country is landlord ownership and tenant farming. Each succeeding census reveals a smaller percentage of the cultivators of the soil as owners of the land they till. All history confirms the fact that landlord ownership and tenant farming is disastrous to the best interest of agriculture. One purpose of a rural credit system should be to asist the farmer to own the land he cultivates.

The great majority of the farms in this country are not producing anything near what they could be made to produce if the necessary capital were available to put them in proper condition to do so. It is not the farmer so much as the consumer of farm products that feels the effects of these conditions in the price he must pay to keep his table supplied. Let the producer and the consumer lay aside their prejudices and work together for a rural credit law that shall serve the borrower rather than lender; that shall not so much provide profits for private banking interests as more abundant and cheaper food for every man's table.

THE GRANGE FIELD

New York State Grange Purchasing Agency.—This agency is doing a fine business. A large number of the subordinate granges of the Empire State have dealt with the agency the past year in sums running as high as $75,000. The following is an indication of the amount of business done in the various lines: 10,551 tons fertilizer; 8,897 tons feed; 4,469 bbls flour; 175,685 lbs. seeds; 40,140 drain tile; 436 tons lime ;1,825 tons coal; $1,547.17 worth of groceries; 1,997 lbs. spraying materials; roofing, 293 rolls; fencing, 3720 rods and 61 gates; lightning rod cable 2,000 feet and fixtures; twine, 13,360 lbs. There are more than 50 granges that have had business transactions with the agency the past year to the amount of $5,000 or more. Worcester, N. Y., grange heads the list with a total of $75,270.80. The next on the list is Sherman grange with five others whose purchases run from $20,000 to $30,000 each. There are sixteen with purchases from $10,000 to $20,000 and about 25 from $5,000 to $10,000. From the financial standpoint, the granges of New York have no better proposition to consider than that of the Grange Purchasing Agency, and the only wonder is that every grange that needs farm supplies along these lines is not enrolled with the Purchasing Agency.

Fredonia No. 1 Dedicates New Hall.—Old Fredonia No. 1 is rejoicing in a new $11,000 grange hall. The building is an attractive one of red and cream brick, in size 40x90 feet. The well finished dining hall is 40x70 feet. The grange hall proper with ante rooms occupies the second floor. It is 40x70 feet in size including stage and dressing rooms and will seat 500 people. It is intended to make this hall a genuine farmer's club and it will be used for agricultural and horticultural meetings. Fredonia grange was organized in April 1868 by Oliver H. Kelly, with 20 charter members of whom only Louis McKinstry survives. He also has the distinction of having been its first lecturer and consequently the first lecturer of any subordinate grange in the United States. Fredonia passed thru several years of depression along in the eighties but held to its charter. Since 1887 it has made a steady growth and at this time has nearly 700 members. The dedication ceremonies were in charge of State Master Vary and these were followed in the evening by a public installation of the new officers of the grange.

Mr. McKinstry's Address.—The fact that Mr. McKinstry is the only surviving charter member of this original grange surely entitled him to a place on the speaking program. He said that when A. S. Moss of the original National Grange invited him one evening in April 1868 to assist in organizing a subordinate grange he never dreamed that they were forming the first unit of so great an organization as the Order of Patrons of Husbandry has become. The grange had its greatest boom in the fall of 1868 and yet that fine organization suspended after two or three years as it had been composed so largely of village people that says Mr. McKinstry, whenever any reports were to be made on crops and stock I was the only one who had anything to say but I faithfully reported on my six hens. When the grange was revived a few years later it was composed of intelligent farmers' families and all these forty years it has held to its original design.

Kansas Leads Again.—They certainly have something besides cyclones out in Kansas. They have some hustling grangers. The report for last quarter shows that Kansas has organized 33 new granges and no other state is anywhere near that number, Michigan being next with 10. Ohio has third place with seven. The total organized was 81, with two reorganized.

Thompson Succeeds Stetson.—C. S. Stetson, chairman of the National Grange Executive committee, declined a re-election as master of the Maine state grange this year and William J. Thompson of South China, became his successor. Mr. Thompson was state lecturer for a period of 10 years and in that office showed a marked capacity for constructive leadership.

Likely To Be Busy.—Mr. Edward E. Chapman, the new lecturer of the National grange, is getting plans under way for a busy campaign.—D.

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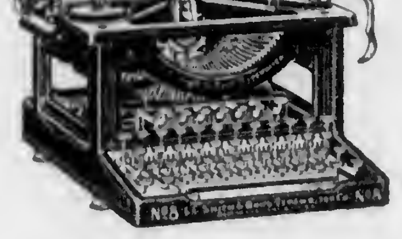

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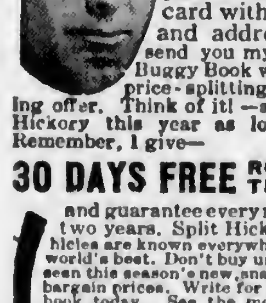

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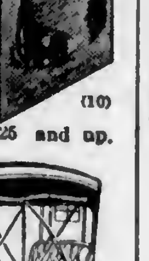

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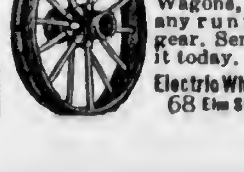

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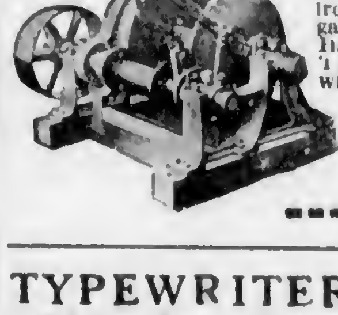

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Live Stock

CORN AND MOLASSES FOR STEERS

In the cattle feeding experiments at the Pennsylvania Experiment Station this year a test was made of the comparative values of corn and molasses. The project was conducted with six steers per lots. These steers were the larger and more fleshy in the entire group purchased last fall. These steers were fed on concentrates for the entire 140 days to get data on the cost of gains when silage is limited and concentrates fed during the entire period, also to determine whether molasses could be used as a partial substitute for corn.

CORN AND SILAGE-FED STEERS IN PENNSYLVANIA EXPERIMENT TEST, VALUED AT $9.80 PER CWT. ON BASIS OF PITTSBURG MARKET.

Lot 1, the molasses lot, made a little greater average daily gain but the cost was greater than in the case of Lot 2. The amount of molasses fed was 5 pounds daily per steer. The steers fed molasses showed keener appetites than the steers in Lot 2. At the present price, molasses does not seem to be an economical substitute for corn. These larger steers made a larger daily gain than any of the other steers but the gains were less economical than the gains made by the lighter-weight cattle. This is due to feeding grain thru the entire period and probably to the cattle being a trifle older.

SUMMARY OF RESULTS

	Lot I	Lot II
Initial weight per steer, lbs.	983.9	981.3
Final weight per steer, lbs.	1315	1286
Gain per steer, lbs.	332	305
Average daily gain, lbs.	2.3	2.1
Initial value per cwt. in lots	$ 7.65	$ 7.75
Initial cost per steer	75.26	76.05
Cost of feed per steer	39.26	35.28
Total cost of steer	114.52	111.33
Cost per cwt. gain	11.62	11.56
Final cost per 100 lbs.	8.76	8.68
Margin necessary without pork	1.05	.91
Daily feed consumed (!)		
Corn silage, lbs.	20	20
Cottonseed meal, lbs.	2.8	2
Mixed hay, lbs.	6	2
Ear corn (1st 98 days), lbs.	8.5	13.5
Shelled corn (last 42 days), lbs.	7.5	12.5
Molasses, lbs.	5	
Valued per cwt. on basis of Pittsburgh market (Allow 35 cents for shipping expense)	$ 9.70	$ 9.80
Pork produced 820 lbs. @ 9½ cents $77.90		
Cost of feed for swine 26.94		
Profit from pork produced $50.96		

(!) Price of Feeds.—Silage $3.50 per ton; mixed hay, $13 per ton; ear corn, 65 cents per bushel; shelled corn, 70 cents per bushel; molasses, $31.20 per ton.

SILAGE FOR HORSES

In planting corn and building silos this year, probably more farmers than ever before are providing a silage supply for horses. The old feeling that silage was good for dairy cows only was long discarded, but the horse is perhaps the last important animal on the farm to prove that it could make good use of silage. While especial care must be taken not to use moldy or other inferior silage or to depend too exclusively on silage, the recent tests of the Missouri Experiment Station and long experience of a few farmers and horsemen, indicate that cost of up-keep can be reduced and a horse kept in better condition if from 5 to 25 pounds of silage are fed per day. Of course, the possibility of saving depends on the conditions and prices of other feeds and the amount to be fed depends upon the same things and upon the size of the horse and the amount of silage he will eat. Different horses of the same size vary on this point.

In the tests at the Missouri Station, silage was fed as part of the ration during the last two winters with favorable results, except in case of one three-year-old Percheron mare that refused the silage at first, then ate it when her feed was reduced, but soon after had to be taken out of the experiment because of distemper and indigestion. The horses that received silage were more thrifty, and their coats were in better condition, and cost less to feed than those which were fed exclusively non-silage rations.

One of the breeders, with whom the college has kept in touch, has been feeding silage to about 100 draft horses for 25 years without any sickness that could be directly charged to silage. During the breeding season he feeds silage to the mares as usual, but gives none to the stallion, because he has difficulty in getting the mares in foal when the stallion was fed on silage. At other times he feeds eight pounds of silage at each of the three feeds per day to his aged stallions, in addition to some hay and grain. His two-year-old stallions get 20 pounds of silage a day, and the yearlings about 15 pounds in addition to some hay and grain, while the mares with foals at side receive 20 pounds. At weaning time, this amount is divided and about 15 pounds is given to the mare and 5 pounds to the colt, which is given more as it grows and becomes accustomed to this feed until at a year old he is getting 15 pounds of silage a day.

One importing firm has fed silage for five years following about the methods outlined and reports excellent results and a reduction in the need for veterinary services. Some of the horsemen who have fed inferior silage have not had such uniformly good results, but it is a poor plan to give a horse moldy or rotten food of any kind. Silage that has been frozen or that was made from immature corn is regarded with suspicion. Some owners have thought that their horses had died as a result of being fed silage, and while the station has not been able to learn definitely that silage was the cause of death in these cases or find out exactly how the supposed poison acted, it is well to take every precaution.

As silage is low in dry matter, and the horse has not sufficient digestive capacity to live entirely on such bulky feed, it is important to remember to use alfalfa, cowpeas, or other legume hay, or perhaps even a little grain for horses that are not at work. Growing horses, or horses at light work, should certainly have grain.—E. H. Hughes in Station Circular.

INCREASING LAMB PROFITS

The farmer may increase his profit on lambs marketed during July, August and September by castrating them. The fact that native lambs—or those raised in the eastern and middlewestern sections of the United States—are inferior to western lambs is due partly to the fact that a high percentage of these lambs are uncastrated when marketed.

Uncastrated lambs when marketed in late summer are never in as high condition of flesh, but they will consume as much feed per pound of gain as will be consumed by castrated lambs. Uncastrated animals are known on the market at "cull lambs."

The Pennsylvania Experiment Station castrates lambs when they are three or four weeks old. Docking and castrating should not be practiced at the same time, as the combined shock is considered too severe. Castrated lambs should be placed in dry, well-bedded quarters, to guard against infection. It is not necessary to castrate hothouse lambs or lambs marketed early in the spring.

We want articles from readers giving experience with farm tractors. State character of work done, cost of work as compared with farm teams, wearing quality and general service. Give us photographs of machines in operation if possible. All articles published will be paid for.—The Editors.

Poultry

RAISING TURKEYS

Most of the turkey hens will begin to lay in March. As the laying season approaches the secretive instinct of the turkey asserts itself and the hens will spend much time searching for nests. It is very desirable, however, to have them lay near the poultry yard so they may be allowed to set in the same nest. Too many hens are broken up by marauding animals when they set out in the woods or fields. Birds that are fairly domestic in their habits will usually select nests near home if boxes and barrels are fixed up near the buildings or in the orchard. The openings of the nests should be turned towards the walls or else screened with brush. This will not work in all cases, however; some of the hens probably will refuse these nests. But an experienced turkey raiser recently told the writer that he makes his turkey hens set near home, no matter how far away they select their nests. When one of these hens is ready to set, he takes her after nightfall to a nest that he has prepared in a shed, with a few nest eggs, and she usually accepts the new nest if the door is kept closed so she cannot get back to her old nest. Then in a day or two she is given her eggs to incubate.

Hatching is not so particular as the care of the young poults after they are hatched. More young poults are killed by improper food and lack of care when first hatched than in any other way. A turkey hen can be set on from fifteen to eighteen eggs, and a chicken hen on nine or ten. After the weather becomes warm and settled a turkey hen can mother twenty-five or more poults; early in the season this number is not advisable. The eggs hatch in four weeks, often in twenty-six days. The newly hatched poults are delicate and tender, but good care will save most of them. Turkey hens really make better mothers than chicken hens, as the former understand better the nature and needs of the little turks. In any case the broods ought to be kept confined for a few days, longer, if the weather is wet, in dry, roomy coops. The coops should be tight around the bottom, as the young turks are naturally inclined to wander and they will take advantage of any openings; once out they are too stupid to try to get back again and they quickly become chilled. Coops should preferably have floors in order to afford full protection from dampness, as well as from rats and weasels. If they are set on the ground they should be moved often to a new location. Cleanliness is very essential for young turkeys.

After the broods are given their liberty they should be driven into their coops each night and kept in of mornings until the dew has dried off and it is warm and dry. For the first two months, or until the turks are well-feathered, dampness is very fatal to them.

No food should be given newly-hatched poults for twenty-four hours. Nature provided for this, and even for a longer period. There are many different foods that may be given them—all good. Some feed hard boiled eggs, minced fine, for a few days, then change to bread soaked in milk and squeezed dry, rolled oats and cottage cheese. After a few weeks of this feeding ground grain may be given, such as wheat, oats and barley. Some of the commercial chick foods are also excellent for poults. The main rule in feeding poults is to give just what they will eat up clean in a short time. Where one turkey dies of starvation, twenty-five die of overfeeding. They need to be started to growing at an early age, but this is best accomplished by feeding often and sparingly. Sloppy foods must be avoided, as these induce bowel troubles.

Green food of some kind must be provided right from the start. Grass of their own picking does not meet the requirements of the poults until they are well advanced in growth. Green onion tops, dandelion and lettuce leaves chopped fine and fed at every meal the first two or three weeks will prove most satisfactory. Water should be supplied in shallow dishes, along with suitable grit in abundance.

It is very important that the young poults be examined at an early date for large head lice, or gray lice. Nothing so quickly saps the life of a young turkey as lice. In nine cases out of ten, if a turkey is drooping, with wings hanging down and eyes closed, the trouble is caused by the presence of lice, and only prompt treatment will save it. The pests are usually found on the head or under the wings. The poults should be dusted with some good insect powder at least once every two weeks until eight weeks old. On warm, sunny days fresh lard in small amounts may be applied on top of the head, on the legs, the wings and around the tail feathers. If the mothers are kept free of vermin in the beginning the young turkeys are not so likely to be bothered by lice. Dust the hens thoroly with insect powder once or twice during incubation, especially just before due to hatch. If the turkeys are kept separate from chickens there will be less trouble from vermin.

Turkeys are great foragers and require but little feed after the first of July, providing, of course, they have free range. About the only danger period with turkeys that survive the lice of their first three weeks is when they are ten or twelve weeks old. They are then "shooting the red," that is, the red kernels are beginning to grow on their necks, and they must then be kept dry at night and receive nourishing food. After they pass this stage of their existence the young birds become very hardy, and they are capable of taking care of themselves at most times. They may be allowed to roam about during the day as they please, tho they must be examined occasionally for lice.

By midsummer the young turkeys will have learned where the best bugs and weed seeds are to be found, and they will then care very little for the food offered them by their owner. No other class of fowls will forage so well thru the summer and autumn as turkeys and they rapidly transform the insect pests of the farmer's field into choice flesh. An effort should be made at all times, however, to induce all the birds to roost at home by offering them a liberal feed each night. On many farms no roosting place is provided for the turkeys after they have outgrown their small coops, but this is a mistake. Being compelled to shift for themselves so far as finding a roosting place is concerned, their inclination is to seek roosting places which may lead them away from the buildings where they belong. The birds are not likely to accept roosting places indoors, but if an open shed is provided where nothing can disturb them, they can usually be induced to go there after they have had their evening meal. Large losses occur every summer and fall where the turkeys are allowed to roost away from the poultry yard.—W. F. Purdue.

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For Sale Registered Chester Whites and Poland Chinas. All ages. Recording free.
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Live Stock

CORN AND MOLASSES FOR STEERS

In the cattle feeding experiments at the Pennsylvania Experiment Station this year a test was made of the comparative values of corn and molasses. The project was conducted with six steers per lots. These steers were the larger and more fleshy in the entire group purchased last fall. These steers were fed on concentrates for the entire 140 days to get data on the cost of gains when silage is limited and concentrates fed during the entire period, also to determine whether molasses could be used as a partial substitute for corn.

CORN AND SILAGE-FED STEERS IN PENNSYLVANIA EXPERIMENT TEST, VALUED AT $9.80 PER CWT. ON BASIS OF PITTSBURG MARKET.

Lot 1, the molasses lot, made a little greater average daily gain but the cost was greater than in the case of Lot 2. The amount of molasses fed was 5 pounds daily per steer. The steers fed molasses showed keener appetites than the steers in Lot 2. At the present price, molasses does not seem to be an economical substitute for corn. These larger steers made a larger daily gain than any of the other steers but the gains were less economical than the gains made by the lighter-weight cattle. This is due to feeding grain thru the entire period and probably to the cattle being a trifle older.

SUMMARY OF RESULTS

		Lot I	Lot II
Initial weight per steer, lbs.		983.9	981.3
Final weight per steer, lbs.		1315	1286
Gain per steer, lbs.		332	305
Average daily gain, lbs.		2.3	2.1
Initial value per cwt. in lots		$ 7.65	$ 7.75
Initial cost per steer		75.26	76.05
Cost of feed per steer		39.26	35.28
Total cost of steer		114.52	111.33
Cost per cwt. gain		11.62	11.56
Final cost per 100 lbs.		8.76	8.68
Margin necessary without pork		1.05	.91
Daily feed consumed (!)			
Corn silage, lbs.		20	20
Cottonseed meal, lbs.		2.8	2
Mixed hay, lbs.		6	2
Ear corn (1st 98 days), lbs.		8.5	13.5
Shelled corn (last 42 days), lbs.		7.5	12.5
Molasses, lbs.		5	
Valued per cwt. on basis of Pittsburgh market (Allow 35 cents for shipping expense)		$ 9.70	$ 9.80
Pork produced 820 lbs. @ 9½ cents	$77.90		
Cost of feed for swine	26.94		
Profit from pork produced	$50.96		

(!) Price of Feeds.—Silage $3.50 per ton; mixed hay, $13 per ton; ear corn, 65 cents per bushel; shelled corn, 70 cents per bushel; molasses, $31.20 per ton.

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As silage is low in dry matter, and the horse has not sufficient digestive capacity to live entirely on such bulky feed, it is important to remember to use alfalfa, cowpeas, or other legume hay, or perhaps even a little grain for horses that are not at work. Growing horses, or horses at light work, should certainly have grain.—E. H. Hughes in Station Circular.

INCREASING LAMB PROFITS

The farmer may increase his profit on lambs marketed during July, August and September by castrating them. The fact that native lambs—or those raised in the eastern and middlewestern sections of the United States—are inferior to western lambs is due partly to the fact that a high percentage of these lambs are uncastrated when marketed.

Uncastrated lambs when marketed in late summer are never in as high condition of flesh, but they will consume as much feed per pound of gain as will be consumed by castrated lambs. Uncastrated animals are known on the market at "cull lambs."

The Pennsylvania Experiment Station castrates lambs when they are three or four weeks old. Docking and castrating should not be practiced at the same time, as the combined shock is considered too severe. Castrated lambs should be placed in dry, well-bedded quarters, to guard against infection. It is not necessary to castrate hothouse lambs or lambs marketed early in the spring.

We want articles from readers giving experience with farm tractors. State character of work done, cost of work as compared with farm teams, wearing quality and general service. Give us photographs of machines in operation if possible. All articles published will be paid for.—The Editors.

Poultry

RAISING TURKEYS

Most of the turkey hens will begin to lay in March. As the laying season approaches the secretive instinct of the turkey asserts itself and the hens will spend much time searching for nests. It is very desirable, however, to have them lay near the poultry yard so they may be allowed to set in the same nest. Too many hens are broken up by marauding animals when they set out in the woods or fields. Birds that are fairly domestic in their habits will usually select nests near home if boxes and barrels are fixed up near the buildings or in the orchard. The openings of the nests should be turned towards the walls or else screened with brush. This will not work in all cases, however; some of the hens probably will refuse these nests. But an experienced turkey raiser recently told the writer that he makes his turkey hens set near home, no matter how far away they select their nests. When one of these hens is ready to set, he takes her after nightfall to a nest that he has prepared in a shed, with a few nest eggs, and she usually accepts the new nest if the door is kept closed so she cannot get back to her old nest. Then in a day or two she is given her eggs to incubate.

Hatching is not so particular as the care of the young poults after they are hatched. More young poults are killed by improper food and lack of care when first hatched than in any other way. A turkey hen can be set on from fifteen to eighteen eggs, and a chicken hen on nine or ten. After the weather becomes warm and settled a turkey hen can mother twenty-five or more poults; early in the season this number is not advisable. The eggs hatch in four weeks, often in twenty-six days. The newly hatched poults are delicate and tender, but good care will save most of them. Turkey hens really make better mothers than chicken hens, as the former understand better the nature and needs of the little turks. In any case the broods ought to be kept confined for a few days, longer, if the weather is wet, in dry, roomy coops. The coops should be tight around the bottom, as the young turks are naturally inclined to wander and they will take advantage of any openings; once out they are too stupid to try to get back again and they quickly become chilled. Coops should preferably have floors in order to afford full protection from dampness, as well as from rats and weasels. If they are set on the ground they should be moved often to a new location. Cleanliness is very essential for young turkeys.

After the broods are given their liberty they should be driven into their coops each night and kept in of mornings until the dew has dried off and it is warm and dry. For the first two months, or until the turks are well-feathered, dampness is very fatal to them.

No food should be given newly-hatched poults for twenty-four hours. Nature provided for this, and even for a longer period. There are many different foods that may be given them—all good. Some feed hard boiled eggs, minced fine, for a few days, then change to bread soaked in milk and squeezed dry, rolled oats and cottage cheese. After a few weeks of this feeding ground grain may be given, such as wheat, oats and barley. Some of the commercial chick foods are also excellent for poults. The main rule in feeding poults is to give just what they will eat up clean in a short time. Where one turkey dies of starvation, twenty-five die of overfeeding. They need to be started to growing at an early age, but this is best accomplished by feeding often and sparingly. Sloppy foods must be avoided, as these induce bowel troubles.

Green food of some kind must be provided right from the start. Grass of their own picking does not meet the requirements of the poults until they are well advanced in growth. Green onion tops, dandelion and lettuce leaves chopped fine and fed at every meal the first two or three weeks will prove most satisfactory. Water should be supplied in shallow dishes, along with suitable grit in abundance.

It is very important that the young poults be examined at an early date for large head lice, or gray lice. Nothing so quickly saps the life of a young turkey as lice. In nine cases out of ten, if a turkey is drooping, with wings hanging down and eyes closed, the trouble is caused by the presence of lice, and only prompt treatment will save it. The pests are usually found on the head or under the wings. The poults should be dusted with some good insect powder at least once every two weeks until eight weeks old. On warm, sunny days fresh lard in small amounts may be applied on top of the head, on the legs, the wings and around the tail feathers. If the mothers are kept free of vermin in the beginning the young turkeys are not so likely to be bothered by lice. Dust the hens thoroly with insect powder once or twice during incubation, especially just before due to hatch. If the turkeys are kept separate from chickens there will be less trouble from vermin.

Turkeys are great foragers and require but little feed after the first of July, providing, of course, they have free range. About the only danger period with turkeys that survive the lice of their first three weeks is when they are ten or twelve weeks old. They are then "shooting the red," that is, the red kernels are beginning to grow on their necks, and they must then be kept dry at night and receive nourishing food. After they pass this stage of their existence the young birds become very hardy, and they are capable of taking care of themselves at most times. They may be allowed to roam about during the day as they please, tho they must be examined occasionally for lice.

By midsummer the young turkeys will have learned where the best bugs and weed seeds are to be found, and they will then care very little for the food offered them by their owner. No other class of fowls will forage so well thru the summer and autumn as turkeys and they rapidly transform the insect pests of the farmer's field into choice flesh. An effort should be made at all times, however, to induce all the birds to roost at home by offering them a liberal feed each night. On many farms no roosting place is provided for the turkeys after they have outgrown their small coops, but this is a mistake. Being compelled to shift for themselves so far as finding a roosting place is concerned, their inclination is to seek roosting places which may lead them away from the buildings where they belong. The birds are not likely to accept roosting places indoors, but if an open shed is provided where nothing can disturb them, they can usually be induced to go there after they have had their evening meal. Large losses occur every summer and fall where the turkeys are allowed to roost away from the poultry yard.—W. F. Purdue.

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It will soon be too late for summer planting of roses and we urge that you take advantage of this offer at once in order that you may receive the bushes at the proper time for planting.
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Laying Out My Rose Room

Floor and Wall Finishing

That is what I call it now. But what a dreary looking room it was to begin with! Some one had torn off most of the old wall paper, and the plaster was streaked and discolored with the water that had been used to soak it loose. Bits of dirty brown paper which had numerous holes in the plaster where nails had evidently been driven. There was also a great crack running from the ceiling to the base board, and one great big hole in the wall where some one had tried to cut a stove-pipe opening. The lath and plaster were both gone leaving a gaping hole about two feet wide and eighteen inches high. The wood work had been painted white but was now stained yellow; the baseboards on two sides of the room were nearly an inch away from the floor. The floor was of smooth pine boards but was full of cracks.. The windows were three in number, with the frames painted a dingy red, which rubbed off onto the cleaning cloths every time one tried to wash the glass.

The Walls.—I could not afford to have this room newly plastered, and the walls were too rough to paper over and look well the way they were. Finally I decided to see what I could do myself. So with plenty of warm water, a scrubbing brush and clean clothers I commenced on the walls. I would wet as much of the wall as I could easily reach at one time from the stepladder, then scrub it with the brush until the old pieces of paper came off, then wring out the cloth and wipe off all the dirty streaks I could. In that way I got the walls quite clean. Then I filled all the nail holes and cracks with plaster of paris, using a thin knife to smooth it off. The large hole in the wall I fixed by taking some thin pieces of board and splitting them about the same width as the lath; then I nailed them to the timbers that were exposed, filling in where the lath had been.

From a neighbor who had been having some plastering done I brought a half sack of paper pulp plaster. I mixed some of it with water to a stiff paste, and using a trowel carefully covered my home-made lath, first wetting them and the broken edges of the plaster with water so the new plaster would stick fast. I also used the pulp plaster to fill several other broken places in the walls.

Then while the plaster was drying I went to work on the paint, using plenty of hot water and soap applied with the scrubbing brush. I next filled the wide crack under the baseboard. First, I stuffed strips of old cloth away back in the crack, then, using the pulp plaster, I filled the crack even with the baseboard, using a thin knife to make it perfectly smooth, and carefully wiping off any of the plaster that got on the boards. The cloth behind the plaster helped to hold it in place, for without it the plaster would have just kept working farther back.

I let the plaster dry several days, and in the meantime painted the ceiling and walls over twice with cold water paint, which comes in a dry powder and needs only to be mixed to the thickness of cream with cold water, and is then applied with a whitewash brush. When dry it is pure white, and will not rub off but can readily be washed with warm water. I used the white, which cost only 4 cents per pound. It can be bought in colors also at 75 cents per 5-pound package, which will cover a good-sized room. I bought 1 quart of this white paint, 2 quarts of white enamel paint, 2 quarts of floor paint, and one gallon of shellac. I used the white paint to cover the red on the window sashes, and also painted over the plaster in the crack under the baseboards. Then I gave all the wood work one coat of white enamel paint, window sashes and all. After the enamel paint was dry, no one would ever have thought that there were any plastered cracks under the baseboards.

The Floor.—Mixing a small amount of plaster of Paris at a time (because it hardens so quickly), I took my thin caseknife and filled every crack in the floor. Some work it was, too, let me tell you. After the plaster had hardened, I took a small brush and carefully shellaced each plastered crack, then with a larger brush I shellaced the whole floor. This gave a hard surface into which the paint would not penetrate. Then I painted the floor twice with the prepared floor paint. When done it was perfectly smooth and as glossy as if it had been waxed. It was an old-gold color.

The wooden bed, a stand and a chair were next given a coat of the white paint, followed by two coats of the white enamel paint. Then with my oil tube paints I painted dainty sprays of pink roses on the head board of the bed, the back of the chair and the back of the stand.

A willow rocker was also given a coat of white paint, then enameled white, and a ruffled cushion of cretonne with a pattern of pink roses was made. A chest was covered on the sides with a ruffle of the same cretonne, and the cover of the chest was first padded with a thick old quilt folded to just fit the top, then covered smoothly with the pink rose cretonne tacked on smooth, then a three-inch ruffle was tacked around the edges of the chest lid. This made a fine window seat and was very convenient for storing extra blankets and bedding.

At the store I found a wall paper border of large pink roses. I bought enough of this to go around the room, and carefully cut out the sprays of roses. These I carefully pasted on the wall next to the ceiling, thus making a lovely border of pale pink roses and green leaves topping the white walls.

I intended to have plain white curtains at the windows, but while looking for material to make them of at the store I saw some readymade curtains that were so lovely and appropriate that I could not resist the temptation to buy them. They were plain white scrim with a border of pink roses that just matched my rose border on the walls.

My window shades were white on the inside and dark green on the side next to the glass, so that when pulled down they shut out the light much better than all-white ones would.

Besides the white enamel furniture I had a large old-fashioned bureau and a desk of mahogany which go splendidly with the white enamel. A white ivory clock ticks merrily on the desk. And a white bedspread and pillows make the bed look very dainty and inviting.

For rugs I used pieces of brussels carpet, hemming the ends under. The carpet has a background of old gold with bunches of pink roses and green leaves on it, thus matching the rest of the room finely. A large lamp with white shade painted with pink roses stands on the stand.

If you could see the room as it is now I think you would agree with me that it is a very attractive guest room.

My Green Peas Room

I had also a smaller room with green woodwork and papered with a bright green and red paper that was distressing. The floor had been painted at some remote former time and looked "just horrid". I could not air this room, even with the one window wide open, so but what it had a stale musty smell. So I decided to tear off the paper and see if that would help it any. Making a large panful of thin flour paste, I took my whitewash brush and covered the ceiling and walls with a good coat of the hot paste. In less than an hour the ceiling paper commenced to sag down; by tearing it loose at one side the paper came right off in whole strips. The side walls were then loose enough so that by taking hold of the paper at the top most of the pieces came off whole, revealing a hideous dark red paper underneath. So I gave that a soaking with hot paste, and behold! there was another layer of paper, this time blue with white birds on it; when this one was finally soaked off, there was still another layer, this time of white and gray stripes with gilt flowers. No wonder the room had smelled musty!

After the last of the paper was removed and the paint washed, I gave the woodwork a coat of light green enamel just the color of green peas after they are shelled. The window sashes were painted with the white paint, and finished with white enamel. I gave the floor two coats of dark maroon-colored floor paint. When dry it was like a looking glass, so smooth and glossy that you could see the reflection of the furniture in its surface.

My white enamel iron bed I painted with the light green enamel to match the woodwork; with its shining brass trimmings it looks nicer than when it was new.

With a green window shade and white lace curtains at the window my green peas room is fresh and sweet and peaceful. There is nothing, I think, that gets on the nerves of a sick person like patterns in the wall paper. One is always counting them back and forth and noticing every detail; often the figures will seem to take on strange and fantastic likenesses. The plain walls give a feeling of peace to tired eyes and nerves. If you have figured wall paper in your bedrooms, just try my plan on one room, and see if soon you will not change all your sleeping rooms to plain white or tinted walls in preference to figures.—Mrs. Cora Hamilton, Broome Co., N. Y.

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1200 S. C. W. Leghorn laying hens, Wyckoff and Tom Barron strains, 1 and 2 yrs. old; 125 Barred Rock hens, 1 yr. old; 125 S. C. and R. C. R. I. Red hens, 1 yr. old; 20 White Rock hens, 2 White Rock cockerels, 1 yr. old; all pure bred stock of selected laying qualities. 1500 chicks, 7 wks. old; 3500 chicks, 3 to 4 wks. old, mostly S. C. W. Leghorns. Poultry houses, 20 colony houses, 10x12 ft.; 20 colony houses 4x6 ft.; 6000-egg Candee hot water incubator, all other poultry equipment, and all the stock, machinery and equipment of 80-acre farm.

This is a complete dispersal sale, as Mr. Davis is now devoting his entire time and attention to the business of Davis Brothers Rolling Mills, Philadelphia, Pa., and desires to make an entire clean-up of his farm interests. Write for circular.

H. J. DAGER, Inc., Ambler, Pa., Agents and Auctioneers.

SOME APPETIZING DISHES

Chicken Balls.—Mix 1½ cups chopped raw chicken with 1 finely minced onion, ½ cup fine bread crumbs, 1 well beaten egg, ¼ cup cream, and salt and pepper to season. Form into balls and drop into boiling water into which 1 onion has been sliced. Add salt and pepper to season, and cook ¾ hour. To the broth remaining, add 1-3 cup strained tomato pulp, and thicken with 1 teaspoon flour and 1 tablespoon butter. Serve hot with mashed potatoes.

Cabbage and Peanut Loaf.—To 1 cup of chopped, cooked cabbage, add 1 cup of fine bread crumbs, 2 well beaten eggs, 1-3 cup chopped roasted peanuts, the juice of 1 onion, 1 tablespoon of butter, ½ level teaspoon of salt, and a dash of pepper. Mix well and form into a loaf. Place the loaf in a well greased pan and bake in a hot oven for ½ hour. Serve hot with tomato sauce and baked white or sweet potatoes.—Mary Allen, Sullivan Co., N. Y.

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1366.—Ladies House Dress.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. It requires for the dress 7 yards of 36-inch material for a medium size. The cap is cut in one size—medium—and requires ¾ yard of 27-inch material. The skirt measures about 3 yards at the foot. Price of pattern, 10 cents.

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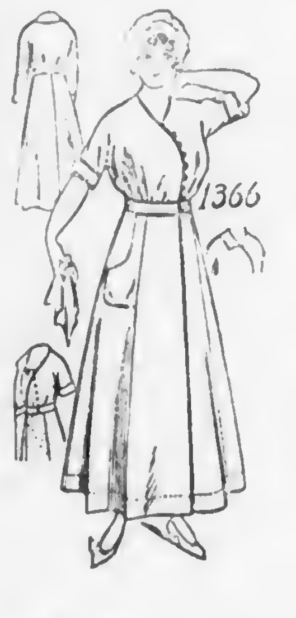
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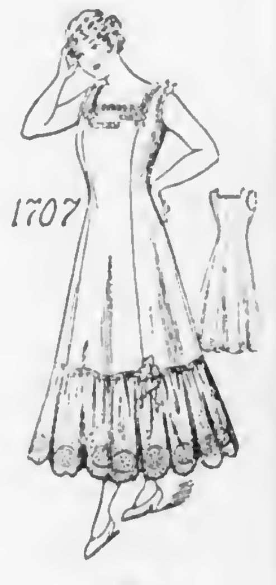
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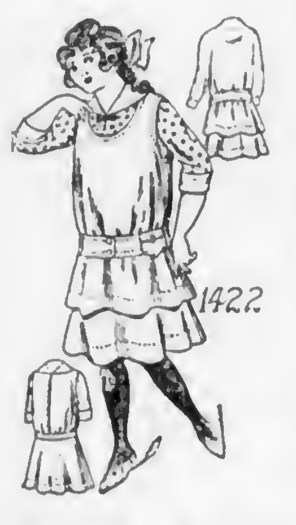
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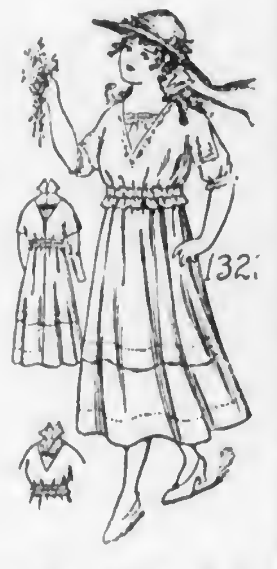
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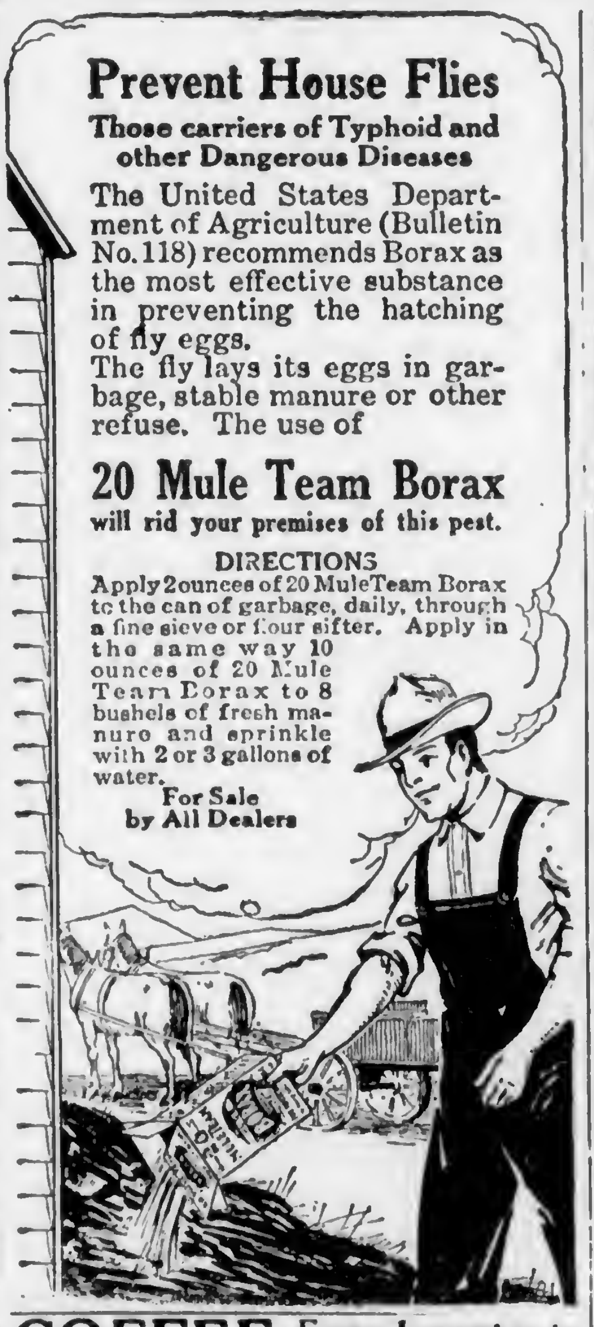

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The Fur Bringers

By Hulbert Footner

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SYNOPSIS OF PRECEDING CHAPTERS

Ambrose Doane, junior partner of the fur trading firm of Minot and Doane, is in love with Colina Gaviller, the daughter of John Gaviller, manager of The Company which is Doane's most powerful business competitor. While on a visit at Colina's home Doane is urged by the Indians to open a rival trading post and take their furs. This he refused to do hoping to avoid open opposition to Colina's father. He is offered a wonderful black fox pelt by Alexander Selkirk, an Indian, and buys it, giving his canoe to the Indian and permitting him to leave the camp. Ambrose learns a few hours later that Selkirk shot Mr. Gaviller in a quarrel over the fox pelt, and as he permitted the Indian to escape, he is held partially responsible for the crime. Colina construes his sympathy for the Indian as unfriendliness for her father and rejects his offer of help. Against his advice she enforces a price of $1.50 per bushel for the Indian's wheat which causes threats of rebellion into which Ambrose is drawn by his Indian friends. To prevent violence against Company property, Ambrose finally agrees to buy a part of the wheat at $1.75 per bushel. He brings in a mill and prepares to grind flour. In the meantime he is met by a tribe of fur trapping Indians who demand flour at once. He calls upon their chief Watusk.

CHAPTER XVII

The messengers approached their pompous host. Lifting the blind over the entrance Ambrose entered the tepee, with Simon at his heels. In the center a small fire burned on the ground, and behind it sat five dark skinned figures in a semicircle.

Not one of the five faces changed a muscle at their entrance. The principal man with a grave inclination of the head, waved them a blanket which had been placed for them opposite him.

It was like an old-time Indian council, but the picturesqueness was a good deal spoiled by the gingham shirts they wore, and the ill-fitting coats and trousers from the store.

Moreover, the red men's pipes, instead of the graceful calumets were English briers with showy silver bands. The bowl of Watusk's pipe, of which he appeared to be inordinately proud, was roughly carved into the likeness of a death's head.

Watusk was an extraordinary figure. Ambrose was reminded of a quack doctor in poor circumstances. He was middle-aged and flabby, and had long, straggling gray hair, bound round with a cotton fillet, none too clean.

He wore a frock coat all buttoned up before, each button constricting his fat, with a bulge between. His trousers were made from a blanket once white, with a wide black band around the calf of each leg, and he wore fine doeskin moccasins, richly embroidered with silk.

His dirty fingers displayed a quantity of brass rings from the store, set with gems of colored glass. His heavy, loose-featured face was unremarkable, except for the extraordinarily bright, quick, shallow eyes, suggesting at different moments the eyes of a child, an animal, and a madman.

His skin showed a tinge of yellow as distinguished from the pure copper of his companions, and Ambrose was reminded of the black man.

Watusk grandiloquently introduced his four companions. "My councilors," he said: "Toma, minister of state; Lookoovar, minister of war; Mahtsonza, minister of interior; Tatateecha, minister of medicine."

Thus their uncouth names as Ambrose got them. He avoided Simon's eye, and bit his lip to keep from laughing. The four were small men with the fine characteristic faces of pure bred savages.

They understood not a word of what was said, but preserved an unshakable gravity thruout. Ambrose, as they were named, christened them anew, according to their several characteristics; Coyote, Moose, Bear and Weasel.

The last was a little shriveled creature, hung with charms and amulets in tobacco bags until he looked like a scarecrow. He had an eye even wilder and shiftier than his master's.

"Conjureman," murmured Simon in Ambrose's ear.

"Let Ambrose Doane speak," said Watusk. He used good English.

Ambrose had adopted from Peter Minot the maxim: "Make the other man speak first, and get a line on him." He bowed politely. "Ambrose Doane will not speak until Watusk has spoken," he said.

Watusk highly gratified, bowed again, and forthwith began. "I am glad to see Ambrose Doane. He is good to my eyes lak the green leaves in spring. He is come to Fort Enterprise and there is no more winter.

"The name of Peter Minot and the name of Ambrose Doane make good words to my ear. They are the friends of the red men. They pay good price for fur. They sell outside goods cheap. I want a box of cigars me, same lak you send Simon Grampierre."

Ambrose recognizing Watusk's type was not put out by the sudden drop from the sublime to the ridiculous. He now had a "line" on his man. Swallowing his laughter, he answered in a similar strain.

"I am glad to see Watusk. I wish to be his friend. I come from the big lake six days' journey toward the place of the rising sun. So far as that men tell me of the Kakisa nation, and tell of Watusk who rules them.

"Men say the Kakisa men are the best hunters of the north and honest as the sun in summer-time. Men say Watusk is a wise chief and a good friend of the white men. I have plenty cigars in my outfit."

The chief swelled with gratification until his much-tried buttons threatened altogether to part company with the coat.

A good deal more of this airy exchange was necessitated before Watusk could be induced to talk business. When he finally condescended to it, the story was as Simon had forecast:

"When Ambrose Doane come here I say to my people: 'Trade with him. He will be your father. He will feed you.' Now when they come for flour Simon Grampierre say you got no flour.

"When I go to John Gaviller for flour, he mock me. He say: 'You take Ambrose Doane for your father. All right. Let him feed you now.' So I am not know what to do. Every day my people more ongry, more mad.

"Pretty soon the young men make trouble. There is no game here. We can't stay here without flour. We can't go back without flour. I am feel moch bad. But Ambrose Doane is come now. It is all right!"

The last of this was delivered with something like a leer, warning Ambrose's subconsciousness that Watusk, notwithstanding the flowery compliments, wished him no good.

"I have plenty of grain," he said warily. "Let each woman grind for her own family."

Watusk shook his head. "Long tam ago we got stone bowls for grind wild rice in," he said. "So many years we buy flour all the bowls is broke and throw away now."

Ambrose could not deny to himself the gravity of the situation. He was reminded afresh that he was dealing with a savage by the subtle, threatening note that presently crept into Watusk's smooth voice.

"John Gaviller say to Gordon Strange for say to me: 'Ambrose Doane got all the grain. Let Ambrose Doane sell his grain to me, and I give you flour.'"

Ambrose, perceiving the drift, swore inwardly.

"Gordon Strange tell that in Kakisa language," Watusk went on slyly; "some hear it and tell the others. All know now. If my people get more ongry what can I do? Maybe my young men steal the grain and take it to Gaviller."

"If they lay hands on my property they'll be shot," said Ambrose, curtly.

Watusk spread out his hands deprecatingly. "Me, I tell them that," he said. "But they are so mad!"

"John Gaviller is trying to use you to work his own ends," said Ambrose.

Watusk shrugged indifferently. This was the real man, Ambrose thought. "Maybe so. You got trouble with Gaviller. That is not my trouble. All I want is flour."

"You shall have it!" cried Ambrose boldly. "Enough tomorrow morning to feed every family. Enough in three days to fill your order."

Watusk appeared to be a little taken aback, by the prompt granting of his demand. "Where you get it?" he asked.

"I will get it," Ambrose said. "That is enough."

When Ambrose and Simon got outside the teepee Simon asked the same question; "Where will you get it?"

"I don't know," said Ambrose. "Give me time. I'll find a way!"

"If Gaviller gets the Kakisa fur you'll make no profit this year," suggested Simon.

"I have to consider other things as well as profit," Ambrose said. "There are more years to come."

Reaching the dugout, Simon asked: "Where now?"

"To the Fort," said Ambrose. "You don't have to come."

"We are together," said Simon.

Ambrose, deeply moved by gratitude, growled inarticulately. He felt himself young to stand alone against such powerful forces.

Crossing the river, they landed below the big yellow house and applied at the side door for Colina. She had returned from her ride, they were told. They were shown into the library.

In this little room Ambrose had already touched the summit of happiness, and tasted despair. He hated it now. He kept his eyes on the carpet.

Simon was visibly uneasy while they waited. "You think this any good?" he suggested.

"No," said Ambrose bitterly. "I know well enough what I'll get. But I've got to go thru with it before taking the next step."

"John Gaviller live well," said Simon significantly, but without bitterness.

Colina came in with her queenliest air. She had changed the riding habit for clinging white draperies that made her look like a lovely, arrogant saint. Ambrose, raising his sullen eyes to her, experienced a new shock of desire that put the idea of flour out of his head.

To old Simon, Colina inclined her head as gracefully and indifferently as a swan. The grim patriarch became humble under the spell of her white beauty. He fingered his hat nervously. To Ambrose Colina said with subtle scorn meant for his ear alone:

"What is it?"

Ambrose screwed down the clamps of self-control. "I asked for you," he said stolidly, "because I did not know if your father was well enough to talk business. May I see him for five minutes?"

"No," she said, without condescending to explain.

"Then I will tell you," said Ambrose. "It is about the Indians across the river. I must have some flour for them."

"Must?" she repeated, raising her eyebrows.

"They are suffering from hunger," he said firmly.

"You will have to see Mr. Strange," she said coldly. "He is in charge of the business."

"This is a question for the head to decide," warned Ambrose.

"You will have to see Mr. Strange," she repeated, unmoved.

Ambrose's eyes flamed up. For a moment the two parts contended—Ambrose's passionate, Colina's steely. The man was struggling with the atavic impulse to thrash the maddening, arrogant woman creature into a humbler frame of mind.

It may be, too, that deep in her heart of hearts Colina desired something of the kind. Perhaps she could not master her worser self alone. Anyhow, it was impossible there in her own stronghold, with Simon looking on. They were too civilized or not civilized enough.

Ambrose merely bowed to her and led the way out of the room and out of the house.

"Thank God, that is over!" he murmured outside.

Crossing the square, they entered the store. It was the first time Ambrose had been inside that famous showplace of the north, but he had no eyes for it now. Gordon Strange welcomed them with smiling heartiness.

"Come in! Come in!" he cried leading the way into the rear office. "Sit down! Have a cigar!"

The scowling Ambrose stared as if he thought the man demented. He waved the cigar away and came directly to the point.

"I want to find out what you're willing to do about the Kakisa Indians."

"Sure!" cried Strange with apparently the best will in the world. "Sit down. What do you propose?"

"How much will you charge me to grind me five hundred bushels of grain for them?"

"I'm sorry," said Strange. "The old man won't hear of it.'

"Will you let them starve?" cried Ambrose.

"What can I do?" said Strange distressfully. "I'm not the head."

"Grind it in spite of him," said Ambrose. "Humanity and prudence would both be on your side. You'll get their fur by it."

"I think Mr. Gaviller expects to get the fur anyway," said Strange with a seeming deprecatory air—but the suspicion of a smirk wreathed his full lips.

"Then I am to understand that you refuse to grind my grain at any price," said Ambrose.

"Orders are orders," murmured Strange.

"Has Gaviller given you this order since he knew the people were hungry?"

"He has told me his mind many times."

"That is not a direct answer. Some one must take the full responsibility. If I write a short note to Gaviller will you deliver it and bring me back an answer?"

Strange hesitated for the fraction of a second. "Yes," he said.

Ambrose wrote a succinct statement of the situation, and Strange departed.

"Gaviller will never do it," said Simon.

"I don't expect him to," said Ambrose. "But he's got to commit himself."

In due course Strange returned. He offered Ambrose a note, still with the

deprecating air. It was in Colina's writing. Ambrose read:

"John Gaviller begs to inform Mr. Ambrose Doane that the only proposal he is willing to discuss will be the sale to him of all the grain in Mr. Doane's possession at one dollar and a half per bushel. In such an event he will also be willing to purchase Mr. Doane's entire outfit of goods at cost. It will be useless for Mr. Doane to address him further in any other connection.

"Enterprise House, September 3."

Ambrose stood reflecting with the note in his hand. For a single moment his heart failed him. His inexperience was appalled by the weight of the decision he had to make.

Oh, for Peter Minot's strong, humorous sense at this crisis! The thought of Peter nerved him. Peter had taken it for granted that he would make good. Ambrose remembered the sacrifices Peter had cheerfully made to finance this expedition.

To accept John Gaviller's contemptuous offer would not only be to confess a humiliating failure, it would mean pocketing a loss that would cripple the young firm for the time being.

Peter would say: "Lose it if you must, but lose it fighting." This thought was like an inspiration to Ambrose. His jaw stiffened, and a measure of serenity returned to his eyes. He passed the note to Simon.

"Read it," he said coolly, "and save it. It may be useful as evidence, later."

A subtle change passed over Gordon Strange's face. For the moment he was pure Indian. Quickly veiling his eyes, he asked with an innocent air: "What does Mr. Gaviller say?"

This was too much for Ambrose to stomach. "You know blame well what he says!" he answered scornfully.

Strange swallowed it. "Is there any answer?" he asked.

"No!" said Ambrose.

The half-breed's curiosity overcame his prudence. "What are you going to do?" he asked slyly.

Ambrose strode out of the store without answering.

The two men paddled back to Grampierre's place in silence. Simon, with native tact, forebore to ask questions. Such is the potency of the white man's eye that the leader of the breeds had unhesitatingly yielded the direction of affairs to the youth who was little more than a third of his age.

Upon landing, Ambrose pointed to the lookout bench. "Let us sit there and talk," he said.

"Simon," he said immediately, "suppose it came to a fight, how many men do you think Gaviller could count on?"

The old man took the question as a matter of course. "There is the policeman, the doctor and the parson," he said. "The parson is best for praying. There is the engineer and the captain of the steamboat; there is young Duncan Greer.

"In summer he is purser on the steamboat; in winter he is the miller. That is six white men. John Gaviller is no good yet. There is the crew of the steamboat, and the men who work for wages, maybe fifteen natives, not more."

"What sort of a man is Greer?" asked Ambrose.

"A lad; full of fun and jokes; a good machinist."

"Where does he sleep at the Fort?"

"He has a room in the old quarters. Gaviller's old house."

"Does he sleep alone?"

"He does."

"Can you get me twenty-five men by dark; steady men with cool heads, who will do what I tell them?"

"I can," said Simon.

"Let them meet at your house," Ambrose went on. "Let every man carry his gun, but you must see that the magazines are emptied, and that no man has any shells in his pocket. I will have no shooting. Above all, do not let the Indians know that anything is going on tonight."

"It is well!" said Simon laconically. The old dark eyes gleamed.

CHAPTER XVIII

A Bloodless Capture

In a more innocent state of society such as that which exists in the north, such a thing as a night-watch is undreamed of. Insomnia is likewise unknown there. At eleven o'clock every soul in Fort Enterprise was drowned deep in slumber.

There was no light in any window; the very buildings seemed to crouch on the earth as if they slept, too. At sundown a film of cloud had crept across the sky, and the moon was dark. It was the very night for deeds of adventure.

Down on the current came a rakish york boat floating as idly as a piece of wreckage. Its hold was filled with bags of grain, on which squatted and lay many dark figures scarcely to be distinguished from the bags.

No whisper marked its passage; not a pipe-bowl glowed. On the little steering platform stood Simon Grampierre wielding a long sweep run thru a ring astern. The ring was muffled with strips of cloth.

Simon kept the craft straight in the current, and as they approached the Company buildings, gradually edged her ashore.

The dark steamboat lay with her nose drawn up on a point of stones below the flagstaff. Steamboat and point together caused a little backwater to form beyond, of which Simon was informed.

All he had to do was to urge the nose of his boat into it, and she grounded of herself at the spot where they had chosen to land; that is, immediately below the mills.

A dozen moccasined men let themselves softly into the water, and putting their backs under the prow lifted her up a little on the stone. Instantly, as if by the starting of a piece of machinery, a chain of bags was started ashore from hand to hand.

Ambrose and Tole, who was to be engineer, climbed the bank to reconnoiter. So far no word had been spoken.

Above, along the edge of the bank, were three small buildings in a line, close together. That in the middle was the engine house, with the sawmill on the left and the flour mill on the right.

Ambrose and Tole made for the engine which was housed in a little structure of corrugated iron. The door faced the sawmill. It was an iron sliding door, fastened with hasp and padlock.

Ambrose inserted the point of a crowbar under the hasp, and the whole thing came away with a single metallic report. If any sleeper was awakened by the sound, hearing no other sounds, he probably fell asleep again. Anyhow, no alarm was raised as yet.

Tole went back to get assistance in carrying slabs into the engine room. The sawmill was merely an open shed, and there was an abundance of fuel in sight.

The water supply, being furnished by gravity from a tank overhead, was secure.

With the aid of his electric torch, Ambrose found the belt to run the flour mill in a corner of the engine room. So far so good. His instructions to Tole were simple.

"I'll let you have one man to help you. If they besiege us, I won't be able to communicate with you. Whatever happens, keep the engine going. Store enough slabs in here to keep her going all night, then close the door, and fasten it some way."

The flour mill was likewise built of corrugated iron. It had two iron doors, one giving on the road, fastened with a padlock, the other on the river side, hooked from within.

Ambrose broke open the first, and throwing back the second, allowed the grain bags to be hustled inside direct from the beach.

He lit a lantern, and cloaking it within his coat, examined the machine. His heart sank at the thought of his difficulties, supposing the next step of his plan should fail.

Ambrose was enough of a machinist to appreciate the difficulty of operating this complicated arrangement of wheels and rollers and frames by lantern light.

Taking five velvet-footed men, he set off around the back of the store, and across the corner of the square to the "quarters." The building so designated was in the middle of the side of the square facing the river.

It was a low, spreading affair, of several dates of construction. Once Gaviller's residence, it was now used to house the white employees of the company and chance travelers.

Greer's room was in the end of the building nearest the store. The policeman slept at the other side, separated by several partitions.

The room they were making for had a door opening directly on the yard. It was not locked. Ambrose merely lifted the latch and walked in with his five men at his heels.

Inside, in the thick darkness they heard the sound of deep breathing. Ambrose flashed his light around. A typical boy's room was revealed, with college banners, colored prints, photographs and firearms.

On a bed in the corner lay the owner, a good-looking blonde boy sleeping on his back with an arm flung above his head. He was a hearty sleeper.

Not until the command was twice repeated in no uncertain tones, did he waken. It was to find himself looking into the blazing white eye of the electric torch.

"What time it is?" he murmured, blinking.

One of the men chuckled.

"Time to get up," said Ambrose grimly.

"Hey, what's the matter?" cried the voice from the bed in accents of honest alarm.

"Get up and dress," commanded Ambrose.

"What for?" stammered the boy.

"I have five armed men here," said Ambrose. "Do what you're told without asking questions. If you make a racket you'll be cracked over the head with the butt of a gun."

As he spoke Ambrose flashed the light from one to another of his men. The sight of the quiet, dark-skinned breeds, each with a Winchester on his arm, was sufficiently intimidating. The boy swung his legs out of bed.

"All right," he said, philosophically. "Throw your light on my clothes, will you?"

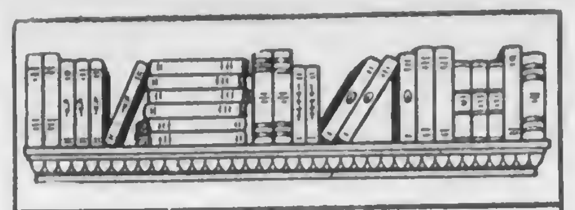
He commenced to dress without more ado. Presently he asked coolly: "What do you want me for, and who are you anyway?"

"I'm Ambrose Doane," said Ambrose. "I've seized the flour mill. You've got to run it."

"There's no grain there," said Greer.

"I brought my grain with me," said Ambrose.

(To be continued.)



PIECES *to* SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

THE PEACE PACT

They were foes as they fell in that frontier fight.
They were friends as they lay with their wounds unbound,
Waiting the dawn of their last morning light.
It was silence, all save a shuddering sound
From the souls of the dying that rose around:
And the heart of the one to the other cried,
As closer they drew, and their arms enwound,
"There will be no war on the Other Side."

As the souls of the dying mounted high
It seemed they could hear the long farewell!
Then together they spake, and they questioned why—
Since they hated not—why this evil befell?
And neither the Frank nor the German could tell
Wherefore themselves and their countrymen died.
But they said that Hereafter in peace they should dwell—
"There will be no war on the Other Side."

As they languished there on that field accurst,
With their wounds unbound, in their mortal pain
Spake one to the other, "I faint from thirst!"
And the other made answer, "What drops remain
In my water flask thou shalt surely drain!"
As he lifted the flask the other replied,
"I pledge thee in this till we meet again—
"There will be no war on the Other Side!"

And it came to pass as the night wore deep,
That fever thru all their veins was fanned,
So that visions were theirs (yet not from sleep),
And each was flown to his own loved land.

. . .

But, rousing again, one murmured, "Thy hand!
Thou art my brother—naught shall divide;
Something went wrong . . . but understand,
There will be no war on the Other Side."

ENVOI

Comrades of peace, we can give but our tears
As we look on the waste of the human tide.

. . .

Yet forever one cry so haunts my ears—
"There will be no war on the Other Side."

—Submitted by
Edna A. King, York Co., Pa.

Markets

PHILADELPHIA PRODUCE

Philadelphia Pa., May 16, 1916.

The market on all produce has been brisk in the past week and the high prices continue in practically every line. Nearby vegetables are arriving more plentifully and in greater variety.

Old potatoes continue to arrive in ample supply to meet the requirements of the trade. Pennsylvania stock is selling at $1.15 to $1.20 per bushed, while New York and Western potatoes continue to sell at $1.05@1.10.

New crop potatoes are arriving freely from Florida, from ten to fifteen carloads being unloaded here daily. The demand is sufficient to keep the prices steady and No. 1 grades are selling at $5.50 to $5.75 per barrel; second grade stock packed under well-known brands are in strong demand at $4.50@5 per barrel. New potatoes from the Eastern Shore of Virginia it is predicted will be moving in car lots by the second week in June. The crop is estimated to be about 25 per cent below that of last year.

Sweet potatoes are a drag on the market and Jersey stock is selling at 45 to 55 cents per basket. Sweets in hampers are arriving from Delaware, Maryland and Jersey and selling at 75@90 cents.

Receipts of York State Danish cabbage are very light and the market advanced to record prices. Fany stock sold readily at $25@30 per ton.

Nearby Vegetables

Pennsylvania and New Jersey asparagus, altho in heavy supply, are bringing higher prices than at this same date last year. Fancy grades are selling at $1.75 to $2.25 per dozen bunches; choice, $1.25 to $1.50. On this market the green grass is most desired by the trade and fancy white asparagus is sold at 50 to 75 cents per dozen bunches below the price on the green stock.

Rhubard is in heavy supply and selling at $1 to $1.25 per 100 bunches. Philadelphia County growers claim that it cannot be produced and sold under present labor conditions for less than $1.50 per 100 bunches without a loss. With the present abundant supply it is impossible to secure more than $1.25 per hundred and that figure is from 25 to 50 cents per hundred bunches in advance of the prices secured at this date one year ago.

Several of the truckers have good crops of red button radishes and are finding the market ready to absorb their supply at good figures. On all shipments of fancy radishes from $2 to $2.50 per hundred bunches has been secured. White radishes are offered at $1.75 to $2 per hundred bunches.

A few of the fall plantings of bunched onions are still being offered and selling at $1 per hundred bunches.

Fancy spinach is in strong demand and selling at 50 cents per bushel box and at 30 cents per basket. Hotbed lettuce is in limited supply and selling at $4.50 to $5 per barrel, containing about 100 heads.

Southern Vegetables

The scarcity of Danish cabbage has done much to advance the price of South Carolina stock. From three to six cars have been unloaded daily and are now selling at $3.25 to $3.50 per crate when fancy. The average stock is moving at $2.50 to $3 per crate.

Tomatoes are in moderate supply and with the price advanced the demand has been greatly limited. Five cars sold this morning at prices ranging from $3.50 to $3.75 for the fancy grades; $2.50 to $3 for the choice. These prices are at an advance of $1 to $1.2 per crate over the prices of one week ago.

Receipts of onions from Texas are moderate and under such condition the market is improving. First grade yellow Bermudas are selling at $1.65 to $1.75 and second grades at $1.40 to $1.50 per crate. A limited quantity of onions are arriving from Louisiana and are selling at $2.50 to $3 per 100 pounds.

Florida lettuce is in light supply, the shipments arriving only in express lots from 20 to 100 baskets. Prices secured are from $1.75 to $2.50 per basket. One thousand baskets of beans were offered this morning at $1.75 to $2.50 per basket. Two cars of celery were sold at $1.75 to $2.25 per crate. The varities of vegetables arriving from Florida are now greatly limited.

Fruits

There is considerable interest manifested in the strawberry market as the receipts are increasing daily. This morning there were eight cars from Tennessee, five from Carolina and ten from Norfolk, and the prices ranged from 4 to 10 cents per quart. Only the best of the Carolina stock brought 10 cents, the average price being 7 and 8 cents per quart. Eastern Shore berries are expected in heavy supply within the next week.

The apple dealers thru New York State are working with the strong endeavor to clean up their present holdings in short order. The greater number of consignments are being made as heretofore and the prices of this season are considered good. The receipts of this market are rather light but at the same time adequate to meet the demand. First quality fruit is selling at $3 to $3.75 per barrel. New York Baldwins are selling at $3 to $3.75 per barrel; Greenings, $2 to $2.50; Ben Davis, $1.50 to $2, and the few Eastern Winesaps are being marketed at $3 to $3.50.

Poultry

Very little change has been evidenced in the live poultry market during the last week. Fowl were in good demand when the stock was of desirable size and quality and sold at 19 to 20 cents per pound. The supply of spring chickens is fair and stock weighing one to two pounds apiece are moving freely at 34 to 38 cents per pound.

White Leghorns, according to quality, are bringing 30 to 32 cents. Live ducks continue at prices quoted last week, 16 to 18 cents, but the demand is somewhat less. Live geese are selling at 14 to 16 cents.

The market for dressed poultry is strong and the supply of fowls has become scarce with a firm demand. Fresh killed, dry packed fowls when fancy sold at 22½ cents per pound; lighter weight stock sold at 20 to 22 cents per pound. Fancy Jersey broilers continue to sell at 50 to 55 cents and other nearby broilers weighing 2 to 3 pounds per pair are selling at 40 to 45 cents. The larger sizes which are less desirable are selling at 35 to 36 cents. Nearby spring ducks are in good demand at 26 to 28 cents per pound.

Eggs

The receipts of eggs have been very light and large quantities continue to be placed in storages. All fresh desirable stock was cleaned up at full quotations and nearby extras brought 26 cents per dozen. Nearby firsts sold at 23½ cents; nearby current receipts 22½ cents, and second grades sold at 20 to 21 cents. Fancy selected candled fresh eggs were jobbed out at 20 to 21 cents per dozen. It will be noted that the prices on the various grades of eggs are practically the same as the quotations offered last week. The market has been kept steady because of the quantities being moved to the storages.

—Selmarad.

NEW YORK PRODUCE

New York City, May 15, 1916.

Butter is well cleaned up and there are promises of good trading. The cheese market opens very firm. Old cheese is in good demand. Egg arrivals are moderate and prices remain with little change, many going direct to storage on shipper's account. Fair demand for poultry and prices remain good. Little change in nearby stock. The demand for apples is fair, especially for the better grades. Prices given apply on goods rated fair to fancy.

Butter.—Creamery, extra, (92 score) per pound, 30c; higher score, 30½@31c; thirds to firsts, 27@29½; state dairy, 26@30c; packing stock, 24@25c.

Cheese.—Whole milk specials, 19¼@19½c; daisies, 18@18½; skims, 11@14¾c.

Eggs.—Fresh gathered, extra, 24½@25c; dirties, 19@20c; nearby whites, fine to fancy, 25@26c; Ordinary to good, 23@24c; browns, 24@25c.

Dressed Poultry.—Philadelphia and Long Island, fancy 3 to 4 pounds to pair, 45@50c; Philadelphia fancy roasters, 26@30c. Fowls, 19@22c; old roosters, 16c; squabs, $2.50@5.25 dozen. Spring ducks per lb. Turkeys, dry picked, 32@38c.

Asparagus.—Jersey and Pennsylvania, green, colossal, dozen, $3.00@$3.50; do., green, extra, $2.50@$2.75; do., green, prime, $1.75@$2.25; do., green, culls, $1.50; do., white, colossal, $3.00; do., white, extra, $2.00@$2.25; do., white, prime, $1.75; do., white, culls, $1.00@$1.25.

Apples.—Winesap, bbl., $2.00@$4.00; Greening, bbl., $2.00@$3.00; Northern Spy, $2.00@$4.25; Baldwin, bbl., $2.00@$3.25; Ben Davis, bbl., $1.50@$2.50.

Country Dressed Veals:

Choice	15	@16
Prime	14½	@15
Fair to good	13½	@14
Coarse, heavy	13½	@14
Common	11½	@12½
Buttermilks	11	@11½
Grassers	10	@10½

YORK PRODUCE MARKETS

York, Pa., May 15, 1916.

There was good interest shown at the city markets the past week. Trading was stronger than the preceding weeks. Lettuce is selling good. Radishes, onions, rhubarb and other spring greens are active. Eggs dull. Butter firm.

Butter.—Country, 32@35c lb.; separator, 32@35c lb. Milk, 6c per quart.

Poultry.—Hens, 13@17c lb.; dressed, 45c to $1.25 each. Springers, 38@40c lb.

Vegetables.—Potatoes, 15@20c ½-pk.; $1 to $1.25 per bu.; new, 40@50c ½-pk. Lettuce, 3@8c a hd. Cabbage, 5@8c each; new, 5@8c. Beeets, 3@4c bunch. Onion, 3@5c bunch; 10@12c ½-pk. Radishes, 5@8c bunch. Lima beans, 15@18c qt. Soup beans, 12@15c qt. Turnips, 8@10c ½-pk. Lard, 14@15c lb. Sauer kraut, 8@10c qt. Spinach, 10@12c ½-pk.

Fruit.—Apples, 15@40c ½-pk. Pears, 12@15c ½-pk. Strawberries, 18@25c box.

Retail Grain Market.—Wheat, $1.25; corn, 90c; oats, 56@65c; rye, 90c; bran, $1.40 cwt.; middlings, $1.65 cwt.

Wholesale Grain Market.—White, $1.15; corn, 80c; oats, 52c; rye, 80c; bran, $27 per ton; middlings, $32 per ton.

PHILADELPHIA LIVE STOCK

Philadolphia, Pa., May 15, 1916.

Receipts for the week ending Saturday evening, May 13:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,315	8,421	6,880
Previous week	3,190	5,565	6,285

Calves.—Total receipts of calves for this week were 1,606 against 1,747 last week.

Beef Cattle.—Shipments were mostly of Illinois and Pennsylvania cattle, entirely equal to current requirements, the market assuming some additional strength and activity, and values were keeping steady to firm under a seasonable demand. Bulls and cows that were choice ruled steady, with the top grade of calves showing a slight advance.

Best steers	$9.50@9.75
Choice	9.00@9.25
Good	8.50@8.75
Medium	8.00@8.25
Common	7.50@7.75
Bulls	6.00@8.00
Fat cows	5.00@7.50
Thin cows	3.25@4.50

Veal Calves.—

Exceptional lots	$11.25@11.50
Good to choice	10.25@10.50
Medium	9.50@ 9.75
Common	7.50@ 8.00
Southerns and barnyards	5.50@ 6.00

Sheep and Lambs.—While the market was well stocked, there was a fair outlet for all satisfactory holdings at full prices.

Wethers, extra	$9.00@9.25
Choice	8.50@8.75
Good	7.75@8.00
Medium	7.00@7.25
Common	5.00@6.00
Ewes, heavy, fat	7.00@8.00

Clipped, $1.50 per 100 lbs. lower than wool stock.

Lambs—

Extras	$12.00@12.25
Good to choice	11.50@11.75
Common	8.00@ 9.00
Medium	10.50@11.00
Hothouse, apiece	6.00@ 7.75

Clipped, $1.50 per 100 lbs. lower than wool stock.

Hogs.—Arrivals were under good control, with steady rates predominating. Western, gross weight, $11.20; net weight, $14.

City Dressed Stock.—Every kind of prime and choice meats closed steady to firm under improving inquiry.

Country dressed	12	@14
Steers	11	@14½
Heifers	10½	@13½
Cows	8	@12
Veal calves	13	@14
Extra calves	16	@
Southerns and barnyards	10	@12
Extras	15	@
Sheep	14	@15
Extra wethers	16	@
Lambs	16	@18
Extra lambs	19	@
Hogs	14½	@

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., May 15, 1916.

Cattle.—The supply on sale Monday was 80 loads compared with 75 loads the week before. The market opened slow and ruled draggy with prices 10 to 15c lower on best heavy cattle. While the medium and coarse grades were very draggy and sold at 15 to 25c lower, the choice light tidy cattle were about steady. Cows, heifers and bulls in pretty fair demand and prices about steady. Best fresh cows steady to strong, while springers and medium cows were slow. To-day's cattle supply totaled 80 loads; market active and strong on best fat steers while other grades were steady.

Good to choice	$9.50@9.80
Good, 1300 to 1400 lb.	9.15@9.40
Medium to good, 1200 to 1300 lb.	8.80@9.10
Tidy, 1050 to 1150 lb.	8.75@9.25
Fair to medium, 1000 to 1100 lb.	8.25@8.75
Fair, 900 to 1000 lb.	7.50@8.25
Common, 700 to 900 lb.	6.25@7.25
Rough, half-fat. 1000 to 1300 lb.	7.00@8.00
Common to good fat oxen	6.00@7.75
Common to good fat bulls	5.00@8.00
Common to good fat cows	4.50@7.50
Heifers, 700 to 1100 lb.	4.75@8.75
Bologna cows	3.75@4.50
Fresh cows and springers	$25@80

Calves.—Calves in fair supply and market closed 25c per cwt. above Monday's prices. There were 900 head of calves in supply today. Market active.

Veal calves	$8.50@11.25
Heavy and thin calves	5.00@ 7.00

Hogs.—The supply during the week has been liberal, but with a good demand the market has ruled active and stronger, the close for the week being about 10c per cwt. higher on good weights and 25c higher on pigs and lights. Hog receipts today numbered 50 double-deck carloads; market 5@10c higher on all grades.

Prime heavy	$10.45@
Heavy mixed	10.40@
Prime medium weights	10.40@
Best heavy Yorkers	10.40@
Light Yorkers	10.00@
Good pigs	9.40@9.65
Common to good roughs	8.90@9.15
Stags	7.00@7.25

Sheep and Lambs.—Sheep and lambs have ruled in light supply and with a good demand the market ruled active and stronger. Best sheep sold 10c above Monday's prices and choice handyweight lambs were 20c above Monday's close. Sheep and lamb receipts today reached 20 double-deck loads; demand good for choice quality sheep and lambs with an active and higher market; other grades steady to strong. Spring lambs strong on choice; other grades steady.

Prime wethers	$ 8.10@ 8.35
Good mixed	7.60@ 7.85
Fair mixed ewes and wethers	6.50@ 7.25
Culls and common (clipped)	3.50@ 5.50
Heavy lambs	6.50@10.70
Spring lambs	10.00@15.50
Culls to choice yearlings	6.00@ 9.50
Clipped lambs	6.00@10.25

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., May 15, 1916.

Hay and Straw.—The hay market rules firm at last week's quotations. Offerings are light and the demand continues firm to active on all desirable grades. Straw holds steady but is not in urgent demand.

Grains.—Wheat holds steady at the recent advance. Offerings are moderate but demand is light. Trading in corn is quiet but offerings are moderate and values are steadily held. Oats are quiet but steady.

Hay.—No. 1 timothy, medium bales, $24@25.50; No. 2 do., $23@$24; no grade, $11@16. Light mixed clover, $23@23.50; No. 1 do., $22@22.50. No. 2 do., $19@20.

Straw.—No. 1 straight rye, $15.50@16; No. 2 do., $14.50@15; No. 1 tangled rye, $12.50@13; do., No. 2, $11.50@12. No. 1 wheat straw, $10@11; No. 2 do., $9.50@10; No. 1 oat straw, $10.50@11. No. 2 do., $9@9.50.

Wheat.—No. 2 red, $1.14@1.17; No. 3 red, $1.14@1.17; rejected A, $1.11½@1.14½; rejected B, $1.10@1.13.

Corn.—No. 2 yellow, 84@84½c; steamer yellow, 82@83c; No. 3 yellow, 79@81c; No. 4 yellow, 76@77c; ear corn, 80@82c per 70 pounds.

Oats.—No. 2 white, 51½@52c; No. 3 do., 49@50c; No. 4 do., 47½@48c; standard white, 51@51¼c; sample oats, 43½@44½c.

Feed.—Winter bran, 100-lb. sacks, $26.00@26.50; spring bran, do., $23.50@24.

Flour.—Car lots, winter clear, $5.10@5.30; straight, $5.40@5.60; patent, $5.75@6.00. City mills, choice to fancy patent, $6.50@6.75; do., regular grades, $5.10@5.30. Rye flour, $5@5.50 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., May 15, 1916.

Hay.—While receipts and billings in transit have increased slightly there is still a fairly good demand which manages to take care of all arrivals at satisfactory prices. We think from now on hay will come a little more freely but we do not anticipate a real serious break. No. 2 timothy and No. 3 timothy will no doubt rule slightly lower but these grades can be placed satisfactorily at a good market figure. No. 1 light mixed hay is in excellent demand, not enough of this grade arriving to supply same; also an active demand for No. 1 clover mixed and an occasional car of clover hay. No. 1 timothy, $23@23.25; No. 2 timothy, $20.50@22; No. 3 timothy, $16@17; No. 1 light mixed, $20@20.50; No. 1 clover mixed, $17@18; No.2 clover mixed, $14.50@16; No. 1 clover, $15@15.50; No. 2 clover, $10@$12; No.3 Prairie, $13@13.50; No. 4 Prairie, $9.50@10.

Straw.—Receipts have increased; demand only limited; market lower. No. 1 oat, $9.25@9.50; No. 2 oat, $8.75@9; No. 1 wheat, $9@9.25; No. 2 wheat, $8.50@8.75; No. 1 rye, $10@10.50; No. 2 rye, $8.50@9.

Ear Corn.—Market dull, not much demand; receipts fully equal to same. New No. 2 yellow, 81@82c; New No. 3 yellow, 76@78c; New No. 2 high mixed, 79@80c; New No. 2 mixed, 77@78c.

Oats.—Receipts more than equal demand; market easier. No. 2 white, 49@49½c; Standard, 48@48½c; No. 3 white, 47@47½c; No. 4 white, 45@46c; Rejected, 41¼@44½c.

NEW YORK HAY AND GRAIN

New York City, May 15, 1916.

Hay and Straw.—Timothy hay is firm on all grades at an advance on top grades over last week. Lower grades are steady under a fair trade. Rye straw shows little change.

Grains.—Wheat holds steady to firm, largely on poor prospects of growing crop. Dry weather in the big wheat areas has added to other discouraging conditions, particularly damage by Hessian fly. Export trade is only moderate. Corn is irregular but not losing strength. Oats are easier.

Hay.—Large bales.—No. 1 timothy, $29@30. No. 2 $26@28; No. 3 $23@25; fancy clover,light mixed, $26@27; No. 1, $22@24; No. 1 clover, clear, $18@19; lower grade, $11@16.

Straw.—Per ton, No. 1 rye, $15@15.50; do., No. 2, $13.50@14.

Wheat.—No. 1 Northern, $1.34½; No. 2, $1.32½; No. 2 hard winter, $1.26¾.

Corn.—No. 2 yellow, 88¼c; No. 3 yellow, 83½c.

Oats.—No. 3 white, 50½@51c; No. 4, 49½@50c; ordinary to fancy, 50@51½c.

Rye.—$1.06.

Mill Feed.—Coarse Western spring one hundred-pound sacks to arrive, $22.85. Standard middlings, $23; flour, do., $28.60 to arrive. Red dog, to arrive, 140-pound sacks, $30@30.50. Oil meal, $31@31.50. City feed bulk bran, $22.50. Heavy feed in bulk, $23.50. Red dog, $32.50. Flour middlings, $32.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., May 15, 1916.

The butter market remains steady at last week's quotations. Receipts of solid packed creamery are light and the market rules firm on that grade. There is a fair demand that keeps supplies well cleaned up. Ladles are quiet but steady with light offerings. Fancy prints are scarce and wanted, but off-flavored goods are dull and rule in buyers' favor. The supply of old cheese is practically exhausted. Receipts of new cheese are light and the market rules firm under a fair demand.

Butter.—Solid packed creamery, fancy specials, 33c; extras, 31@32c; extra first, 30@30½c; seconds, 29@29½c; ladle packed, 27@28c; nearby prints, fancy, 34c; average extras, 33c; do., firsts, 31@32c; do., seconds, 29@30c, special fancy brands of prints, 37@40c.

Cheese.—New York full cream, fancy, new, 17½@17¾c; fair to good, new, 16½@17¼c; do., part skins, 11@15½c.

NEW YORK MILK MARKET

New York City, May 15, 1916.

The supply has increased so rapidly in the course of the last week that despite the large increase in demand there is a surplus in the market. The receipts jumped up thousands of cans, both of milk and of cream. The market value lies somewhere between 3¼ and 3½ cents a quart for Grade B, with a tendency toward the lower figure.

The receipts of milk and cream in 40-quart cans for the week ending May 13, were as follows:

Railroad	Milk	Cream
Erie	43,790	3,110
Susquehanna	7,910	[illegible]
West Shore	20,045	1,708
Ontario	45,835	5,610
N. Y. Central (long haul)	97,498	3,206
N. Y. Central (short haul)	23,175	45
Lackawanna	63,125	2,790
Lehigh Valley	41,294	2,222
Homer Ramsdell Line	3,950	43
New Haven	5,570	21
Other sources	1,310	33
Pennsylvania	7,395	310
Totals	360,308	19,848
Same week last year	358,168	17,565

TOBACCO MARKET

The long rejected 1909 tobacco product continued the main feature during the week and it was known that $13 per cwt. was offered and refused in at least one instance. Sales were made at a range of from $10@11.50 per cwt., and it is predicted that according to present indications values will soon reach a higher plane than for some time, extending at least to $15 per cwt. A few weeks ago such grades were selling at $6@7 per cwt. The great advance is owing mainly to the heavy purchase of the warring nations who want it for their armies. It has developed that tobacco is a necessity to the men in the field and that without it their efficiency is greatly reduced.

The week was characterized by dry, cool weather, which was rather unfavorable to the growing tobacco plants, which are now well started in their canvas-covered beds. It seems sure that transplanting will be later than usual, which is a feature unfavorable to best results in the end. According to present indications the acreage will be about the same as last year. There will be a marked decrease in Havana, but growers who discard this variety will almost invariably grow a corresponding acreage of the old reliable broad leaf variety. Despite the present high prices there will be about the usual amount of commercial fertilizer used according to latest indications. Growers, however, will use greater discretion in buying and by the enforced study in values receive a benefit which should be helpful for years to come.

—H. E. T. May 15, 1916.

The Family Book Shelf

By Howard Mitman, Northampton Co., Pa.

There are a number of excellent reasons why I should like to be a boy again; why I would consider it a distinct gain to have been born, say, 40 years later than the date I actually selected. Of course, there were stirring times when I made my appearance on the stage, and things have been moving at a quickened pace thru all these years; yet I would be glad to forego all the advantages that have been mine for the privilege of taking up the thread of life anew by the side of the boys and girls on our farms today. In many ways young people are entering on a heritage unique and wonderful; but in nothing, I believe, are they more richly blessed than in the opportunities spread before them by many agencies to obtain good reading, and plenty of it.

I am not certain, however, that the "plenty" is really good for us. There is no question that we read too much; at least we call it reading. A definition of reading I find in the dictionary is "To gather information from what has been written or printed", and if we apply this test the amount of actual reading done is very small. We read so carelessly that what we gather, if anything, is mis-information. Said Dr. D., a distinguished teacher, to me, "We read more and know less than any people that ever lived". The trouble is not that we read, but that we read poor books and in a skimming, hap-hazard way. We are determined, apparently, to see how many square yards, or it may be, acres, of pages we can cover in a given time.

It is well to read good books, but education may be said really to begin when there is born in the boy or the girl the longing to own books. I well remember the first book I ever bought with my own money. It was a small copy of Tennyson's poems and it cost thirty cents; but I was prouder of it and got more out of it than out of any thirty cents worth of books I purchased afterward. I have bought thousands of volumes since that day, but I still cherish Tennyson.

For many years, relatively, it was my great privilege to teach in the class room. I am not sure whether my pupils, mostly boys and girls from the farm, likewise esteemed it a privilege to attend my schools, or considered it a punishment. But if they got as much benefit from my teaching as I derived from associating with young spirits full of an eager outlook on the morrow, they fared well. In spite of the overloaded course of study we were compelled to stagger under, I felt that the best service I could do my pupils was to awaken in them an earnest desire to read good books and to own those they read. If young people are limited in their reading to the books they buy and have become possessed of a real thirst for reading, they will do well. A book worth while, really worth while, cannot be read at a gulp, as one swallows an oyster. It should be read with care, not once, but twice and even three times. It is very probable that, read in this way, it will itself suggest the next book to buy. Something in the text, some reference or some thought awakened by the reading, will furnish the needed hint as to the next volume.

When I go into a home where young people are the mainspring, I like to see the bookshelf, under the clock, it may be, devoted to the children's books, and not so high from the floor that the boys and girls cannot easily reach their treasurers. Just a plain shelf; no glass door prison for these friends of ours. Then I like to put on my specs and scan the old, familiar names. I am disappointed if my friend and companion of many an hour, Robinson Crusoe, is not there to greet me; and close beside him, elbowing Man Friday, I look for Pilgrim's Progress and the Vicar of Wakefield; Scott's Ivanhoe and The Talisman; Cooper's Last of the Mohicans and The Pilot. These and others like them I want to see; and if they are there and not well worn I feel that something is not right. When I was a boy, four or five years ago, I never could keep my books or my fingers as clean and new as certain people, who shall be nameless, thought it needful. A book is like a hat—very uncomfortable and unfriendly as long as it is stiff and shiny. Both must conform to your bumps.

Stevenson's Child's Garden of Verses, and Treasure Island; Jules Verne's Twenty Thousand Leagues Under the Sea; Uncle Tom's Cabin and Tom Brown at Rugby;—what better books for young people from eight to eighty were ever written? You should know that the wonders of the submarine boats were all anticipated by Verne more than thirty years ago. There are other books as good as these I have named, no doubt, but for a beginning you cannot do better than to invite these friends to abide with you.

Do you know Stevenson? If not, you have much pleasure in store for he is one of the great writers of English. His verse is of the kind Longfellow asks for in "The Day is Done"

"Come, read to me some poem,
Some simple and heartfelt lay,
That shall soothe this restless feeling,
And banish the thoughts of day."

And again,—

"Such songs have power to quiet
The restless pulse of care,
And come like the benediction
That follows after prayer."

I hope I shall never grow so old or so wise that Stevenson's rhymes pall.

I could name many other books for your shelf, but it is not necessary. If you make a start with these and keep at it you are on the right track and your book collection will grow in a healthy way. I have written but little to the purpose if you do not now understand that it is only what you do yourself that counts. The books you buy with your own money — the cents, nickles and dimes you save out of the money you get in divers ways and have the spending of — are of much more value to you, if wisely chosen, than any that are given to you. Things are rarely worth more than we pay for them; and if books or other things come too easy we do not esteem them at their true value nor profit by them.

Do not, I beg of you, conclude it would be wise to rush out and buy all the books I have named and stack them on some handy shelf, to gather dust. For many years to come you should not have more than one or two books at hand you have not read. By buying just as fast as you read, and reading slowly that you may digest what you read, neither your bookshelf nor your mind will gather a store of useless lumber.

"Learn to read slow; all other graces
Will follow in their proper places."

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1 Pair Indigo Blue Carhartt Farmer Overalls	$1.50
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1 large size box Golden Gall Remedy	.50
1 Indigo Blue, 28 inch square Cambric Pocket Handkerchief	.10
1 Farm, Stock and Account Book (One farmer wrote he would not take $10 for his if he could not get another)	.25
1 Vest Pocket Memorandum Book	.05
1 Souvenir (Trusted Men)	.10
Total Value	$3.50

Write today enclosing $2 and your leg and waist measurements for all sizes up to and including 42 inch waist measure. For larger waist measure add 10c for each additional two inches.

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Not only your family but your stock are liable to contract disease through foul odors arising from sinks, drains, garbage cans, outhouses. During hot weather disinfect these things and places thoroughly with

Dr. Hess Dip and Disinfectant

This old reliable preparation kills disease germs and foul odors and will keep your home and farm clean and sweet.

Use it for dipping and spraying your hogs, sheep, cattle and horses. It kills lice, ticks on sheep, scab and other parasitic skin troubles. Good for cleansing wounds, cuts, etc.

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IT HAS NO EQUAL

For the Human Body —It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Exterior Cancers, Boils Corns and Bunions CAUSTIC BALSAM has no equal as a Liniment.

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DEATH TO HEAVES

NEWTON'S Heave, Cough, Distemper and Indigestion Cure.

Some cases cured by 1st or 2nd $1 can. Three cans are guaranteed to cure heaves or money refunded.

The original and the up-to-date Standard Veterinary Remedy for Heaves; free booklet explains fully. 34 years sale and veterinary use.

CURES HEAVES BY CORRECTING CAUSE—INDIGESTION. IT'S A GRAND CONDITIONER AND WORM EXPELLER

Safe. Most economical. Excellent for Cattle and Hogs. $1.00 per can at dealers, at same price by parcel post.

THE NEWTON REMEDY CO., Toledo, Ohio

THICK, SWOLLEN GLANDS that make a horse Wheeze, Roar, have Thick Wind or Choke-down, can be reduced with

ABSORBINE

also any Bunch or Swelling. **No blister, no hair gone,** and horse kept at work. Concentrated—only a few drops required at an application. $2 per bottle delivered.

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ABSORBINE, JR., antiseptic liniment for mankind, reduces Cysts, Wens, Painful, Knotted Varicose Veins, Ulcers. $1 and $2 a bottle at dealers or delivered. Book "Evidence" free.

W. F. YOUNG, P. D. F., 154 Temple St., Springfield, Mass.

Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the cause in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Warts on Cow's Teats.—I have a cow that is troubled with warts on her teats. I would like to know of a remedy. N. H., Newton, N. J.—First of all, let it be understood that warts usually affect the skin and do not dip deep into the tissues; therefore, the speediest method is removal which consists in cutting them out of the skin or clipping off those that have well defined necks. Or, apply a saturated solution of salicylic acid in alcohol. Acetic acid or vinegar applied cautiously will remove warts and in many cases smearing them over after milking with either castor oil or olive oil will remove them.

Thumps, or Spasm of Diaphragm.—Will you please tell me what to do for one of my horses that appears to be troubled with thumps, or hiccough, after he eats hay or a hearty meal? W. J. M., Wenonah, N. J.—Spasm of the diaphragm is a condition which necessarily interferes with respiration and is sometimes mistaken for palpitation of the heart. If the animal is not in a fit condition to work, has a gorged stomach and is exerted, a spasm of the diaphragm may take place. I might say that the most common cause is violent exertion. The symptoms of spasm of the diaphragm are usually alarming. The treatment for such cases should be much the same as in colic. Clothe the body warmly, bandage the legs if they are cold, give enemas of tepid water. Give 1 ounce of sulphuric ether in a pint of cold water as a drench every hour or two. Or, give alcoholic stimulants freely and be sure that the animal has plenty fresh air and is not exerted.

Founder.—Could you give me any advice regarding a horse that was slightly foundered 10 days ago? A. O., Englishtown, N. J.—The feet should be kept cool and moist and there is nothing better than wet clay to take the inflammation out of the foot. Also apply wide-webbed shoe with rolling motion. Feed sparingly of grain and keep bowels open. Apply 1 part tincture iodine and 2 parts camphorated oil to coronet once a day.

Navicular Disease. — My nine-year-old horse is lame in right hind foot. When standing the foot is usually placed some little distance in front of body and I would like to know if you believe work will prevent a recovery. F. B. G., Mill City, Pa.—Clip hair off coronet and apply equal parts of aqua ammonia, turpentine and raw linseed oil two or three times a day and if you work him, avoid driving faster than a walk.

Distemper.—Some time ago one of our mares had distemper, leaving the glands of throat swollen; now she occasionally coughs, has a rattling sound in either throat or nose when exerted. She is due to foal June 9. J. A. S., Latrobe, Pa.—Apply 1 part iodine and 14 parts fresh lard to the swollen glands of throat two or three times a week. Feed her well, let plenty of fresh air into stable; also exercise her daily.

Hip Lameness.—I wish you would tell me what to do for a cow that is lame in right hind quarter, which we are inclined to believe was caused by stepping over a log. Mrs. I. W., Mauce, Pa. — Mix together equal parts of turpentine, aqua ammonia and raw linseed oil and apply to hip or any other part that you believe is strained or sore, three times a week.

Injured Stifle.—One of my young horses got kicked on the stifle some time ago, causing lameness. She walks almost sound, but shows considerable lameness when trotting. She seems to have trouble in stepping over door sill. There is no swelling of the joint, but during the winter I imagined she dragged this leg and had trouble in bringing it forward. A. N. D., Kane, Pa.—Apply equal parts tincture cantharides, turpentine and olive oil to stifle once or twice a week.

Pullman $740

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THE PULLMAN five passenger cannot be compared with any other car in the market. It is different in many ways. It has the fine lines, style and comfort of the higher priced cars and the economical advantage of a low price.

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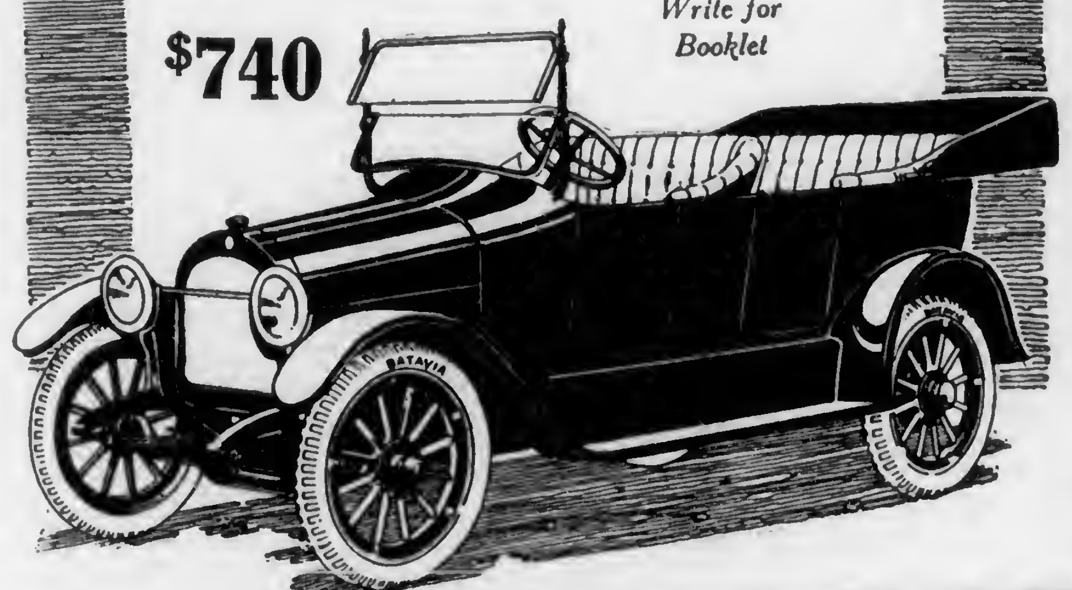
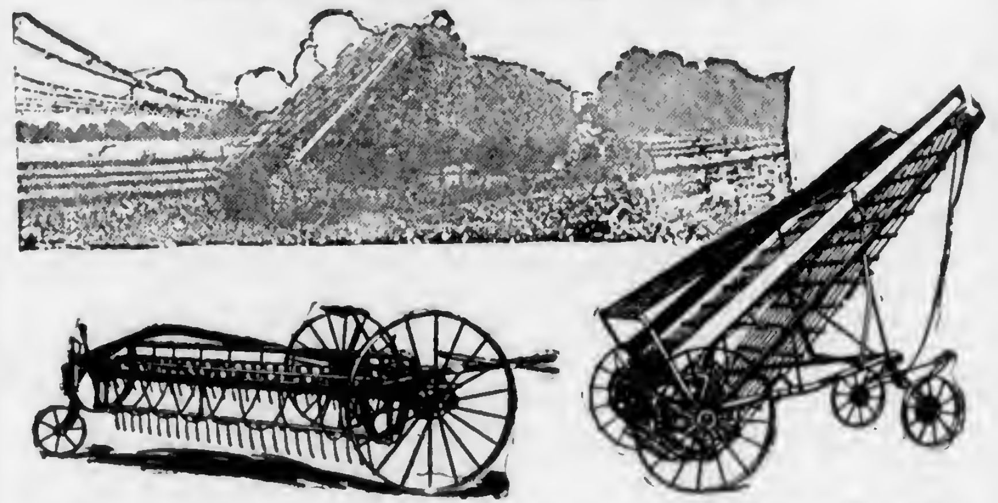


See These 1916 International Harvester Hay Tools



BY all means see these 1916 **International, Osborne** and **Keystone** side delivery rakes and hay loaders before your haying season starts.

These new **side delivery rakes** are all left-hand rakes. They do not thresh off leaves and blossoms. They form the windrow on the raked stubble where the hay lies untouched until the loader comes along to pick it up. International Harvester side delivery rakes are all steel, strong and durable. The cylinder can be raised or lowered at both ends, giving perfect adjustment under all conditions. Made in two widths—7 feet 3 inches and 8 feet (bean special).

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PENNSYLVANIA FARMER
AGRICULTURE THE KEYSTONE OF NATIONAL PROSPERITY
ESTABLISHED 1880
PUBLISHED WEEKLY

Vol. 39—No. 22. PHILADELPHIA, PA., SATURDAY, MAY 27, 1916. 2 Years for $1.00

Consecutive Cow Testing Records

By D. K. SLOAN
Bradford Co., Farm Bureau

The co-operative cow testing association, as a means of improving dairy conditions, has had a very constant gain in popularity in the United States. Agricultural Extension workers, interested in animal husbandry advancement, are particularly anxious to see that the work as outlined by such agencies shall meet the demands of those whom it was planned to benefit. Constant supervision has been required to maintain efficiency in its management and to avoid drifting into channels that will not yield the desired results.

If one should go into a community where they have operated continuously for a period of years and study present conditions as compared to those previous to the time of their organization, there should be found definite results for the good. What method should be used to measure the results as obtained from their operation? Should we depend on the general opinion of the members of the cow testing associations as to what profits they had obtained? Should we get the opinion of some qualified resident concerning the present status of conditions as compared to a previous period? Without doubt there would be considerable difference of opinion, regardless of the source of evidence; but if one compares figures showing records of production, feed cost, etc., with one year's records obtained by the association against a succeeding year in the same herd, there should be convincing data that would prove the value of the cow testing association for advancing the dairy industry of the community.

In this county there are in operation four associations at the present time, these being formed as the result of two that were organized in 1913. Consequently there are being tested on about 120 farms, about 2,000 cows. Some of these herds have association records for three consecutive seasons, some for only two, and others are just getting their first record. From the standpoint of business as well as personal information the writer has compiled some figures on this matter that are particularly valuable, and especially when they are accompanied by personal knowledge of conditions on the various farms. Twenty-four dairymen in this county have cow testing association records of their herds for two consecutive years, without a skip of a single month. The first records were started July, 1913, and ended July 1914. The second year's records started July, 1914, and ended July, 1915. The third year's records will be completed in July of this year.

Anyone that is informed on dairy production knows that a regular gain in yield of butter fat per cow continuously for a great number of years is almost an impossibility. Some acute or chronic disease, feed shortage, or some other unavoidable conditions will absolutely prevent such occurrence. However, records of a five-year period compared with records of another five-year period might show a consistent gain in yield of butterfat per cow. Of all the herds in the county, for which we have two consecutive years' records, the second year's record shows an average increase of five pounds of butter fat per cow above that of the first year. The increase of profit above cost of feed per cow of the second year over the first has been about $6.50. These are average figures. Some herds have made an increase of 76 pounds of fat per cow during the second year over the first, and have doubled their profit above feed cost. The accompanying chart (page 8) will reveal many interesting comparisons along that line.

TESTER TABULATING RECORDS IN FARMERS' HERD BOOK.

DO YOU KNOW IF YOUR HERD PAYS FOR EQUIPMENT AND KEEP?

THE TESTING OUTFIT, CARRYING ALL NECESSARY EQUIPMENT.

Concerning the various herds, there are some very interesting points worthy of note. Herds B, C, E, J and L produced less butter fat per cow during the second year than they did during the first year; yet their profit above feed cost is greater. Probably a part of this profit can be attributed to a better price for butter fat obtained, as we notice on the chart for those herds the value of the product equals, if not exceeds, the value for a greater amount for the previous year. The greatest reason for this gain in profit above feed, however, as determined by investigation, is more efficient feeding.

At the end of the first year's test cows were discarded that were poor producers, to make room for heifers that were freshening. These heifers were invariably the offspring of the best cows in the herd, and would produce probably as much with their first calf as the poorest cows did at full age. On account of their immaturity and lack of development, they would not consume as much feed, and have utilized the feed more efficiently and thus gave a better yield at a lower cost. In the work of reorganizing these associations from one year to another, we find many dairymen that will argue that they cannot see the value of the record for the succeeding years after they obtained the first year's information, provided they retained the same animals. The above facts help to answer such inquiries. Our main contention has been that beyond giving information relative to the profitable and unprofitable cows, there is constant use for figures showing the dairy business one year with another. There is no other business with equal amount invested that has as little business records and data as the average dairy farm. Grain farming records are very simple as compared with the dairy farm where every day you are selling milk and buying feed. Business data is an argument for a continuous record of production and costs.

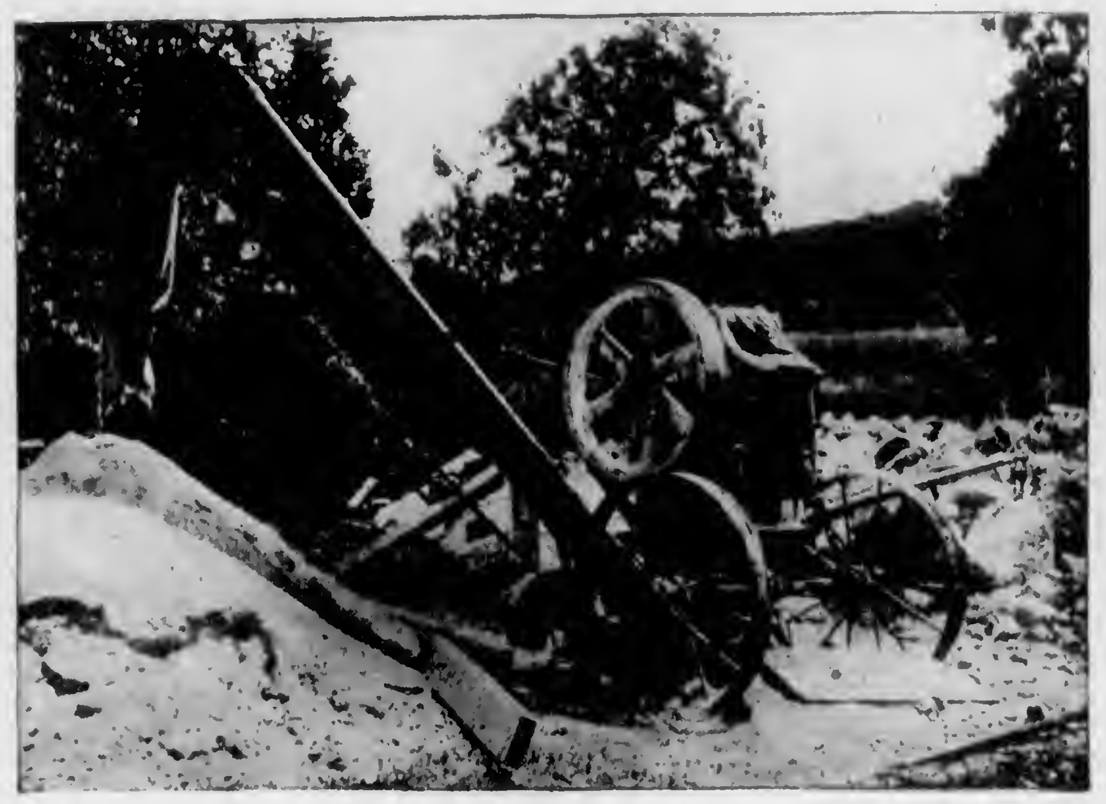
Herd P is an example of a loss, which in a great way was unavoidable, contagious abortion having become established and had a tremendous effect in that man's herd. No other disease of dairy cattle causes such severe loss as contagious abortion.

Herd V made a gain of 28 pounds of butter fat per cow. This member is one of the best informed live stock men in this county. His gain is almost phenominal because he has been using the best methods of care and management, as well as good breeding judgment, for many years. His increase he attributes to the fact that during the winter time when his best cows were in full production, he made it a practice of going to the barn at night be-

(Continued on page 8.)

Grinding Limestone for Use on Eastern Farms

LIME STONE IN RAW STATE.



CRUSHER CONVERTS THE STONE TO FINE DUST

FINISHED PRODUCT READY FOR SPREADING.

Burned lime has been used for over a hundred years in the lime stone sections of the East for agricultural purposes. In many of these sections, large quantities of burned lime are still used, most of which is burned in local kilns. This is true particularly in the sections of heavy loam soils of south-eastern Pennsylvania, where applications of 100 to 200 bushels of burned lime per acre are still common. There are other sections, however, where, tho lime was burned at one time, the extensive use of this form of lime has been discontinued. In these sections, of which Sussex County, Northern New Jersey is a good example, the remains of old lime kilns are a common sight. They are no more used for the purpose for which they were originally constructed, and instead serve as dumping places for old tin cans, etc., and sometimes as a shelter for hogs. Some of these kilns are said to have been abandoned over one hundred years ago. Lime kilns still in use are the exception.

Most farmers understand that lime must be used to sweeten the soil to grow clover, and as a consequence, farmers are purchasing much lime, almost all of which is being shipped into this part of North Jersey. This consists of lump lime, hydrated lime, and ground limestone. Of the three, ground limestone is increasing in favor because it has proven its value and especially because it is more pleasant to handle and can be applied more readily than burned lime. Recently in discussing this matter with a farmer who has burned lime for years for his own farms and for his neighbors in Pennsylvania, he stated that even tho he was charging only nine cents per bushel, men in that community hate to handle it and are talking of ground limestone. He was then considering the advisability of putting a limestone grinder in his quarries to grind the rock instead of burning it. He also has some difficulty in securing competent men to burn lime. He owns steam tractors of sufficient capacity to operate a small lime pulverizer. The pulverizers could be operated when power was not otherwise used, and the ground stone stored until the time came for applying it to the fields.

Ground limestone costs, in sections of North Jersey, from $3 to $3.50 per ton delivered at the station in bags. This is the best quality of ground lime and about 100 carloads are being used in Sussex County every year. Recently a ground limestone produced in New York State, for which exhorbitant claims were being made, was sold in New Jersey at from $5 to $7 per ton. Needless to say, not many cars were sold. Burned lime costs here about $3 per ton in bulk delivered. It may be safely estimated that approximately eight or ten thousand dollars go out of this one County for lime every year. This is not sufficient to lime all the land which needs it and which would receive lime if a cheaper source was available.

But why send money out of a County to pay for lime, when there is sufficient lime rock in that County to lime all the land for generations to come? If burning lime has gone out of fashion, lime stone pulverizers should be placed in these sections by companies, individuals or groups of farmers. Limestone grinders or pulverizers are now being made in small sizes, suitable for farm use which will produce from one to three tons per hour with 10 to 25 horsepower gasoline engines. They can be operated with the power already found on many farms, and lime stone can be ground and applied when other farm work is not pressing.

The lime rock in these sections was once good enough to burn, it is now good enough to grind. Some samples analyzed in Sussex county last year ranged from 85 to 91 percent of calcium carbonate. The limestone exists in this county in large quantities in many localities, much of it partially crumbled by the weathering on the surface, ready for a grinder.

A small machine was purchased last summer by Tranquility Farms, Sussex Co., with a capacity of 1 to 1½ tons per hour. This was operated with a 16 horsepower engine, and on test produced 1½ tons of ground limestone per hour. The cost was estimated at less than one dollar per ton, allowing for depreciation. The machine is well constructed and should be as long-lived as any good stone crusher. Ground limestone can be produced on this farm during the winter months or during slack seasons during the summer. Two men operated the grinder, another hauled the stone to the machine, and one hauled away the ground rock. This winter while the ground was frozen the machine was used and the ground lime stone applied to an alfalfa field. On this particular farm much limestone is scattered over fields, projecting above the surface. The lime pulverizer furnishes a good excuse for removing the stones and making good use of them. Hauling and grinding is much to be prefered to the old practice of stone fence building.

On many farms limestone has been hauled off fields and put in piles or stone fences. This rock is almost all ready for the grinder without much breaking. In sections where these machines have been introduced to produce lime for soil, the material is sold at from $1.75 to $2.25 per ton, and makes the cheapest source of lime available. In Orange County, N. Y., where ground limestone was selling as high as $5 per ton, due to freight rates, three pulverizers were installed last summer and ground limestone is being supplied to farmers at the prices named above.

Ground limestone is convenient to handle, it will not affect the humus of the soil and can be produced cheaply. It gives results. There are many sections thruout the East where more lime can be used profitably, and where plenty of good limestone is available. Where burning lime is not favored these lime pulverizers are the solution to a cheap source of lime. Farmers can own them individually or two or three can well cooperate. Where one man already owns the engine another might purchase the grinder. Where this is not feasible, some one might find it advisable to go into the business of supplying the farmers of a community or even a County with ground limestone at reasonable prices. The time will come when these machines will be common on farms where limestone is available. Lime is needed now and always will be.—Paul Bennetch.

(Note.—Pennsylvania Farmer has been persistently and consistently advocating the more general use of lime Today, the want of it is one of the limiting factors in production, and often the one in the matter of clover.—Editors.)

Naked or Hull-less Oats

The U. S. Department of Agriculture has occasional inquiries regarding the yields which can be obtained from naked or hull-less oats and the uses which can be made of this grain. The hull-less oat differs from ordinary oats in that the grain threshes free from the hull instead of remaining inclosed in it. In appearance the kernels are practically identical with those of ordinary oats from which the hull has been removed. The growing plant looks like common hulled oats except that there are 3 or 5 or more flowers in each spikelet instead of 2 or 3. Usually all except 1 or 2 kernels in each spikelet are very small. The several varieties of hull-less oats differ in the size of the kernel, the presence or absence of awns, etc.

There are several reasons why naked oats have never been able to compete successfully with the ordinary hulled varieties. All the stocks which have been imported are very susceptible to smut and rust, so that these diseases materially reduce the yield. There is considerable loss from shattering if the crop is allowed to stand until fully mature. Even under the most favorable conditions, the yield from hull-less oats is seldom more than half that which can be obtained from good varieties of hulled oats. The kernel absorbs moisture readily and is very likely to heat if stored in quantity. The seed quickly loses its germinating power, being quite similar to rye in this respect.

While the naked oat has never been of commercial importance, it has furnished material for promoters and in times past has frequently been

sold at unreasonably high prices. From 1870 to 1880 hull-less oats were sold in considerable quantities under the name of Bohemian oats, the price sometimes being as high as 50 cents a pound. Tho this grain was widely exploited for a number of years and wonderful claims were made regarding it, it proved to be of so little value that it soon disappeared almost entirely from cultivation in the United States.

Alfalfa Culture

In the effort to secure a successful stand of alfalfa in our section of the country, there are four essential factors to be considered. They are, in the order of their relative importance: drainage, lime, humus and bacteria, or innoculation. A fifth might be added viz: good, clean seed; and the best is usually the cheapest kind to buy in the long run. Alfalfa can be grown successfully upon almost any eastern farm provided the field be properly selected and prepared.

The concensus of opinion seems to indicate August 1st to 15th as being the best time to seed in this section. There are numerous varieties of seed but at present we will consider only two: Grimm, and the so-called Hardy Northwestern. The former grows shorter but is much thicker, has several root systems instead of one, and is the hardiest variety known. The latter grows tall, has but a single long tap root, and is quite apt to winter kill in spots the first year. Grimm seed cost 70 cents a pound in 1915 and of it 15 lbs. is sufficient to seed an acre; while the other variety costs approximately 40 cents a pound and 25 lbs. is required to properly seed an acre. If the initial stand of alfalfa is not successful, the field should be plowed up at once, conditions carefully investigated, the cause of the trouble ascertained, and the field reseeded. A good crop is almost certain the second time, because of the innoculation secured by turning under the first stand.

A WIDE BLADE CULTIVATOR.

Drainage: Alfalfa simply will not grow on land where the water table lies so near the surface of the soil that the roots reach down to it. Select, therefore, a piece of land free from large stones, and having a loose soil permeable to a depth of several feet at least before hardpan or the natural water table is encountered. Sandy, gravelly loam is less apt to heave than a stiff, heavy clay, and is always preferable. Choose a field with a good generous slope, and if possible one lying toward the south.

Lime: In this section of the country lime in some form or other is absolutely assential to permanent success with alfalfa. It may be applied in any one of the several forms of hydrated or caustic lime, or in the form of finely pulverized raw lime rock—cost and availability must necessarily influence selection. Marl is another excellent source of lime, but unfortunately is generally difficult to procure at a reasonable price. Ground lime stone should be applied a year in advance of the time it is needed.

HELPING FEED THE WORLD.

Humus, or decaying organic matter, may be supplied to the soil in various ways, including the liberal application of manure and the plowing under of leguminous crops, such as clover, cow-peas, soy beans, vetches, etc. Rye may also be used to advantage but is deficient in nitrogen, tho the deficiency may easily be corrected by the use of a small quantity of nitrate of soda. Buckwheat is also very beneficial in loosening up a stiff and stubborn soil. Plenty of humus is just as necessary as plenty of lime if alfalfa is to catch and stay caught.

Inoculation in some form or other is most important and may be accomplished in several ways. The presence of active, nitrogen gathering bacteria in the form of small pink nodules, or bunches, upon the roots of the alfalfa marks the difference between a healthy, thrifty plant and one doomed to sicken and die. Prepared cultures of living alfalfa bacteria may be obtained in small quantities without charge from the Department of Agriculture at Washington, D. C., or may be purchased commercially. These cultures are mixed with water and applied to the seed before sowing. Or top soil from an established alfalfa field may be procured, sowed broadcast, and harrowed in. Or again, a stand of Melliotus Alba (which is common sweet clover and is controlled by the same bacteria as alfalfa) may be plowed under prior to seeding. The second method is the most reliable—it may be used in combination with the first, or all three may be used together, for that matter. Soil containing bacteria should always be gathered on a cloudy day; screened, bagged and kept entirely away from the sun's rays until it has been spread, when it should be harrowed in immediately.

Weeds seem to represent the greatest single danger to successful alfalfa culture. Therefore, alfalfa should not be seeded upon sod but should rather follow a cultivated crop such as corn or potatoes. If you can argue yourself into giving up the use of the selected field for a year prior to seeding with alfalfa, in order to benefit and properly prepare the soil and insure against failure, a good program would be as follows: In early spring sow oats and peas and when they have been taken off (and they make almost as desirable hay as alfalfa) sow cow peas or soy beans broadcast and thick, to be plowed under the latter part of August—then seed to crimson clover, red clover, vetch or any legume that will produce a good cover crop and winter successfully. Before seeding apply pulverized limestone in any quantity desired but not less than 2 to 3 tons per acre, and top dress liberally with manure. The following spring turn this cover crop under sometime before June 1st; apply another dressing of limestone if possible; and from then until the time of seeding with alfalfa in August, harrow the field faithfully every week or ten days. This is very necessary in order to effectually destroy weed growths.

It pays to use a little soluble and quickly available fertilizer at the time of seeding—300 lbs. per acre of a 2-10-4 commercial fertilizer gives excellent results; or if you mix your own, use an equal amount of the following ton combination: 300 lbs. nitrate of soda, 1400 lbs. acid phosphate and 300 lbs. ground bone.

Alfalfa seed resembles clover in general appearances, and may be sown either broadcast, with a wheelbarrow seeder, or by means of a grain drill having a seeding attachment. The last method commends itself to many, as seed and fertilizer may be applied in a single operation. By means of a very light smoothing harrow (some even use brush) cover the seed as nearly as possible to a depth of one inch. It is generally considered unwise to roll a newly seeded field because in case of heavy showers followed by hot sun, a stiff crust is formed, and as the alfalfa seedlings are extremely frail and tender, many plants are apt to be lost.

A word in conclusion regarding the uses and feeding value of alfalfa — acknowledged as the world's greatest forage plant. It actually analyzes about the same in protein as wheat bran. All animals that consume hay at all, like and thrive upon it. It may be successfully and economically fed either green or cured, whole or ground, to horses, hogs, sheep and in fact all farm and dairy animals; while the chickens, etc., will grow better and lay better if given the sweepings of the mow. A young heifer will develop better and make a better cow if fed entirely upon alfalfa and ensilage than she will upon timothy and mixed feed, altho both rations may analyze the same. A good thrifty stand, making three cuttings a season, will turn off from 4 to 6 tons to the acre.

There is no great mystery in the successful cultivation of alfalfa, but hit or miss methods and lack of patience, perseverance and thoro preparation will, in this locality at least, invariably spell disappointment. Most of the failures may be traced directly to lack of proper knowledge of the plant, or too much haste. Certain it is that the dairy farmer who once obtains a successful stand of this greatest of all fodder plants will never again be without at least one field of it, and its nitroduction in many instances has marked the stepping stone to success and prosperity.—Irving M. Avery, Sussex Co., N. J.

Queries and Comments

(This department is open to all of our subscribers. Queries and short comments are invited. Queries will be answered by best available authorities.)

Nitrate for Potatoes

"I planted 7 acres of potatoes in a clover and timothy sod, applying one and one-half tons of a 2-10 fertilizer in the rows. Had no manure to put on. Ground was limed three years ago. Would you prefer nitrate of soda and acid phosphate to put on now, or is nitrate too high in price?" — O. F. B., Northampton Co., Pa.

If, as seems to be the case, there is not enough nitrogen to produce best results, it might be wise to give an application of about 100 pounds per acre of nitrate of soda after the potatoes are up. There must be enough nitrogen to produce a good growth of plant in order to grow a good crop. Nitrate is now worth about $80 per ton, and such application as is recommended above would cost about $26 for the material. The subscriber himself will have to decide from his knowledge of the soil whether such an outlay will pay. If it means the difference between success and partial failure, it will probably pay. Apply along the rows by hand.

The department, thru the Federal Horticultural Board, has sent to all eastern nurserymen an urgent request not to ship white pines, currants, and gooseberries west of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Texas. This action has been taken in order to protect the white-pine forests of the West from the white-pine blister rust.

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Bush Lima Beans

HARRIS T. KILLE

Gloucester County, New Jersey

Where land is reasonably cheap the growing of bush lima beans is probably much more profitable than the production of the pole type. Much less capital is required, there being no need of poles or wire trellises.

Our method of growing bush limas is as follows: A sandy loam soil is selected. This should be well drained, but naturally retentive of moisture. A winter cover crop of rye is usually grown. In the winter 8 or 10 tons of well rotted manure per acre is applied broadcast. The ground is plowed early in the spring before the rye is over a foot high. The acme harrow is used at intervals until nearly time to plant. The field is then marked out one way, the rows being 30 inches apart as for sweet potatoes. Fertilizer is then drilled in the rows at the rate of 800 to 1000 pounds per acre. This year we are using a 2-8-0 brand. After the fertilizer has been distributed the rows are ridged. The ridges should not be high unless the ground is not well drained. These should be made up long enough before planting time for the soil to settle.

STAKING TOMATOES PAYS IN THE HOME GARDEN.

Planting

Planting should not take place until settled warm weather. Corn planting time is about right. We use only one variety. That is the Fordhook Bush Lime. It has the preference for practically all soils and markets. We have experimented considerably in order to determine the best planting to leave in a hill. When two or more plants are allowed to remain in a hill there may be a few more real early beans produced, but the crop is considerably reduced because the plants crowd each other. In planting we now allow but one plant to each eighteen inches of the row. The seed cost from $8 to $12 per bushel so that we plant one seed where we want a plant to stand. If for any reason they do not come up well we replant. We think it cheaper to do this than to plant two or more seed to a hill and then thin. We formerly planted the beans by sticking each bean in by hand with the eye down. This may be necessary with some of the varieties which have large flat seed, but with the Fordhook which has practically round seed it is not necessary. In fact, on Long Island and other districts where extensive acreages are grown they are sometimes planted with a corn planter equipped with special plates for dropping the beans the right distance apart. If the soil is infested with cut worms poison bran mash should be spread along the rows.

Both the sweet potato harrow with the vine turner rods and a five-tooth harrow are used to cultivate. Cultivation should be frequent enough to kill weeds and grass and keep the soil loose and friable on the surface. Two or three hand hoeings are given early in the season. Later the beans shade the ridges, making hand hoeings unnecessary.

Harvesting and Marketing

We pick and sell the beans in five-eighth baskets. Most of the picking is done by our regular help. However, if rushed with other work we hire Italians to do it. They are paid 10 cents a basket. Great care must be exercised to prevent the pickers from picking unfilled pods, for nothing so reduces the selling price as a lot of unfilled pods in a basket. The Fordhook Bush Lima is of the improved type, hence the pods should be very plump before picking. They should not be allowed to hang on the vines until they begin to turn yellow as the market demands a green pod.

Where labor is cheap it is sometimes the practice to shell the beans and market them in quart berry boxes. Each grower will have to decide for himself as to whether to market the shelled or unshelled beans. A bushel of pods should yield nine quarts of shelled beans. An active person should be able to shell a quart in fifteen minutes.

Yield and Profits

It is generally estimated that an acre should yield from 175 to 200 bushels of unshelled beans. Last year from two acres we sold 578 five-eighths baskets. This is at the rate of 180 bushels per acre. They were sent by boat to Chester, Pa., and sold by a commission man, returning clear of selling expenses $304.12. No account was kept of growing cost. It was large. The profits are not great, but we think they are satisfactory when compared with other crops.

STAKING TOMATOES

Much discussion among practical growers has been raised by the question of staking tomatoes; many growers insist that nothing is gained by so doing; while other growers are as insistent that much is gained by using stakes.

One point of considerable importance is that of the gain in the number of plants per acre. Where tomatoes are not staked, they are often planted four feet apart in the row and five feet between the rows, giving approximately 2,178 plants per acre; where four by four feet is practiced, 2,720 plants. Closer planting than this is not generally practiced where plants are not staked.

Where horse tillage is to be used between the rows, the plants may be spaced four feet between rows and two feet between the plants in the row, when staked thus allowing 5,240 plants per acre. Where hand culture is given, the plants may be two feet apart in the row and three feet between rows, giving 7,260 plants per acre. There is thus a gain of from 100 to 300 percent in the number of plants per acre.

A few words taken from a letter received from a practical grower follow:

"Where I have staked tomatoes, I find that I do not have to wipe them at all, thus saving in the cost. I also found that the fruits grown on these stakes averaged larger in size, many times averaging from 80 to 100 fruits in each bushel. In my first experience with staking, I used 1000 stakes and for early tomatoes I picked more from the one thousand staked than I did from thirty-five hundred on the ground.

"Another factor of importance is the ability to cultivate longer where the plants are staked, thus enabling the plant to withstand dry weather much better.

"There is a close relationship existing between the blossom end rot disease of the fruits and cultivation, showing there is more blossom end rot where the plants are allowed to grow at will, than where they are staked. If this is true, it is certainly greatly to the advantage of every practical market gardener to use stakes in growing tomatoes.

"There are some diseases of tomatoes which can be controlled by spraying. If the tomatoes are sprawling all over the ground, it is practically impossible to thoroly cover each part of the plant. The spraying then is of questionable value. On stakes, the plants are in such position that the spraying is more efficient and every part of the plant can be covered thoroly.

"The staked tomatoes offer advantages for adequate sunlight to touch each fruit thus aiding largely in the ripening. The fruit being held up from the ground, aids greatly in the harvesting with less injury to the plant.

"From my experience with stakes and my previous years without stakes, I am thoroly convinced that I have been very foolish not to have adopted the stakes previously, because from every point my work has been easier and the returns have been much higher than from unstaked tomatoes."—A. E. Wilkinson, Cornell University.

Timely Fruit Notes

By Dr. J. P. Stewart

Lime on Peach Orchards

"We would like to lime our peach orchard the last of June or first of July. Would like to know if it will be safe to do it, or if the lime would settle on the peaches or leaves and damage them." G. E. G., Luzerne Co., Pa.

It should be entirely safe to apply lime to a peach orchard at any time of the year. If the lime is applied in the unslaked form, it is possible that some slight burning may occur wherever it happens to remain on the foliage, altho even this is rather doubtful. In this connection, however, it may be well

to state that lime applications are usually of no importance to the trees themselves, and the chief advantages from such applications are likely to be simply in promoting the growth of leguminous cover-crops.

As to amount of application, I would not apply more than 1000 pounds per acre of the unslaked lime, or its equivalent in other forms, unless the soil is known to be especially acid in its reaction.

Hastening Returns from Fillers

"I have ten acres of apple orchard (this will be third summer) set 19x19 for fillers, standard trees 38x38. The varieties are Stayman Winesap, York Imperial, Ben Davis and Gano set alternately. Soil is "flint" with limestone clay subsoil. First summer the orchard was planted in potatoes; second year intercropped with corn and sowed to hairy vetch and crimson clover at last cultivation of corn. Trees have made a good growth. Please advise as to the culture of this orchard, since potatoes have not been successful—in order to get the most returns from the fillers." I. J. S., Juniata County, Pa.

If these fillers are standard apple trees, there is no treatment that is likely to give any important returns before the sixth year. In any case, however, the largest and earliest yields will be secured by those treatments which produce greatest growth.

TOMATOES ON STAKES, A PORTION OF A 1,600 PLANT FIELD.

Proper mulching and fertilization, together with a minimum amount of pruning, will generally do most in this connection. The mulch can often be grown, at least in part, by using alfalfa or some similar plant between the trees, altho it is not likely to be sufficient where the trees are as close together as yours. In mulching, each of the trees should receive about 50 lbs. of ordinary air-dry material each year in order to make the best growth.

Any kind of plant material is usually satisfactory for this mulch but it must be accompanied by efficient protection against mice. The latter is probably best accomplished by the use of galvanized wire screens about 18 inches square, and by keeping the ground thoroly clear for at least a foot around each tree. Some mounding of the soil within this space is also desirable, as a rule, and if the deeper-feeding pine mice are present, a poison is generally required in addition.

The fertilizer that is likely to do the most good is a mixture that will carry about 1 pound of nitrate of soda and 2 or 3 pounds of acid phosphate to each tree. If found beneficial, it should be applied annually until bearing is reached. The fertilizer should not be placed close to the tree trunk and it should be spread evenly over a circle extending at least 3 feet out from the base of the tree. The size of the circle and the amount applied should be increased as the trees enlarge, especially after bearing begins. With a sufficient amount of mulch, less fertilization may be needed, at least in the earlier years. The fertilizer may be applied any time within a month or six weeks after growth starts. Stable manure, at the rate of 200 or 300 lbs. per tree, should also be very beneficial.

If this general plan of operation is not feasible, I would advise the continuation of cultivated inter-crops, making special effort to locate a crop that will be profitable under your particular conditions. In general, however, it is difficult to suggest a crop that is more likely to be profitable than potatoes.

Intercrops for an Old Orchard

"In answer to my inquiry regarding the plowing of an old orchard which had not been tilled for many years, you advise shallow plowing, not more than 4 inches deep, if found practicable. If plowed as shallow as that what would be the best crop to put in? What is the object of shallow plowing?" H. A. S., Schuylkill County, Pa.

The object of the shallow plowing in such a case is to avoid unnecessary injury to the tree roots. If they are deep enough to permit plowing deeper than 4 inches without a large amount of injury, there will be no objection to going a little deeper.

If the present trees are occupying the ground as completely as old trees usually do, it is not likely that any crop will be especially profitable. If the ground is not fully occupied, however, such crops as potatoes, buckwheat, or even corn, might be used with satisfactory results. It is also possible that some other crop, such as beans or tomatoes may prove best under your particular conditions. One should not attempt either of the latter crops, however, unless he has had some experience in growing them, or else is thoroly familiar with all their requirements.

Fertilization for Bearing Orchard

"In speaking with H. H. sometime ago, who has an orchard in Bradford County, he told me that you had given him a formula for a fertilizer to be applied to an orchard in bearing which gave very good results. Will you kindly give me this formula for use in our orchard?" C. L. H., York Co., Pa.

The formula referred to here probably involved an application of approximately 500 pounds to the acre of a fertilizer carrying 6 percent of nitrogen, 10 percent of phosphoric acid and 3 to 5 percent of potash. The potash is probably out of the question at the present time, and hence it may well be omitted. I would apply the nitrogen largely in the form of nitrate of soda unless the orchard is being tilled, in which case, part of it could well be applied in less soluble forms, such as dried blood or tankage. I would also apply the phosphorus in the form of acid phosphate, whether the orchard is tilled or not.

This mixture may well be applied broadcast, and the applications should be extended well out beyond the spread of the branches. It is also well to keep the fertilizer well out from trunk.

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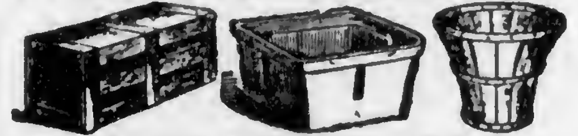
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Philadelphia, Pa., May 27, 1916.

AUTO-BUS LINES

The old-time stage coach lines gave way before the more rapid and more comfortable steam and electric cars. Even in localities where train and suburban service was inadequate, the old stage lines were abandoned because they were old-fashioned and out of date. The auto-bus lines promise to renew a service that will meet the needs of many isolated communities. These auto-bus lines have been given a legal standing in this state by decision of the Public Service Commission adopted May 4. The Commission has established rules providing for issuing of certificates permitting automobile or auto-bus companies to act as common carriers. This puts the business under state supervision of routes, rates, equipment and safety of operation. With such supervision the auto lines should prove a decided advantage to rural communities that have suffered from lack of other transportation facilities.

DON'T OVERWORK

From every quarter comes the complaint of farmers that sufficient and efficient labor is not to be had. Other industries have so drained the supply of labor that none is left for agriculture. This situation will probably work in two ways towards preventing the market conditions of last year when an almost continuous glut in many products caused low prices and loss to farmers. First, the purchasing power of consumers will be greater because of universal employment. Second, the scarcity of labor on the farm will tend to shorten the supply of products. Last year when so many were idle in the fore part of the season, innnumerable home gardens were planted. Vacant-lot gardens in cities were planted to the limit. This year the writer sees the vacant-lot gardens that lie on his way to the city untouched. While this condition may indicate a ready sale and good prices for farm and garden products, we want to utter a word of caution to the farmer and his family not to attempt too much. It will not pay to put in longer hours and increase the efforts at the expense of health and strength. A body that is sapped of vitality by over-work becomes an easy prey to disease, and what is made by extra effort may be lost later. Be calm. Do what can be done well and safely, but don't dry to do two people's work. In the end it won't pay.

STATE PRIMARIES

The primary election on Tuesday last week should carry a few lessons for the politicians. The brand of politics being played by both factions in the dominant party is a disgrace to the state and an insult to an intelligent citizenship. A party split is supposed to purify the political atmosphere and make aspiring officials more responsive to public opinion. In this fight, public service is apparently forgotten and the contest is reduced to mud slinging, attacks on personal character, and even blackmail. Both sides are "playing politics" with the basest of political methods. Officials have neglected official duties or used their offices for personal gain. It is a mad scramble in which the public is receiving slight consideration. As a result, in the primary returns available at the time this is written, the Governor, who was elected under most favorable conditions for efficient public record, is running a poor second in the race for delegate to the national convention. The senior senator who poses as the state leader is running sixth, and the junior senator who lent his name to a despicable blackmailing scheme is very properly dropped to fourteenth place. If these men be leaders, and if their official conduct in this primary campaign just closed be accepted as efficient leadership, it is time for an awakening of public conscience and civic duty in this state that shall clean house and clean it well.

EXTRAORDINARY WHEATS

Almost every year one or more wonderful (?) varieties of wheat are exploited thru some sort of advertising means — usually in the form of a news story in the daily papers, but sometimes in the advertising columns of low class farm papers. There are always some who fall for the fictitious claims made by unscrupulous promoters as to the wonderful merits and producing power of some new wheat, and this has gone on regularly since the earliest times. Because of this susceptibility and the persistence of the promoters, the U. S. Department of Agriculture has made careful test of the most prominent fakes, and have found them no better and in some instances not so good as the well known varieties. One variety pushed in this way under the name of Jerusalem wheat, known as early as 1807, is now being sold for exhorbitant prices as Alaska wheat. Almost as great claims are made for the Stoner variety, but this one has not such a long history. Wonderful stories are told of the discovery of some of these wheats. One story relates how some wheat grains were found in the coffin of an Egyptian mummy 3,000 or 4,000 years old. One grain grew when planted and proved to be a wonderful yielder and from this start the "Mummy," "Egyptian," and "Miracle," wheats have been promoted. The same wheat appeared again in 1908 as a product of Alaska. It was asserted that it grew with branched heads. A man claimed to have sown the seed from one plant and got seven pounds. These in turn were planted and yielded 1,545 pounds, an increase of 220-fold and a firm offered the seed at $20 per bushel. The Department found upon investigation that the company's 700 acres yielded 25 bushels per acre instead of 220. Last year it was offered as Egyptian 7-headed wheat at $7 per bushel. We do not believe our readers are in danger of being taken in on this subject, but if any one offers for sale any such kind of new and wonderful wheat, show him the gate and call the dog.

RURAL CREDITS LEGISLATION

The House of Representatives last week passed the House substitute for the Senate rural credits bill by a vote of 295 to 10. There are several points of difference between the two bills which will have to be worked out in conference, but as the administration apparently feels itself pledged to the enactment of a rural credit law a compromise is expected in an early law. The Senate measure would capitalize each farm loan bank at $500,000; the House at $50,000. The Senate would limit loans on land to 50 percent with no recognition of improvements; the House would grant 60 percent on land values and 20 percent on permanent insurable improvements. The Senate bill makes the minimum loan $200; the House $100. On the whole, the House bill is better adapted to the needs and conditions of the rank and file of farmers than the Senate measure. Congressman L. T. McFadden, of Pennsylvania, has taken a prominent and important part in the discussion of the measure in the House. While opposed to the general plan, his constructive criticism has resulted in a number of improvements. He has pointed out what is likely to be a fatal weakness in the plan as proposed; i.e., that the mere creation of a system of twelve land banks will accomplish nothing unless the local loan associations prove to be successful. In this respect the bill puts the cart before the horse, and is loading the cart with heavy federal expense before knowing whether or not the horse is going to pull.

HORSES AND TRACTORS

Horses are not being displaced by the introduction of farm tractors. Farmers were first warned that the automobile industry would wipe out the horse business, but horses continued to sell. More recently it has been as positively affirmed that the introduction of farm tractors would displace the faithful farm teams and horses would go begging on the market. It has been a troublous time for horse breeders of little faith. And yet good horses have been in demand at steadily increasing prices. A government investigation of farms of 400 farm tractor owners of Illinois indicates that the demand for horses is likely to continue. It was found that where one horse had been kept for each 30 acres of land, the introduction of the tractor did not decrease the number of horses kept. On other farms where one horse was kept for every 20 acres of land, enough horses were displaced by the tractor to bring the ratio up to one horse to each 30 acres. On 92 farms that had been keeping an average of 12 horses per farm, the introduction of tractors displaced a total of 263 horses, or an average of not quite three horses per farm. On 31 farms where tractors were purchased no horses were laid off. On all of these farms the greatest advantage of the tractor lay in the fact that it did the heavy work more quickly than could be done with the teams kept and thus enabled the farmers to get seeding and other work done at the proper season. These results in Illinois can not be taken as typical of all farming sections but are perhaps representative of the average for the country. It is pointed out that Illinois is in the heart of the corn belt where cultivating frequently requires more power at one time than any other farm operation. Little of this work is yet done by tractor power, making it necessary to keep horses for that work. When tractors are perfected that will do cultivating satisfactorily, they will displace many more horses on the Illinois farms. And with an increase of intensive cultivation, making frequent and light cultivation necessary, there will be an increasing need of horse power. On the other hand, in the large grain and hay areas it is quite probable that farm tractors will displace horses to a much greater extent than shown in the Illinois investigation. The probable trend as tractors are adapted to different uses is of vital interest to horse breeders and feeders and to those farmers who are planning the purchase of tractors to cut down the cost of power maintenance. It seems likely that there will always be considerable work on farms that can not be done profitably by tractor power.

COW TESTING

Every dairyman should read the article on the first page of this issue, on the results of consecutive cow testing work. These cow testing associations have proved their value in giving needed information on the production and costs of feed and maintenance for a single year. Most dairymen will admit that the information thus gained is worth more than the cost of the association for a year. But these associations are not a one-year institution. Their greatest value is in continuous use in pointing the way to continuous improvement and serve as a check against decline in quality of herd or in methods of handling. The associations have been pointed to as a means of identifying and removing the boarder cows in the herd. They are no less valuable as an indication of the cows to be kept as breeders, and continuous improvement in breeding is possible only with consecutive testing and knowledge of what individuals in the herd are doing from year to year. No dairyman can breed up his herd intelligently without such records, and even professional breeders are learning the value of the association records in this respect. We recently talked with a breeder who is having his herd tested in advanced registry. We asked him which records he would give preference to if he were buying cows for production, the advanced registry or the cow testing records. He unhesitatingly said the cow testing records. They showed what the cow did for an entire year or several years under ordinary, practical dairy conditions; and that is what the practical dairyman wants to know about the cows he puts into his herd. But aside from the matter of breeding, the association records are a check upon feeding and handling that more than pays the costs. The net profit in dairying depends upon the value of returns above cost of feed and care. These are factors that can not be determined by guesswork; neither can they be kept uniform from year to year with the ever-changing prices of feeds, etc. Mr. Sloan has shown that the Bradford County herds have shown improvement in the most important item, profit over cost of feed, in the second year. These herds must soon reach a maximum of efficiency where little or no improvement will be shown in one year over another. That will be no good reason, however, for abandoning the testing associations. The association records have been the factor that brought those herds to maximum efficiency and they must remain the factor to keep the herds to that high mark. Costs of feed vary. Production will vary even if the same animals are kept in the herd. The monthly records give the feeder a check on both. It is easy to drop back when the pressure of accurate records is removed.

HARRISBURG NOTES

Farmers and Liability.—Farming is to be legally defined in this state. The courts will be asked to make a decision arising out of a contested claim for workmen's compensation which will effect every branch of agriculture. There have been decisions in the past on what constitutes farming, but the divisions of agriculture in the last few years have been notable and the State Grange has been making an effort to have some ruling adopted which would clarify the situation as regards liability for compensation of men who happened to be hurt. Last year it was ruled that the exemption of the compensation act, which is that farming and domestic service are not to be considered as coming under it, could not apply to fruit raising, flower raising and dairying. Then questions arose about other lines which belong to agriculture as generally understood and the State Grange pressed the Compensation Board for a clear ruling so that people would know just where they stood. The Board was reluctant and at a recent meeting the officials of the Grange presented the situation with such force that the Compensation Board, while declining to grant the request, agreed to have a case put to a court test. This case will probably appear within a short time and will be one embracing the questions which the Grange raised and will probably go to the appelate courts. Unfortunately this will mean a delay and it may be that the next legislature will be in session considering proposed changes to the compensation act before a decision is given. There will probably be a question raised before long as to whether the legislature had legal authority to exempt farming and domestic service under the present constitution. Probably the constitutional amendments to be voted on soon will help the situation.

Milk and Cream Arrests.—Failure of milk and cream in quite a number of the smaller cities and boroughs to pass the state test is attracting attention. Some flagrant instances of deliberate watering of milk and cream were discovered in sections where the same thing prevailed last spring and the fact that inspections were differently timed probably caught the violators of the law off their guard. The bulk of those for whom warrants were sworn out were dealers and not milk producers and the repetition of the offence will probably lead to imposition of stiff penalties.

Food Fish Sent Out.—According to reports of State Fisheries department there has been a more extensive planting of food fish, as compared with game fish for sportsmen, this year than usual. Arrangements were made with farmers and men in small towns to look after distribution of perch, salmon and other fish which have a good food value. Heretofore, the sportsmen because of their interest, were the ones most called upon, this year more people have become interested and streams which had been "fished out" are being stocked with fish suited to their present state. Trout are no longer being placed in streams which are not shaded and which have not the low temperatured water of ten years ago.

Immense Values Here.—Studies made by the men connected with the statistical end of the Department of Agriculture will shortly be issued. The total value of the agricultural products of this state has never really been computed because it has only been within the last year that a system, working in collaboration with the government at Washington, was devised which gives pretty reliable information.

Rooster Week. — The official announcement of the Department of Agriculture of Rooster week calls for next week, May 29 to June 3 as the time to kill a rooster a day or to pen up or sell the fowls. The reasons for rooster week are well known to everyone and the loss caused by fertile eggs, especially in summer, is difficult to calculate. The Department says that there are probably a million roosters which could be spared, two thirds of them on the farms. The plan is to be boosted all over the state this week and it is believed that it will become an annual period in which the boss of the barnyard will be dethroned. Tests on breeding are said to bear out the value of Rooster week.

Good Live Stock Report.—In addition to reporting good conditions on the fruit, hay and wheat of the state as of May 1, the state authorities have issued a brief statement tending to show that live stock came thru the long winter very well. Summaries of reports of about 700 persons experienced in making reports, show losses of 2 percent on horses, cattle and sheep and 2½ percent on hogs. Cattle and hogs lost 3 percent the previous winter. Good care is frankly stated as one of the reasons for the result.

Farmers and Legislation.—Farmers of the state have their chance to indicate desires on legislation at the Reading meeting of the State Board this week and thru the farm advisors should be well represented in the sentiment created. The state is now committed to a definite highway program and the administration has opportunity to lay the foundation for an agricultural advancement program which will be in force and of benefit when the primary campaign of 1916 is forgotten.

Dog Question.—The failure of county officers in a number of counties to extend co-operation to the state in the enforcement of the dog act has created a rather painful impression at the Capitol. Either the counties have come to the conclusion that the state should join in paying the bill or else they intend to stand against repeal of the law which made personal property tax a county source of income alone. The refusal to order wholesale killing of worthless dogs in the face of efforts to have sheep raising revived leads to the conclusion that if the state gets back a share of personal property tax it has got to join in handling the ownerless dog question. — Hamilton, Harrisburg, May 22, 1916.

NEW JERSEY FARM NOTES

Agricultural Directors Elected. — Eight men were selected as directors of the new state department of agriculture at the State House in Trenton during the past week at a meeting of representatives of various farmers' associations. The new department is provided for in the new law passed last winter, to replace the present state board of agriculture. The new department, after the commissions have been issued by the governor, will assume control on July 1. The directors elected are: Col. Joseph S. Frelinghuysen, of Somerset County, and Theodore Brown, of Gloucester County, to serve for a term of 4 years each; H. W. Jeffers, of Middlesex County, and Edward A. Mechling, of Burlington County, 3 years; L. Willard Minch, of Cumberland County, and Thomas E. Inslee, of Sussex County, 2 years; F. M. Curtiss, of Bergen County, and E. A. Sexsmith, of Monmouth County, one year. The new board will meet and organize before July 1. It is expected that Colonel Frelinghuysen will be named president and that Alva Agee, of the New Jersey Experiment Station, will be the new Secretary to succeed Franklin Dye, of Trenton. Mr. Dye is 80 years old and has been Secretary of the state board of agriculture for more than 30 years. It is understood that he desires to retire. The office of Secretary pays a salary of $5,000 a year. Chiefs of departments of crops, lands, statistics and markets, at a salary of $2,500 each, will be named, and also a chief for the department of animal industry, at a salary of $4,000. The bill under which the new department is to be created was introduced by Senator George W. F. Gaunt. Governor Fielder vetoed it, but it was passed despite his disapproval. The governor will be asked to certify to the names of the new directors.

Prisoners Are Farming. — Thirteen prisoners are now at work at the Morris County prison farm. The actual work of farming has been begun and the men are being kept busy planting potatoes, working in the garden, digging ditches and cleaning up the grounds in general.

Farmers Plan Tours.—Under the direction of Farm Demonstrator William B. Duryee, Jr., a number of the Monmouth County farmers will spend July 8 in making a tour of the farms in that county to observe the experiments that are being carried out by the farm demonstrator. A like tour was taken last year in which there were 15 automobiles filled with farmers. This year Mr. Duryee expects to have just twice as many.

Conference on Taxes.—The first annual conference of the officials of New Jersey charged with the administration of the tax laws, convened in the State House at Trenton during the past week under the auspices of the State Board of Taxes and Assessments. The meeting was presided over by L. T. Russell, president of the State Board. The purpose of the conference was to secure a closer relationship and a better understanding between members of the State Board, members of the county boards, and the municipal boards. Tax views were thoroly aired in discussions among those present and in interesting papers read.—L.

NEW YORK LETTER

Experiment Station Gets New Building.—For several years past the state grange have urged an appropriation for a new Station building for office rooms and an auditorium. The legislatures have passed the bill but it has failed to get by the governor. This year it has, and the sum of $100,000 is to be appropriated for the construction of such a building.

Another Referendum Measure.—The governor has signed the Maier bill which provides for a referendum on the question of authorizing a $10,000,000 bond issue for extending the state forest preserve. If the issue is authorized, $2,500,000 of the proceeds will be devoted to purchasing additional lands for the Palisades Interstate Park, providing a like amount is subscribed by private interests.

Physical and Military Training.—The governor has signed the bill authorizing the Board of Regents to inaugurate a course of compulsory physical training for all public and private school pupils over eight years of age. Also one providing for the compulsory military training of young men of the state between the ages of 16 and 19 except such as are regularly employed in earning a livelihood. The course is to be given after school hours and provision is also made for summer volunteer camps. The sum of $100,000 is appropriated to carry the laws into effect.

New Stallion Law.—Chapter 322 of the Laws of 1916, provides that all stallions that are to stand for public service must be registered with the state department of agriculture and any stallion not so enrolled cannot be offered for service under penalty of the law. It is a wise measure and one that will tend to the improvement of horse breeding in the state.

Schedules for the Fairs.—The state commissioner of agriculture has just announced the fair schedule for this year. The state fair comes on September 11 to 16 and the annual meeting of the state agricultural society at Albany occurs on January 18, 1917.

Over Supply of Moisture.—The heavy rains and winds of recent date have wrought much damage in the western part of the state, particularly. Just prior to the heavy downpour of rain a devasting wind storm passed over the central part of the state and, according to report, 250 acres of onions recently sown were destroyed, the seed being blown out, or the young plants unrooted. It is said that one dealer sold 650 pounds of onion seed to replace that which had been destroyed.

Cattle Bill Vetoed.—The governor has vetoed the bill which would have inserted in the agricultural law new provisions for the control and suppression of communicable diseases in stock. This bill also included a provision to have cattle paid for by treasurers of the counties in which animals are slaughtered instead of the counties in which the owners reside.

Certified Milk Producers to Meet. — The ninth annual convention of the Certified Milk Producers' Association of America will be held at Hotel Nassau, Long Beach, L. I., June 1, and 2. Prof. Stocking of the state agricultural college will discuss certified milk from the standpoint of the bacteriologist. D

FARMERS' CONGRESS OF WESTERN NEW YORK

The farm and city folks of western New York will hold a Farmers' Congress at Lockport, N. Y., June 1 to 3 inclusive. The aim is better fruit and systematic sorting, packing, labeling and marketing of same. The Board of Commerce of Lockport and the Niagara County Farm Bureau are co-operating promoting the event and a program of profit and pleasure is promised.

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The Dairy

AMERICAN GUERNSEY CATTLE CLUB

The following statistical facts were given at the annual meeting of the American Guernsey Cattle Club held in New York on May 10.

It appears from the records that the past year's work exceeds that of any previous year and that there is a better balance and a larger present worth at the end of the fiscal year than for any year before. During the year 1,745 more sets of papers have been listed, 333 more bulls and 155 more cows have been added to the register and 1,313 more transfers have been recorded. The register of bulls shows the number to be 37,862 and of cows 63,954, making a total of 101,816. Five years ago there were but 44,286 animals registered, thus there is shown to be a gain of nearly 130 percent. The importations have fallen off, for evident reasons, the past year. A total of only 241 animals have been brought in, of which 132 were from Guernsey and 109 from England. It is interesting to note, says the secretary, that the total importations since 1840 have been 466 bulls and 7,121 cows.

During the past year there were 949 certificates of Advanced Registry issued and the total in the Registry now is 4,198 cows. The average yield of the 4,719 records is now 8,805.91 lbs. milk and 493.15 lbs. butter fat, and this has been raised the past year by 132.18 lbs. milk and 5.24 lbs. butter fat. There are 1,173 cows representing 279 breeders in 28 states now under test. About 72 percent of these cows are under the two-day test. Eighteen agricultural colleges are conducting Advanced Registry work in their own herds. There are 10 cows with four yearly records which average 11,915.7 lbs. milk and 630.93 lbs. butter fat. One cow, Selma of Pinehurst, 4th, has five yearly records which average 9,878.24 lbs. milk and 501.02 lbs. butter fat.

The financial report shows the receipts of the year to have been $86,128.27, which, with the added balance at the beginning of this year, brings the total to $89,762.27. The expenditures were $83,272.07. The balance for the year is $6,490.88, which exceeds that of last year by $2,856.20. The present worth of the property of the Club, including the cash balance on hand, is $46,251.63.

There are now 530 active members of the American Guernsey Cattle Club, a gain of 64 the past year.

A resolution similar to that adopted last week by the American Jersey Cattle Club, regarding officials of the Bureau of Animal Industry, at Washington, D. C., and their connection with the admission of stock to the National Dairy Show in 1914 when foot and mouth disease was known to exist, was adopted. All the officers of the club were re-elected.

A METAL SUMMER SILO, 7 FT. 5 IN X 25 FT., ON G. B. COCKRAN FARM, ARMSTRONG COUNTY, PA.

SMALL SILO FOR SUMMER FEEDING

The accompanying illustration shows a good size silo for summer feeding. It is 7 feet 5 inches in diameter, making a small surface to feed off each day to keep silage sweet. Mr. G. B. Cochran writes that he has had this silo in use for three years and can see no evidence of rusting Silage keeps well and comes out in good condition if put in at the right time and packed well.

CONSECUTIVE COW TESTING RECORDS

(Concluded from page 1.)

fore going to bed and giving them a pail of water after they had finished their dry roughage. He thinks such practice is important for high producing individuals. Evidently it is so, as most of the 7 and 30-day records verify his conclusions.

Herd S has been one of the best in its association ever since its organization. This is a case where good cows have paid for a farm. No other fact is more prominent in Bradford County, that with good cows our farms pay good returns, and without them owners are taking chances. This member possesses unusual ability as a feeder and caretaker. He is expert in knowing how to cater to a cow's likes and dislikes. He also shows expert knowledge in knowing how poor they can be to stay in his herd. "No loafers fill his stanchions." If they do not show the goods after reasonable opportunity, they make room for others that will.

Herd	Year	Lbs. of fat	Value of Products	Feed Cost	Profit above feed cost
A	1913-14	335	$112.50	$50.90	$61.60
	1914-15	369	137.00	51.60	85.40
B	1913-14	296	97.90	53.15	44.75
	1914-15	269	95.80	43.60	52.20
C	1913-14	279	94.90	65.50	29.40
	1914-15	264	97.10	61.50	35.60
D	1913-14	230	75.70	58.60	17.10
	1914.15	253	91.20	55.80	35.40
E	1913-14	366	125.00	54.70	70.30
	1914-15	359	134.00	47.00	87.00
F	1913-14	237	74.00	42.60	31.40
	1914-15	210	69.30	42.40	26.90
G	1913-14	258	122.00	60.80	61.20
	1914-15	223	112.00	53.80	58.20
H	1913-14	246	99.40	55.10	44.30
	1914-15	265	106.47	46.55	59.92
I	1913-14	342	117.00	62.50	54.50
	1914-15	306	113.80	59.52	54.29
J	1913-14	251	79.10	52.10	27.00
	1914-15	249	81.60	50.70	30.90
K	1913-14	253	88.50	50.40	38.10
	1914-15	213	67.60	32.50	35.10
L	1913-14	223	71.10	51.05	20.05
	1914-15	213	69.55	41.95	27.60
M	1913-14	195	61.25	37.65	23.60
	1914-15	233	74.00	46.45	27.55
N	1913-14	219	68.20	38.60	29.60
	1914-15	155	51.00	34.55	16.45
O	1913-14	155	50.10	35.70	14.40
	1914-15	190	61.00	38.70	22.30
P	1913-14	272	111.11	50.63	60.48
	1914-15	208	91.10	42.64	47.65
Q	1913-14	236	106.07	53.75	52.32
	1914-15	228	87.65	43.41	44.24
R	1913-14	234	85.88	47.35	38.03
	1914-15	257	88.87	44.97	43.90
S	1913-14	328	132.97	57.96	75.01
	1914-15	376.7	163.31	66.35	96.96
T	1913-14	226	74.14	42.58	31.56
	1914-15	287	100.00	51.18	48.82
U	1913-14	215	70.10	46.84	23.26
	1914-15	286	101.24	50.60	50.64
V	1913-14	252	78.10	53.91	31.56
	1914-15	280	102.58	61.33	41.25
W	1913-14	293	116.65	54.69	63.90
	1914-15	334	124.66	57.82	66.83
X	1913-14	203	71.99	48.40	23.59
	1914-15	236	84.36	53.35	31.01

Wherever the co-operative cow testing associations have operated in this county continuously for two years, we have a definite attitude among the farmers of that locality concerning the livestock industry, especially pure-bred dairy cattle. Plans are now being made for an organization to do semi-official testing. A big percentage of these men were the charter members of cow testing associations in this county. They have gone from grades to pure-breds and have no doubt of the value of records of production.

VALUE OF ADVANCED REGISTRY TEST

Mr. G. S. Bulkley in his lecture before Farmers' Week audience at State College, Pa., brought out very clearly the necessity for testing cows in order to determine which are most efficient and in order to eliminate the "boarder" cow. The private test made by the individual himself, the test made under the cow-testing association where a number of men are banded together for co-operation in this line of work, and the advanced registry test, were detailed.

The advanced registry test is a guarantee by the Agricultural College and a breed association of the exact producing power of any cow which has been tested under the rules and regulations of the breeding association. There is a comparatively small cost to the breeder who accepts this test; about $1.25 to $1.50 per cow annually. Benefits derived may be enumerated as follows: (1) It gives an almost absolute basis for the improvement of dairy cattle by removing the guess work in connection with production records and possibilities. (2) It causes a wider dissemination of the best blood in a particular breed, thereby improving the general standard of dairy animals. (3) It offers an inducement and a trustworthy basis upon which to start in the purebred dairy cattle business.

To the individual it pays a large profit because thru it he can prove to buyers the exact productive powers of his cows, thereby increasing their value in proportion to the size of record made. This increase in value is also extended to all of their progeny, their near relatives and the herd of the individual as a whole. It enables the individual to select his best stock for future breeding operations. Extra feed and care given in the test properly carried on stimulate and develop the cow.

Preparing cows for tests, feeding and caring for them during the test, requires very careful, patient, skillful, and persevering work, but the individual will be amply repaid for his trouble. Each cow must be handled as an individual problem. Cows are usually given a good rest previous to freshening and kept so as to insure their being well fleshed and in some cases even fat. Great care must be exercised at calving time and the feed should be light and cooling. The amount of the rations is increased very gradually at the calving up to the point where the cow is consuming her limit of food, and especially grain feed.

The important points to be kept in mind in feeding cows on test are: (1) That it is not a question of economy but of maximum production; (2) that a great deal of succulent feed should be given, roots being the best; (3) that the grain rations should be bulky rather than laxative in nature, very palatable, should have a good effect on the system and usually should be high in protein content.

MONTGOMERY COUNTY COW-TESTING WORK

The Centre Square cow testing association, Montgomery Co., Pa., started its second year's work on March 29, with S. Clyde Bachman as official tester. As a result of the work many of the first year's members concluded to make a thoro "house cleaning" of their herds. As one man expressed it, "My cows have lost enough money for me and they must go". On this account some of the old members have discontinued testing but other dairymen were found to take their places. Many of the farmers have registered cattle and these invariably prove to be the largest producers. Balanced rations fed in proportion to the milk produced was a decided factor in the showing of profit.

During the month ending April 29 there were 22 cows in the association that produced more than 40 pounds of fat or 1,000 pounds of milk (the honor list). Five of these had a record of more than 50 pounds of fat and three a record of over 2,000 pounds of milk. The best cow for the month, owned by E. W. Anders, had a record of 89 pounds fat and 2,427 pounds milk.

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You will find a note of pride and satisfaction in the voice of every Saginaw owner when you ask him the kind of a silo he has.

He knows from actual experience that his silo is producing good clean succulent silage and that it is standing in the face of wind and storm.

Thousands of farmers testify in favor of the Saginaw. Their faith has been justified. The Saginaw Silo is made by an organization that knows Silo conditions thru many years experience. Learn about the Saginaw before you decide. A postal will bring you the information. Write Dep't. 135 today. (26)

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THAT'S GUARANTEED —to produce more milk than any other ration either home mixed or purchased and do it without giving your cows constipation or udder trouble. Ready to use right out of the sack without any mixing.

Larro-feed 55

Absolutely free from adulterants and fillers, just like the feed you would mix for yourself, is a special combination of choice cottonseed meal, dried beet pulp, gluten feed, corn distillers' grains, wheat bran, wheat middlings and a little salt, that's all; each ingredient weighed by automatic scales and all thoroughly mixed in huge power driven mixers, so that it is always absolutely uniform, and always good. An extra quart or two of milk daily from each cow may turn a loss into a profit. Try LARRO-FEED for more profits. Sold on "money back if not satisfied" plan, the decision being entirely up to you. LARRO dealers almost everywhere; write if none near you.

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with the new indestructible DREW Stall, because it's equipped with a sure-stop on *each side* to guide the animal's head into the open stanchion.

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Free — *write at once for our large illustrated catalog which gives detailed information about this stall and other Barn Equipment, such as Feed and Litter Carriers, Stalls, Stanchions, Pens, Cattle Waterers, etc., etc.*

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Department 147
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The HINMAN Teat Cup combines the good features of human hand and nature's way.

teat cup is not a rubber sack, but simply a pure rubber ring slipped over a metal cup. Easier to clean—more natural in action—very durable.

As the vacuum suction starts, rubber ring is drawn down, acting like the first finger in hand milking. As the gentle vacuum suction continues, teat is drawn against the side of the cup, much as the other three fingers act in hand milking. The whole principle is more like soft lips and mouth of a calf. The vacuum suction pressure is intermittently relieved in the same natural way so that circulation of blood is natural.

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The Kind "Uncle Sam" Uses

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1916 Issue
Just Off Press

It contains the pedigrees of eight Meridale service bulls, and illustrations of 32 prominent Register of Merit cows in the Meridale Herd, including 2 Gold Medal winners in tests completed in 1915. It also presents a brief outline of the breeding policies which have counted for success at Meridale Farms, and describes the blood lines back of the young stock offered from the herd this season.

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¾ Holstein heifer calves $15 each, express paid in lots of 5. 9 reg. 2 yr. old heifers $135 ea. 9-2 yr. olds bred to 31 lb. bull due in Sept. $175 each. 12 reg. heifer calves will be sold cheap. Reg. bulls $25 to $60 ea. 2 carloads of 1 & 2 year old heifers $35 each for the lot. Reg. and high grade cows and registered Berkshire pigs.

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Registered A. R. O. Holstein Bull

CALF, born January 30, 1916, more white than black Average A. R. O record of dam, sire's dam and sire's granddam, 7 days 537 3 lb. milk, 26.28 lb. butter; 30 days, 2,354.3 lb milk, 105.9 lb. butter; semi-official, 1 year, 19,991.9 lb. milk, 953.52 lb. butter; average fat per cent for the year 3 8 percent. First check for $125 takes him. Catalogue for stamp.

Geo. E. Stevenson & Sons, Clarks Summit, Pa.

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Jersey Cattle for Profit Bull calves, $25 and up; heifers $50 and up. All registered.
R. F. SHANNON, Renshaw Bldg., Pittsburg, Pa

April 11, 1916.

Enclosed is check to cover our advertisement. The Pennsylvania Farmer certainly gets quick results. Our ad appeared in the April 1st issue and on April 8th we were paid a visit by Mr. George Immel, of Center County, who selected two heifer calves. — Robt. Templeton & Son, Ulster, Pa.

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Registered, 1 to 18 months old, $30 to $100.
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Holsteins Improve your herd. The Bull is half. Superior Holstein bull calves of excellent ancestry offered at attractive prices.
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Makers of Famous Kant Come Off Cow Blankets
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Have the strength and pulling power necessary for your work. Our new sales policy means a big saving to the purchaser. Write us for Motor Truck Catalog and further information.
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ALWAYS mention Pennsylvania Farmer when writing to our advertisers. This will insure you prompt attention and service.

Teach Children To Work

By A. O. McDonald, New Jersey

In a very short time now our thoughts will be turning to things agricultural and not the least among these is the kitchen garden, from which we obtain our supply of vegetables for the table. Too often this is a part of the farm work which does not receive sufficient attention from the farmer because, coming as it does just at the time when the larger farm activities require all the assistance the farmer can secure it is left to shift for itself.

Care of the Garden

However, it is not so much to speak of the necessity of the garden that I am writing at this time as to suggest how it may be planted and taken care of to the best advantage. In the spring the farmer is busy with his other crops, while his wife has her added duties with chickens and other small animals, and if the garden requires much attention from paid help it is not a very profitable proposition. But where the home is blessed with one, two or three good, strong, sturdy boys who are attending school every day, as they ought, nothing would be better for them than to take over the care and management of this very important work. It would be very beneficial for them, both physically and mentally.

Teach Them to Work

The greatest misfortune that parents can bring upon their children is to allow them to grow up without learning the manly art of self-support. And yet this is an offense against our children of which we parents are too often guilty. I was present at a company the other evening when the mother of the home made the remark in the presence of her two daughters, "When I was a girl my mother made me work like a slave, so I am going to see to it that my children do not have to work." And they don't. One is seven and the other twelve and yet every morning the mother has to get them ready for school, dress them, comb their hair, button their shoes, prepare their luncheons and even pack their books. She has not taught them one single lesson from the eternal gospel of work. I wonder what they will do when the mother is dead and gone. What we need today for our children, both in school and in the home, are "Courses of Work" as well as "Courses of Study." I lay it down as a law of life for every boy and girl, "In the home life, some definite duty, requiring thought and attention and for which the boy or girl is held responsible, should be assigned to them, which duty being in keeping with their age and ability."

Train Them How to Work

Children require training in work just as they do in study. They must be taught how to conserve their time and energy and put them to the best use. This is a truth entirely overlooked by us when we are dealing with children and we seem to go on the principle that they take to manual activity intuitively. It appears to be a law of living that no one likes to work from choice, only from necessity, and the child is not different from grown people. So we must not think that they will shoulder the tools of labor with divine joy and go forth to the field with delight.

And they need to be shown, directed and assisted in order to master properly the manipulation of even the simplest tools, nor must we lose patience with them if they are slow in acquiring the knack. Perseverance, kindness and firmness will work wonders with them when they realize that there is a purpose ahead of them.

And when they find themselves acquiring competency in the management of the garden, they will obtain great pleasure from it, for every young person naturally delights in working the soil, planting, seeing things grow, and harvesting the crop. All this is a splendid training for them in "learning how to do things."

Has Educational Value.

It is frequently said by parents that they do not think it right to make the children work at home because of the amount of work they have to do in school and, echoing the sentiment, the children also give this as a reason why they should not be asked to do anything around home. If you are actuated by false and silly pride, or if you have a lazy streak in your nature, this may be true, but if seriously considered from another standpoint it is not true, for the work which pupils do in school may and should have a very close and vital relationship with the duties of the home. Nay, more, if the school and home are not kept in constant sympathetic touch through interest in the mental and manual activities of the pupils, there can be no bond of union between them. Let me illustrate the point I make here by a very striking instance that came under my notice. One of our pupils who was raising pumpkins for the fall exhibit, found his vines withering away and the pumpkins dying, but was not able to discover the cause. He appealed to his father, when they went out to the patch to see if they could find the trouble. But the father knew no more about it than the boy. The little fellow was very much discouraged over the situation, for he had had promise of some very fine pumpkins. In school next day he was reading some books on agriculture which I had placed there, when he incidentally came upon a discussion on pumpkin-growing and which spoke of the worm which bores its way into the vine just where the branch joins it, and sucks out its life. He could hardly wait until school was dismissed, when he ran home and calling his father, they went out together to the patch, when the boy took out his knife and cut a small slit in the vine and found the worm. Then he told his father how he had found it out. This won the father over immediately, altho he had been previously opposed to pupils doing such work.

Will Hold the Boy

It is said that the education of today influences the boys and girls to leave the farm and go into the city. Of course, it must be admitted that this tendency toward the city is not entirely due to the influence of education, for we see all too often the farmer, when he has acquired his "competency," selling out and moving into the town or city to spend the rest of his days and his money, too. So we must not find fault with our young people for following them. But is not the real cause of this urban migration owing to the absence of any incentive for our boys and girls to look forward to a life spent on the farm? They are allowed to spend the first fifteen or twenty years without having anything in common with their environment, even led to look down on rural life as something undesirable.

Let us get them into close touch then with the interests of the farm, give them something to do that will hold their attention, let them see that it is by far the most independent life, that it requires brains and skill to succeed in it, that to be a "scientific farmer" calls for all that is best and most learned in him, and the city will cease to hold any charms for him. To really hold him to the farm, his training cannot be begun too early in life.—A. O. McDonald, New Jersey.

A COMMUNITY MEETING

The third Community night, instituted by the members of Lorenton Grange, took place in the Grange Hall at Lorenton one night this week, and was one of the most enthusiastic and profitable meetings held under this organization. Over 200 people filled the Grange Hall, listening to a program given by the members of the Grange and an address by R. H. Bell, Farm Bureau Expert of Lycoming county. The first part of the evening was devoted to the entertainment. Recitations given by children and readings by older people were greatly enjoyed. Special music by the grange was also appreciated. Mr. Orsan Williammee read a poem which he composed, in favor of Woman Suffrage. It was entitled "The Demands of Justice." The chairman of the evening, Gideon Williammee, referred to the beginnings of these social evenings, then introduced Mr. Bell, who spoke on the subject, "Efficiency on the Farm."

Mr. Bell explained the need for efficiency on the farm by declaring that while we cannot increase the acreage, owing to the fact that most of the available land is in use, we must learn how to increase the yield per acre. Another need for efficiency is found in the fact that labor is expensive and laborers hard to secure. This means that we must become efficient, possibly by using machinery when practicable.

One way to be efficient is to work systematically. For instance, to plow and have a man follow with a harrow. This not only hastens the work, lightens the labor, but conserves moisture, a valuable asset.

One can show efficiency by using a home mixed fertilizer. This is less expensive in many cases, and the farmer is thus enabled to place on the field the particular fertilizer needed for crops under all conditions. The handling of manure is another important factor in this line. Live stock on the farm are the best investment, for they enable the farmer to return to the soil the fertility taken from it in greater proportions than any other farm product. The last suggestion made was along the line of marketing. Mr. Bell urged co-operation on the part of the farmer, advising that they get a purchasing agent, whose business will be to find markets for their produce and thus enable them to sell to better advantage.—D. D.

Among the Granges

Lehigh County, Pa.—On April 5 the farmers of Upper and Lower Milford the school house of Old Zionsville with the intention of organizing a Farmers' Grange, and in spite of the fact that the weather was very unpleasant quite a number had gathered together to hear what District Deputy D. G. Hopkins, of Orefield, had to say about the benefits and advantages of a Farmers' Grange. By the time the farmers returned to their homes, after they had tested Mr. Hopkins' knowledge of the Grange pretty thoroly, with questions that developed in the minds of the people, twenty-six had enrolled as charter members. Almost every one present at this meeting knew of others who had intended to attend the meeting, but because of the weather had not come. For this reason an opportunity was given by the District Deputy to meet in open session again on April 19. At this meeting the following officers were elected: Master, J. W. Millers; Secretary, J. F. M. Shiffert; Treasurer, H. T. Mohr; Chaplain, Lawrence D. Mohr; Lecturer, H. Guldin Miller; Overseer, H. F. Schreiber; Steward, H. F. Marsteller; Assistant Steward, John Geissinger; Lady Assistant Steward, Mrs. B. M. Kleppinger; Executive Committee, H. F. Schreiber, J. F. M. Shiffert, B. M. Kleppinger and J. W. Miller; Ceres, Cora Hiestand; Pomona, Lulu Marstellar; Gate Keeper, Harvey Hiestand; Flora, Florence V. Miller.

After installation of officers by E. B. Dorsett, of Tioga county, the grange had its first formal opening, with a list of 107 charter members, and since the charter has been closed quite a number have applied for admission, and it seems to be an easy matter to have 150 members by the time the Milford Grange will be one year old. Mr. Dorsett and Mr. Hopkins gave interesting talks on grange work. The grange will be known as Milford Grange No. 1677 of Pennsylvania.

FIRST LUTHERAN MEETING HOUSE BUILT IN AMERICA, MONTGOMERY CO., PA

The grange had already bought clover seeds to the value of $374 and is about to place its order for binder twine. Notwithstanding the fact that some residents of the district, especially the business men, are opposing the movement and are trying to persuade the Board of School Directors of Upper Milford by a petition with some fifteen or twenty signers to force the grange out of a vacant school room which had been rented by the organization, the farmers thus united are simply going ahead unmindful of the opposition. There is a possibility that Milford Grange will in a short time be one of the most active and prosperous granges in the state of Pennsylvania. The officers are sparing no time to bring this about. It is the contention of the Master that by the work of the grange, country life can be made more appealing to the boy and the girl of the farm, by bringing them together in a social sphere and thus have the lonesome farm life of the past transformed into a pleasant and desirable rural life for the young folks.—J. M.

. . . . .

Elk County, Pa.—A new plan—new, at least, in this section, will be tried out in June by the grangers of Elk County when a grange picnic, instead of the regular June meeting of Pomona Grange, will be held. As is usually the case at the time for the June Pomona, most of the members consider themselves too busy to attend and thus the June meeting is usually sparsely attended. It is hoped by those in charge that nearly every member will attend the picnic and bring the family with them. The picnic will be held on the Elk County Fair Grounds, which are already in the hands of workmen who are laying drain tiles, grading, repairing buildings and giving the grounds a general overhauling. Endeavors will be made to have several of the officials of the State Grange in attendance and a program of speeches, music and athletic amusements will be provided. While such a picnic will afford a pleasant day's outing it will also revive interest in the grange to a large extent and it is likely that if the venture proves a success it will be made an annual feature in this county.

. . . . .

With Good Roads Day only a short time off and the memory of last year's event still so vivid in the minds of those who have the interest and welfare of the County at heart, it is sure that the day will be observed in a manner that will greatly outclass that of last year. The Benzinger Township Good Roads Club, organized thru the outcome of last year's event, is taking the initiative and with good example will induce other communities in the county to get into line. The success achieved by Benzinger Township last year, when several hundred men and nearly a hundred teams turned out, was carried before the farmers thru the grange and at the time many of those who have occasion to use the roads frequently signified their intention to see that the day would be properly observed this year. Now that the time is approaching so closely, let everybody get into the harness and help; this not a case of "Let George do it"!

. . . . .

What a comparatively short time has passed since the day when the farmer was referred to as "hay-seed" "sod buster" and similar sobriquets! It seems as tho but yesterday since he was caricatured in song and picture, in tho stage and off, and his arrival in town was nearly always greeted with some covert, derisive smile. But lo! how the times have changed! The term "hayseed" has given way to the term "agriculturist" and his coming, especially when that coming is heralded by the honk of a big, shiny touring car, usually means the setting up and taking notice of those with whom he is thrown in contact. Even in 'way-back Elk county the farmer is coming into his own. The lighning rod agent is an infrequent visitor, especially the brand that used to come supplied with a bale of blank notes, disguised to resemble a simple contract. The auto dealer has our farmer in mind when the spring supply of cars is ordered. The hardware man carries bath room outfits that can be easily conveyed to and set up in the farm home. Natural gas finds its way into many homes and acetylene outfits for illuminating purposes are not unheard of.

Dispersal Sale of Poultry, Etc.
FOR J. CORBIT DAVIS, at Pen-y-Bryn Poultry Farm, Ambler, Pa.
Thursday, June 1st, 1916, at 11 A. M.
1200 S. C. W. Leghorn laying hens, Wyckoff and Tom Barron strains, 1 and 2 yrs. old; 125 Barred Rock hens, 1 yr. old; 125 S. C. and R. C. R. I. Red hens, 1 yr. old; 20 White Rock hens, 2 White Rock cockerels, 1 yr. old; all pure bred stock of selected laying qualities. 1500 chicks, 7 wks. old; 3500 chicks 3 to 4 wks. old, mostly S. C. W. Leghorns. Poultry houses, 20 colony houses, 10x12 ft.; 20 colony houses 4x6 ft.; 6000-egg Candee hot water incubator, all other poultry equipment, and all the stock, machinery and equipment of 80-acre farm.
This is a complete dispersal sale, as Mr. Davis is now devoting his entire time and attention to the business of Davis Brothers Rolling Mills, Philadelphia, Pa., and desires to make an entire clean-up of his farm interests. Write for circular.
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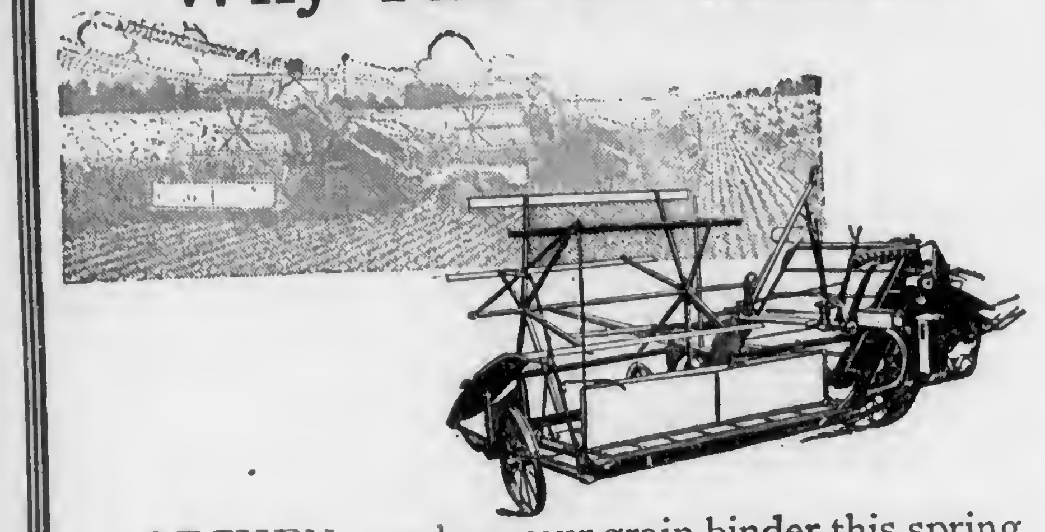

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Guilty of having S C. W. Leghorn hens that weigh 5 to 6 lbs. and they lay in Jan. as in May. Eggs, 15 $1; 50, $2.75; 100, $5. Will H. Tope, Carrollton, O.

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S.C.W Leghorns Eggs 15 for 75c bal. season. ("hat lay and please")
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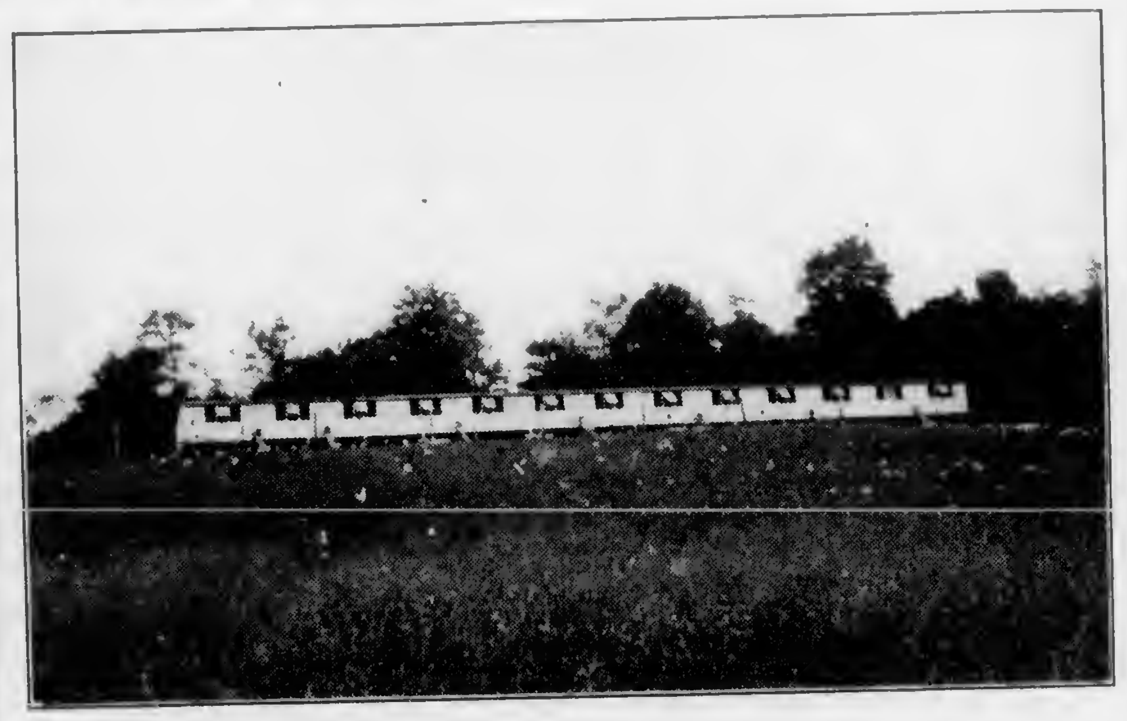
Poultry

CARE OF THE GROWING FOWLS

The growth of a fowl depends in the greater part upon the care it gets while growing. Some poultry keepers look well after them until they are out of danger of the little chick troubles, after which they let them shift for themselves, a losing matter; for the growing stock will nearly stand still in growth, and come far short of the weight called for by the breed unless it is fed regularly, and all it can stuff at each feeding. No danger of overfeeding young chickens or other fowls when on range.

To neglect keeping pure fresh water handy at all times is one sure way to hurt the growing chick. They require much water; to allow them to go thirsty will mean something like a founder for many of them when they do get to water; and especially don't let this happen to ducks.



POULTRY HOUSE ON FARM OF E. L. PHILLIPS & SONS, CLARION CO., PA., OATS CROP HARVESTED BY THE FOWLS.

To allow the growing flocks to sit in damp quarters, made so by their own filth, will bring on special forms of "going light", which means sure death after long and hungry lingering. It is waste in two ways by not killing them off at the beginning, for they consume more food than a healthy chick, and this trouble eventually becomes contagious, and soon you will be lifting others of the same flock, and feel no weight except that of a mere handful of feathers. One such may mean the loss of ten others in the bunch it roosts with.

Coops for the growing stock should be cleaned and aired every morning. There should be sufficient ventilation at all times but on warm nights, the well fastened doors and ventilators must be covered only with screen wire. It will take all the fowls have gained in the day, to pay for the exhaustion of a night spent in a close coop. A low form of typhoid quite often sets in, killing or stunting the young fowls.

If you want the growing stock to do well, watchfulness and care must be your rule not the exception. When I hear farmers complaining of greater loss in weight and numbers of the two and more month old chicks, I do not need to investigate to know that neglect is the rule on that farm. Their feeding is insufficient, the water is missing when it should be on hand every minute, or, the fowls are allowed access to water in pools after rains. These fowls are where gapeworms abound, always full of them, and when the older chicks get their throats full of gapeworms that, invariably means retarded growth; also, while the larger chicks will not actually stand and finally die from mere persistent choking, they will often stop and draw long breaths for air, stay awake nearly all night sniffing and making a quirking noise because of the constant irritation in their throats. I have known over half the flock of growing fowls to die from this cause alone after it was thought they were safely past the age for gapes. They turn very blue, get poor and stop growing.

To keep a chick, duck or turkey growing their food should be of varied kind, with always some form of animal food; ducks especially need this, unless they feed about waterways. Many of the cultivated farms of today are short of enough insects and bugs to supply the fowls with enough animal matter. Many are also short of gravel for chicks and sand for ducks.

Ducks should be fed all milk in baked food. To set out pans of milk will stick up their down until this alone kills them, but chickens should have fresh, clean sour milk before them all the time. This I know, from long experience, gives them an appetite, and wards off intestinal troubles of various kinds, beside being an element for food in itself.

An excellent feeding formula for the growing fowls is made in this manner. Wheat bran, 50 pounds; corn meal, 20 pounds; ground oats, 15 pounds; shorts, 20 pounds; beef scrap, 5 pounds; ground bone, from 5 to 10 pounds. The growing body needs ground bone to give strength to the bones, and hurry up feathering.

Sell off enough of the grain most plentiful on the farm, and invest the money in a variety, for one kind of feed alone soon brings on a certain state of indigestion or intestinal trouble that retards quick development. Corn or oatmeal brings on constipation if fed steadily. This has its attendant evils. All protein foods such as wheat, induces an intestinal trouble and bowel looseness that finally brings disaster to the flock. Too much oats brings up, finally, packing of the crop and intestines. Above all, watch the grain growing about wheat shocks or stacks, especially if there be much rain, for here grows the deadly ergot on grain that kills each year the better part of many a well grown flock of chickens, and to the mystery of the owner.—Ida Shepler.

Cut clover or alfalfa, either of which may be eaten by the chick without injury, is used for litter in the brooder.

Small chicks often die from filling up on shavings, sawdust, bran, grit and other particles used in the litter. When the chick has learned to distinguish between food and injurious particles, cut straw or shavings may be substituted.

Mark all hens that have recovered from roup and never use one in the breeding pens. A hen that has recovered from an attack of roup is never constitutionally strong.

Live Stock

SELECTING A STALLION

As the season approaches when the farmer expects to have one or more mares bred, it is important that some attention be given to the selection of a stallion of the proper type. Haphazard methods will not do, if ultimate profit in the transaction is looked for. You should know just what kind of a mare you have and just what kind of a sire would be suitable to mate her with. If you have a Clydesdale mare, by all means breed her to a Clydesdale stallion. If you have a Cleveland Bay, a Standard Breed or a roadster, stick to that type. Look over your mares closely and employ the service of only the very best sires available. It costs just as much in time, money and stall space to keep a poor horse as it does a good one. Put the former in a good stable and give him the best of care and you do not improve his quality. You still have a poor horse.

Confining the scope of this article more particularly to heavy horses, let us consider what the prospective sire has to offer. In the first place, I like him to have a good, broad fore-head, a bright intelligent eye and well set ear. Then you are apt to have a horse with some brains—one that can be taught something. Then, too, he should have an open jaw, not meaty and thick in flesh; nice clean-cut throat to insure good breathing power; a well set neck, fairly heavy and well blended into the shoulder—indicating that he is well muscled about these parts and able to handle heavy loads without getting sore shoulders easily.

Do not use a stallion with his legs set out on each corner. His apparent broadness may be deceiving. He is very likely to have a hollow chest and a weak fore flank — two things that we want especially to avoid, because they are pretty sure indications of a weak constitution, and that is a great detriment to breeding stock of any kind. He should have a deep chest, with the legs well set back under the body, a fair width apart. Then you will be better able to see him as he really is, not what he appears to be.

He should be well muscled down the inside of the legs, with a fair length from the elbows to the knee. The broad, flat knee placed reasonably well to the outside of the leg is desirable. The important thing in draft horses is the right quality of bone. Without sacrificing this, the bone should be as large as possible, but quantity must be governed by quality. You will have noticed that some men can do any sort of hard labor getting their hands very rough and dirty, yet when washed they will hardly have a crack or break whereas the hands of another man doing the same work will become sore and cracked. We have exactly the same thing in horses. Let him have a hard, flinty bone, covered with a nice skin and with a good quality of hair and he is not likely to have any trouble in the way of scratches or anything of that kind.

A horse should have nice springy pasterns of medium length and a good hard flinty foot, not abnormally large. A medium sized foot will wear a little better and is not quite so apt to get down at the heels or become flat-footed. I like a horse with the withers carrying far back. The back should be short, strong and well muscled. The ribs should spring out well from the back nice arch. It is a difficult matter to bone and as long as possible with a get the desired spring and depth of rib in the same animal, but it is worth aiming for. If you were looking for an exceptionally strong man you would expect to find that he was built with strong muscles down his back and over his hips. The same principle holds good for horse selection.

Standing by the side of a horse you want to select an animal with a nicely set leg and with the hock broad, clean and hard. Looking at him from the front you want a hock that is broad and clean. That is the kind that will wear and stand all kinds of heavy work whether it be backing or going forward. The hind leg and shank should be practically the same as the frontal description except that the hind shank requires about three-quarters of an inch more of bone.

Another important thing is to know that you have a horse that is a good walker; a horse that will pick up his legs fair and square and set them down straight, moving every joint, not one that will move his limbs with no knee or hock action. If these defects are in the sire they are pretty sure to be in the colt. Some horses, when they are walking away, will throw their feet out sideways and others when running toward you will step over. These are things we do not want. One that will pick his feet up straight and set them down straight is preferable. However, of the two former I would select the one that stepped over because he will climb a hill better with a heavy load than a horse that keeps his legs too far away from him. Of course, no matter how carefully you make your selection of a stallion, you won't find one that is perfect. What is most essential is that the stallion you use will be particularly strong on those points in which the mare is defective.—J. Hugh McKenney, Ontario, Can.

ESSENTIALS IN PROFITABLE SHEEP RAISING

1. The willingness of the farmer to pay the proper attention to his flock at the critical times during the year.

2. To produce lambs of early maturity that should, preferably, be marketed before the first of June (earlier the better).

3. To control parasites in the flock by the sale of early lambs, the proper rotation of pasture for grazing and the flock management.

4. To protect the sheep from dogs, by creating community interest for sheep, enforcing the dog laws and keeping sheep within protected quarters at night.

5. Utilizing pasture to the greatest degree.

6. Feeding corn silage with clover or alfalfa hay to breeding ewes and supplementing with grain following lambing.

7. Selection of breeding sheep that possess merit in wool as well as in mutton production. Constitutional vigor as a result of breeding and exercise are essentials in a foundation flock.

8. A purebred ram of type and quality should sire the lambs.

9. Cheap equipment which offers protection, plenty of ventilation and a dry footing is necessary.

10. Marketing the products of wool and mutton with an understanding of market values and demands. Co-operative effort of farmers in this connection has proven very successful. (In Tennessee and Canada.)

11. A flock of 50 to 100 breeding ewes is a good number for an average flock. This number is sufficient to create enough interest for proper care.

12. The proper realization of the important fact that sheep could take in the control of weeds on the farm and the "up building" of soil fertility.

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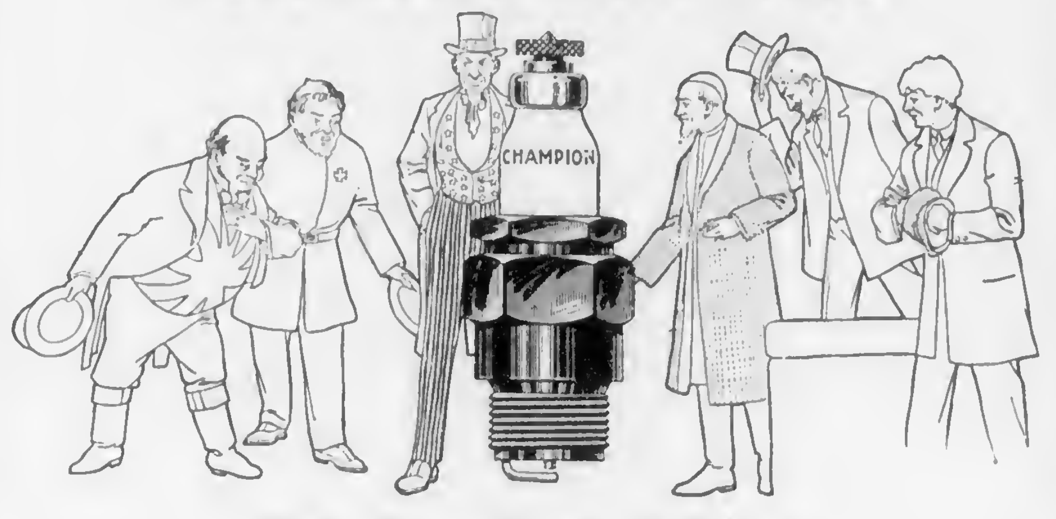

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The Useful Casserole

Perhaps no one cooking utensil has proved more helpful to the housewife than the casserole. It has come to stay, and its general use will tend to lessen food expense, increase wholesomeness and digestibility of food and lessen the labors and worries of the housewife.

It is both a roaster and a serving dish. It is simply made, easily cleaned, fireproofed, and cooks food at a low temperature in an oven that would not be effective with the ordinary metal uncovered baking dish. It is inexpensive, its more common forms being of brown fireproof earthenware. It may have a white lining or not; an expensive silver-plated or nickle holder for use on the table, or not; the chief requisites are the fireproof quality, the thick walls, the covered top, and the glazed sanitary finish.

Both the casseroles and timbale cups come in other materials than the useful and excellent brown vitrified pottery. There is the fireproof Japanese ware pudding dish, in all sizes, a sample of which is shown in the white shallow bowl in the foreground at the left of the cut. The cups shown are of white-lined brown ware, and contain steamed cherry puddings. The casserole shown is of the same material, and contains scalloped oysters.

There are some fascinating new white glass baking dishes, transparent, thick walled, plain in design, and absolutely fireproof. These are quite expensive, but very durable, and some in oval or circular shapes, of various sizes, some shallow, some deep, with covers and without, including individual cups, and even pie-plates of glass. Imagine the attractiveness of various desserts baked and served in these dishes, the delicate coloring of juicy berry or currant pudding or desserts, for instance, as they show thru the glass.

Brown ware casseroles may be found at from twenty-five cents up to several dollars each, the cheaper ones doing equally satisfactory work. In fact, for all common purposes a common five-pound butter jar covered with a white earthen plate will turn out just as savory and delicious a roast as a $5 silver-plated casserole outfit, the only difference being that for the sake of attractive service the contents of the former will have to be removed and served on a platter or other dish, while the latter may go to the table with the contents undisturbed, and with its heat retained for a longer period, in consequence.

The thick walls insure long slow cooking, the kind of cooking best adapted to a large class of foods, including meats, legumes, eggs, cheese and many vegetables. If the oven is slow, heat the casserole and contents on top of the stove before placing it in the oven, so that the cooking can begin at once.

The casserole may be made to pay for itself almost every day in the year where the family is of much size, in the saving of meat bills accomplished by its use. Its slow cooking, closely covered, conserves all the delicious flavor, and actually makes a cheap cut of meat more tender and digestible than the most expensive cuts cooked in the old-fashioned ways. If you never used one, try one at once, even if you have to improvise one for the first attempt.

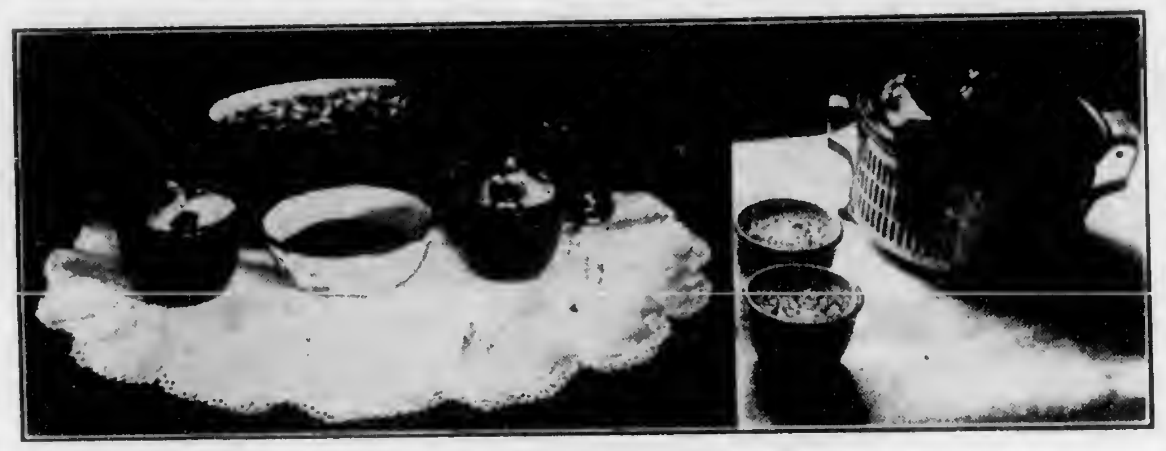
Let your first dish be a beef roast, using an 8 or 10-cent per pound cut, one that has plenty of lean meat, with a good deal of connective tissue, a quality that with ordinary treatment would produce a tough roast, dry and flavorless. Slice it in thick slices across the fiber, each slice designed for a portion or helping. Grease the casserole, lay in the slices of raw meat, sprinkle with salt and pepper to taste, with not a bit of water or liquid. Cover closely and place in a medium oven. Bake 1½ to 2½ hours, according to the amount of meat used. When tender (and it becomes exceedingly tender) remove the meat, and make a gravy of the rich juices of the meat to be found in the bottom of the casserole, turn the gravy into a gravy boat, replace the meat in the casserole and return to the oven for a few minutes to insure its being hot, and serve in the casserole, which keeps it hot. The meat will be found deliciously flavored and tender, the connective tissues being turned to a jelly-like consistency, while the gravy will also excel in quality.

The casserole may be used for meat dishes in variety, for macaroni and similar dishes, for escalloped vegetables, and a large variety of dessert foods, including puddings, waffles, etc.

The individual or timbale cups, or small fireproof ramekin baking dishes may be used for custards or puddings, for molds for jellies or individual salads, for delicious timbales, or for a variety of egg or meat dishes, served individually in the cups. They may be cooked in the oven or in the steamer.

Casserole Recipes

Here are some delicious casserole recipes, which make an economical use of materials, including leftovers. As many of these dishes may be prepared several hours in advance of meal time, then placed in a slow oven, they are a real boon to the housewife, relieving her of the worry over burning or drying out of the food while she makes a call or works in a distant part of the house until time to serve the meal.



(1) SMALL JAPANESE WHITE WARE BOWL WITH BROWN WARE RAMEKINS OR TIMBALE CUPS AND DISH. (2) CASSEROLE IN NICKEL OR SILVER-PLATED SERVING RACKS.

Steak and Spaghetti.—Cook ½ package of spaghetti in boiling water 20 minutes; drain, put 1 lb. round steak thru the food chopper (or a cheaper cut of lean meat will do); mix 3 tablespoonfuls of butter or drippings with ½ can tomatoes, the cooked spaghetti, 1 chopped onion, ½ cup bread crumbs, ½ cup grated cheese, and salt and pepper to taste. Bake one hour in a moderate oven. This is a very appetising dish, high in nutritive value, containing both heat-energy and tissue-building foods.

Hamburg Roast.—Two pounds Hamburg steak cut fine, 1 cup mashed potatoes, 1 tablespoonful flour, 1 egg or 1 cup of white sauce, a bit of onion if desired, salt and pepper to taste and 1 tablespoonful summer savory or ground sage. Mix thoroly, pat into a roll, cover with buttered crumbs, bake one-half to one hour in moderate oven. Serve sliced, either hot or cold.

Chicken en Casserole.—This may be made really a cheap meat dish as an old, tough, unmarketable fowl may be used, the long cooking rendering it tender and juicy. Clean the fowl, split it down the back and lay breast upward, or it may be disjointed if needed to get it into the casserole. Cover with 1 pint of hot salted water, cover and bake 1½ hours, or a little longer if necessary. When tender add 1 cup of hot sweet cream, 1 tablespoonful chopped parsley or a bit of kitchen bouquet, and, if an extra touch is desired, 1 cup of chopped mushrooms. Add more water if much gravy is desired, and 1 tablespoonful of flour. Cover and bake ½ hour longer.

Mock Duck with Potato Balls—Take 2 lbs. of beef from the lower round, put thru the food chopper, form into an oblong shape that when rolled will fill your casserole. Spread with a thick layer of potato stuffing, made as follows: 2 cups mashed potato, 1 beaten egg, 1 minced onion, 1 chopped stalk of celery, 1 tablespoon of butter, 1 teaspoon salt, a little pepper; mix thoroly, spread on the layer or sheet of steak, crease into thirds, then fold one outside third over onto the center, then fold over the opposite third into this, and pat down smoothly. Invert the buttered casserole over the roll, pick up the board on which the roll lies and let the roll fall into the casserole. Then lay thin strips of salt pork or bacon over the top of the roll, and surround it with small, globe-shaped peeled potatoes, which have been buttered. Cover closely and bake from 45 minutes to one hour. This is an attractive dish, especially when baked and served in the glass casserole, and will serve 12 people with satisfying portions.

Creamed Potatoes with Dried Beef.—Put a layer of thinly sliced cold boiled potatoes into a buttered casserole, and cover with white sauce. Then add a thin layer of sliced dried beef and repeat until dish is full. Sprinkle the top with buttered crumbs and bake 20 to 30 minutes. This is a hearty dish that will be much liked for church or grange suppers, as well as for home use.

Scalloped Lima Beans.—Over a layer of boiled lima beans put a layer of bread crumbs, seasoned with salt and pepper. Repeat until casserole is full, and pour over all sufficient white sauce to cover. Cover with buttered crumbs and bake one-half hour.

Escalloped Cabbage.—Proceed as for escalloped lima beans, using boiled cabbage and adding ½ cup of grated cheese. Those who can not eat cabbage in other forms find this very delicate and no tax on the digestion.

Vegetable Souffle.—Three good-sized potatoes mashed, 1 mashed carrot, a small slice of boiled turnip mashed, and 3 boiled mashed onions. Mix with 1 tablespoonful of butter, ¼ cup cream, a little chopped parsley or other herbs, salt and pepper to taste, and 3 egg yolks. Beat up the whites of the 3 eggs and fold in, turn into buttered casserole, and bake in a rather quick oven. Serve at once.

Corn and Cheese Souffle.—Cook 1 chopped green pepper in 1 tablespoonful of butter, or use 1 chopped pimento or red sweet pepper; mix with 1 cup sweet corn put thru the food chopper, and 1 cup of grated cheese, 2 cups of milk, ¼ cup flour, ½ teaspoonful salt, and the yolks of 3 eggs. Fold in the beaten whites of the 3 eggs, and bake 30 minutes. This is very nutritious, and will take the place of a meat dish.

Vegetable Pie. — Into the casserole slice 6 boiled potatoes and 2 carrots, add 1 cup boiled peas, I cup lima beans or cooked string beans, 2 cups tomatoes, ¼ cup butter or ½ cup cream, 1 cup bread crumbs, and salt and pepper to season. Cover with white sauce and over the top place a layer of mashed, well-seasoned potatoes. Bake 1½ hours. This is enough to serve a large family.

Timbale or Ramekin Recipes

For use in the individual ramekin or timbale cups the following recipes will be liked:

Bean Timbales.—One cup cold bean pulp (sieved), 1 cup milk, 2 beaten eggs, 1 tablespoon melted butter, ½ teaspoon salt, 1-8 teaspoonful paprika; mix in order named, turn into cups, set in a pan of hot water and bake until set.

Savory Eggs.—Take any bits of cold meat, ham, beef or veal, chop fine and put a bit into the bottom of each buttered cup, with a little salt, pepper and chopped parsley or minced onion. Break into each cup 1 egg, sprinkle with salt and pepper and steam until set. Turn out on slices of fried toast and serve promptly.

Macaroni Timbales.—These are very attractive when baked in the transparent glass cups. Line the cup with a long strand of cooked macaroni, beginning at the bottom and coiling it around the outside until the top is reached. Fill with either sliced fresh tomatoes, cold boiled egg or chopped pimentos, cover with white sauce, then with buttered crumbs, and bake. They are as good as they look.

White Sauce.—The white sauce referred to in the above recipes is the ordinary rule for white or cream sauce, as follows, increasing the quantities as needed. Blend 1 tablespoonful butter smoothly with 1 tablespoonful of flour, cook a minute or two, add 1 cup of sweet milk, and salt and pepper to taste. Be sure that the flour is well smoothed into the butter and well cooked, but not browned; let the milk just come to a boil.—Mrs. Mabel G. Feint, Tomkins Co., N. Y.

TO CLEAN LACES AND CROCHET WORK

There is no process by which delicate laces and hand-made trimmings may be cleaned satisfactorily which does not take time. But if the finished article looks as near as possible like new, the time amounts to little in the joy of succeeding. Narrow lace edges, whether of tatting, crochet or knitting, may be cleaned and made like new in this way. The same method may be used very successfully in cleaning crocheted buttons, bags and heavy trimmings.

Put the soiled lace in a clean bag—a sugar bag is good—and throw into a pan of warm suds. The suds should be made by cutting a pure white soap into water in which one teaspoonful of ammonia to each quart of water is heating. Allow the water gradually to come to a boil, pushing the bag up and down. Remove and cool, squeezing gently that the suds may pass thru the bag. Rinse and blue slightly, if the lace be white, and hang to dry in the sun in the bag. Give the bag a shake now and then, but do not take the articles out until thoroly dry.

Narrow lace may be straightened out on a Turkish towel and pressed with another towel between it and the iron. This will give it some shape and make it easier to work with. Now take it in the hand and patiently pick out each loop and point with a blunt pin, pulling into shape. Tatting will respond splendidly to this treatment and look as if it had just come from the hand of the maker.

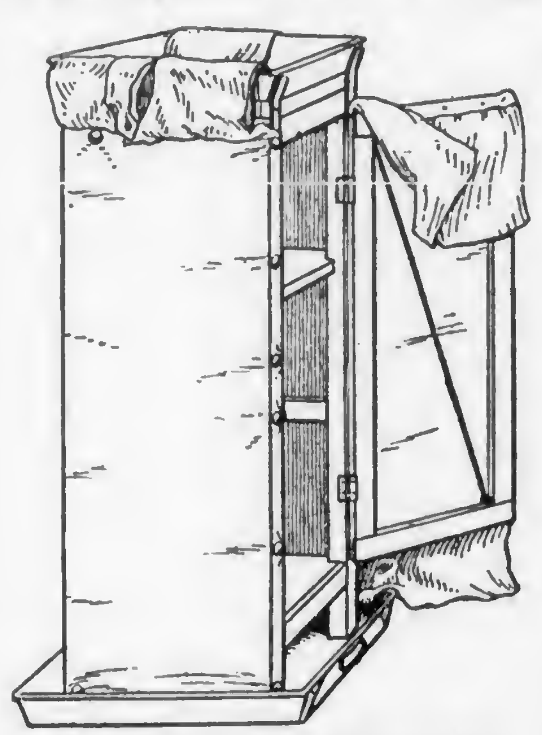
The crochet bags and buttons will need only to be shook in the air and pulled into place.—Mrs. Effie P. Loomis, Delaware Co., Pa.

THE ICELESS REFRIGERATOR

The accompanying illustration shows a home-made iceless refrigerator, or milk cooler. This consists of a wooden frame, covered with canton flannel or similar material. It is desirable that the frame be screened, altho this is not absolutely necessary. Wicks made of the same material as the covering rest in a pan of water on top of the refrigerator, allowing the water to seep down the sides. When evaporation takes place the heat is taken from the inside, with a consequent lowering of the temperature. On hot, dry days a temperature of 50 degrees can be obtained in this refrigerator. The following description will aid in the construction of this device:

Make a screened case 3½ feet high with the other dimensions 12x15 inches. If a solid top is used, simply place the water pan on this. Otherwise fit the pan closely into the opening of the top frame and support it by 1-inch cleats fastened to the inside of the frame. Place two movable shelves in the frame, 12 to 15 inches apart. Use a biscuit pan 12 inches square on the top to hold the water, and where the refrigerator is to be used indoors have the whole thing standing in a large pan to catch any drip. The pans and case may be painted white, allowed to dry, and then enameled. A covering of white canton flannel should be made to fit the frame.

Have the smooth side out and button the covering on the frame with buggy curtain hooks and eyes, arranged so that the door may be opened without unfastening these hooks. This can easily be done by putting one row of hooks on the edge of the door near the latch and the other just opposite the opening with the hem on each side extended far enough to cover the crack at the edge of the door, so as to keep out the warm, outside air and retain the cooled air. This dress or covering will have to be hooked around the top edge also. Two double strips one-half the width of each side should be sewed on the top of each side and allowed to extend over about 2½ or 3 inches in the pan of water. The bottom of the covering should extend to the lower edge.



HOME-MADE ICELESS REFRIGERATOR.

Place the refrigerator in a shady place where air will circulate around it freely. If buttons and buttonholes are used on the canton flannel instead of buggy hooks, the cost should not exceed 85 cents.—Dept. News Letter.

"Hash Pie" is an excellent way to dispose of left-over meats. Mince fine, add a chopped onion and seasoning. Put the meat into a rich biscuit dough rolled out in the shape of a pie. Bake, and pour a gravy over it before sending to table.

STOP
SLINGING COAL
and
CARRYING WOOD

It's not a woman's job, but it's part and parcel of a coal range just as much as getting up before the folks to fix the fire for breakfast. It's unnecessary, a hardship, a waste of energy, health, time and money.

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A **Perfection** burns kerosene. And kerosene is ever so much cheaper than coal and wood. And it consumes fuel only when actually in use.

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Don't think of burning anything in a **Perfection** but **Atlantic Rayolight Oil**, for it is the one kerosene you can be sure of—that you can buy by name, knowing that every gallon will burn down to the last drop without a bit of smoke, without a bit of smell and without charring the wicks.

Ask for **Atlantic Rayolight Oil** by name, just as you get most other things the grocer sells. Then you can be sure that out of every gallon of kerosene you buy, you will get the greatest possible amount of heat.

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The Fur Bringers

By Hulbert Footner

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SYNOPSIS OF PRECEDING CHAPTERS

Ambrose Doane, junior partner of the fur trading firm of Minot and Doane, is in love with Colina Gaviller, the daughter of John Gaviller, manager of The Company which is Doane's most powerful business competitor. While on a visit at Colina's home Doane is urged by the Indians to open a rival trading post and take their furs. This he refused to do hoping to avoid open opposition to Colina's father. He is offered a wonderful black fox pelt by Alexander Selkirk, an Indian, and buys it, giving his canoe to the Indian and permitting him to leave the camp. Ambrose learns a few hours later that Selkirk shot Mr. Gaviller in a quarrel over the fox pelt, and as he permitted the Indian to escape, he is held partially responsible for the crime. Colina construes his sympathy for the Indian as unfriendliness for her father and rejects his offer of help. Against his advice she enforces a price of $1.50 per bushel for the Indian's wheat which causes threats of rebellion into which Ambrose is drawn by his Indian friends. To prevent violence against Company property, Ambrose finally agrees to buy a part of the wheat at $1.75 per bushel. He brings in a mill and prepares to grind flour. In the meantime he is met by a tribe of fur trapping Indians who demand flour at once. He is forced to use the company mill.

CHAPTER XVIII (Concluded.)

The sleepy miller was finally aroused.

A sound like a chuckle escaped the boy. No doubt he was well-informed as to the situation. "You didn't lose much time," he said.

They started back to the mill, a breed on either side of Greer with a hand upon his shoulder.

"If you make a break, you'll be knocked down and carried in," warned Ambrose.

Apparently Greer had no such intention. He was a matter-of-fact youth and prone to laughter. He laughed now. "Golly! the old man will be in a wax when he hears of it! How many men have you got?"

"Twenty-five," said Ambrose.

"Well, he can't blame me if I'm forced to work by overwhelming numbers! Oh, golly! but there'll be a time tomorrow!"

Ambrose breathed more freely. This which had promised to be the most difficult part of his plan was proving easy.

Entering the mill, Greer looked around the dim place with its little crowd of still, silent, armed men, and chuckled again. "Darned if it isn't as good as a melodrama!" he said.

"Go to it!" said Ambrose, pointing to the machinery. He lit plenty of lanterns, careless now if the fort were aroused. They had to wake up sooner or later. "You can smoke," he said to his men.

Matches were quickly struck, and coals pressed into pipe bowls with guttural grunts of satisfaction.

Greer lit a cigarette, and picked up his oil can and wrench as a matter of course. He set to work, whistling softly between his teeth.

Ambrose, watching him, could not make up his mind whether this was due to pluck or sheer light-headedness. Either way, he was inclined to like the boy.

"I say, Ambrose," Greer said cheekily. "Give us a hand with these bolting frames, will you? Do you want fine flour or coarse?"

"The most in the least time," said Ambrose.

"We'll leave in the middlings then. It's wholesome."

They worked amicably together. Greer in his simplicity explained everything as they went, and Ambrose cannily stored it away.

Fortunately, the mill had lately been operated, grinding the grain from the Crossing, and all was practically in readiness to start. Within an hour after the landing of the party, Tole turned on his steam.

The wheels began to revolve, Greer threw in the clutch, and presently a veritable stream of flour began to issue from the mouth of the machine. Ambrose repressed an inclination to cheer.

CHAPTER XIX

Woman's Weapons

The steady hum of machinery was more effective to awaken the inhabitants of the Fort than any scattered noises.

The sounds of movement began to be heard among the houses. Lights were lit, and doors opened. No one who looked out of doors could mistake what was going on, for a stream of sparks was now issuing from the engine-house stack.

The first notice of attack came in a single shot from across the road. A bullet sang through the doorway, flattening itself with a whang on the iron wall. Those around the opening fell back.

Some one crashed the door to. Ambrose as quickly opened it, and stooping low, peered out. He was in time to see a crouching figure disappear around the corner of the store. Something in the bulk of it, the neat outline gave him a clue.

"Strange, by gad!" he said to himself.

Aloud, Ambrose said: "The door must be open. We've got to see and hear what they're up to. Let every man keep out of range. Make a wall of bags of grain on this side of the machine, and put the lanterns behind it, so Greer will have light."

While they worked to obey him, Ambrose, flinging himself down at full length, watched with an eye at the crack of the door. He saw a group of men gradually gather at the corner of the store. They advanced, hesitated, fell back.

Finally, an authoritative figure showed itself. Ambrose guessed it to be Macfarlane, the policeman. He advanced boldly down the sidewalk, and took up a position across the road. The others straggled after him.

"Who is there?" challenged the leader. Ambrose distinguished the tunic and forage cap.

Ambrose rose, and opening the door wider, showed himself. "Ambrose Doane," he said. He warily watched the crowd, for any movement suggestive of raising a gun.

"You're under arrest!" cried the policeman.

"All right," said Ambrose coolly. "What charge?"

"Unlawful entry."

"You'll have to come and take me!"

"If you resist the law the consequences will be on your own head!"

"I accept the consequences."

"Stop the machinery!" cried the policeman. "If you destroy the mill we'll all starve!"

"The miller himself is running it," said Ambrose coolly. "With a gun to his head," he added, grinning over his shoulder. "I seized him in his bed and carried him here."

"Good man!" Greer, behind him, gratefully murmured.

"If you refuse to give yourself up I'll take you by force!" cried Macfarlane.

"Come ahead!" sang Ambrose. "I've got twenty-five men here. They have orders not to shoot, but if you open fire on us, the consequences will be on your head!"

"I'll do my duty!" shouted the policeman.

"Get your crowd together!" taunted Ambrose. "Lay your guns down, and come on over and put us out if you're men enough. We'll stand by the result."

The men behind Ambrose raised a cheer. The sound did not improve the morale of the other side. Even in the dark, the difference between the two crowds could be felt.

Ambrose's men were fighting for what they felt to be their rights; the men behind the policemen had no incentive—except their jobs. Macfarlane paused to consult with another man—probably Gordon Strange.

The others talked in excited whispers, and circled on one another without making any forward movement. Messengers were despatched up and down the road.

Suddenly a petticoated figure came flying down the sidewalk from the store. Ambrose's heart leaped up, and then as suddenly calmed. He told himself grimly he was cured.

It was Colina. "What are you standing here for?" she cried passionately. "Are you afraid? They are nothing but common robbers! Go and put them out!"

No man moved.

"Fire on them!" cried Colina. "I order it! I take the responsibility."

They still hung back. Macfarlane could be seen attempting to expostulate with her.

"Don't speak to me!" cried Colina. "When you find robbers in your house you shoot them down! You're afraid! I will go myself!"

All in a breath she came flying across the road. Ambrose, surprised, fell back a step from the door. Before he could recover himself she stood in the middle of the shed facing them with blazing eyes.

She had risen hastily; her glorious hair was twisted in a loose coil and pinned insecurely; the habit she had thrown on was still open at the throat.

She had caught up a riding-crop; the knuckles that gripped it were white. Ambrose, admiring her in an odd, detached way, was reminded of Bellona, the goddess of anger.

"What does this mean?" she cried.

"What you see," said Ambrose coldly.

"Get out!" she cried. "All of you! I order it!"

The men cringed under her angry glances, and their eyes bolted. Only the sight of Ambrose standing firm, kept them in their places. Colina turned on Ambrose.

"You thief!" she cried with ringing scorn.

Ambrose coldly faced her out. Somehow he found it was his turn to smile. As a matter of fact he had suffered so much at her hands that he had become callous and strong enough to resist her.

Indeed, there was a kind of bitter sweetness in this moment. She, who had humiliated him so many times was now powerless before him, let her rage as she might. He was only human.

Seeing the cold smile Colina felt as if the ground was suddenly cut from under her. Her cheeks paled, and the imperious blaze of her eyes was slowly dimmed.

When the bolt of passion is launched without effect a horrible blankness faces the passionate one. The men, seeing Colina falter, breathed more freely. They were frankly terrified of her.

Colina fought on, though her forces were in confusion. "Have you anything to say for yourself?" she demanded of Ambrose. "What are you doing on my father's property?"

"I have nothing to say," said Ambrose. "You know the situation as well as I."

Once more their eyes contended. Hers fell. She turned away from him. When she came back, it was with an altered air. "May I speak to you alone?" she asked in low tones.

"Please say it here," said Ambrose. "They cannot hear."

"My father"— she murmured with a deprecating air. "I am afraid this will kill him. I have locked him in his room. I don't know what he will do. Can't you stop until tomorrow?"

"If you will pledge yourself for him to finish grinding my grain tomorrow," said Ambrose.

"How can I pledge him?" she said pettishly. "I am not his master."

"Then we must grind on."

She was silent for a moment, looking on the ground. When she raised her eyes the look in them sent all the blood flying from his heart. "Ambrose!" she murmured, on the deep note he remembered so well. "Have you forgotten?"

"How can you be so hard to me?" she murmured.

She overdid it. Behind the intoxicating, soft appeal of her eyes, he perceived a dangerous glitter, and steeled himself.

"Come outside a moment," she whispered, turning up her face a little.

The unregenerated man in him leaped to accept what she offered and still hold firm. If she chose to play that game, let her take the consequences? His more generous self held back. Somehow he realized that the humiliation would almost kill her—later.

"It is too late," he said coldly.

This in itself was a humiliation the proud Colina could not have conceived herself living after. From between narrowed lids she shot him a glance of the purest hate, and quickly turned away.

The riding crop switched the air like the tail of an angry cat. There was a silence. All watched to see what she would do next.

Meanwhile the mill was grinding smoothly. The young miller was hidden from Colina by the barricade of grain bags. Finally she looked over the top and saw him attending the machine.

"Greer!" she exclaimed in surprise.

The boy started, and turned a pair of stricken eyes in her direction. His ruddy cheeks paled a little. Manifestly she wielded a power over him too.

"Are you against me?" she murmured sadly.

This was the same tone she had just used to Ambrose. His lip curled. "He has to do what I tell him or be knocked on the head," he said quickly.

Colina ignored this. "You could fight for me if you would," she murmured to the boy.

A hot little flame of jealousy scorched Ambrose's breast. He laughed jeeringly. "Who's next?" he cried.

Colina, not looking at him, drew a baleful breath between her teeth. Suddenly she turned, and with hanging head slowly made her way toward the door.

Ambrose thought she was beaten, and a swift wave of compassion almost unmanned him. He abruptly turned away. He could stand anything but to see Colina defeated and grieving. He clenched his teeth to keep from crying out to her.

She had another card to play. She stopped at the door, and looked about through her lashes to see if the way out was clear.

"Duncan!" she softly cried. The word was accompanied by a dazzling smile of invitation.

The boy dropped his wrench as if he had been shot, and vaulting over the grain bags, was out through the door after her before any one could stop him.

CHAPTER XX

Undercurrents

As Greer disappeared in the darkness several men started in pursuit.

Ambrose was quicker. He flung himself into the opening, and thrust them back. Though he was on fire with jealousy, he would not go after Greer, nor let the others go.

He could scarcely have explained why—perhaps because he dimly apprehended that it was Colina's game to drive him mad with jealousy.

"Let him go," he said thickly. "I will run the mill myself!"

So long as the wheels revolved smoothly and the steam of creamy flour issued from the mouth of the machine the miller had a sinecure. Ambrose scowling and grinding his teeth scarcely saw what his eyes were turned on. His mind was busy outside.

He was sharply recalled to his job by a tearing sound from within the machinery. The flour came out mixed with bran. The wheels jammed and stopped.

Ambrose threw out the clutch and doggedly attacked the problem. It was cruelly hard to concentrate his mind on machinery while a damnable little voice in his brain persisted in asking over and over: "Where are they? What are they doing? How far will rage carry her?"

He contrived to remove the torn frame without much difficulty, but how to clean out the mass of stuff that clogged every part of the mechanism defied his ingenuity. Apparently the thing must be taken apart. How could he hope to put it together by lantern light?

There was a stir at the door, and Duncan Greer slouched in with a hang-dog scowl. Never in his life had Ambrose been so glad to see a man. He was careful to mask his joy. He glanced at the boy carelessly and went on with his work. Duncan came directly to him.

"I'm your man," he muttered. "For keeps, if you want me."

"Sure," said Ambrose, very offhand. "Help me get this thing going, will you?"

As they worked side by side in the lantern light, Ambrose perceived a red welt across the boy's forehead and cheek that was momentarily growing darker. He smiled grimly. Duncan, finding his eyes fixed on it, flushed up painfully.

"Women are the devil!" he muttered.

A great unholy joy filled Ambrose's breast. In his relief he could have hugged the boy, and laughed.

"Don't abuse the women, my son," he said grimly. "They have to fight with what weapons they can. You were warned. You only got what was coming to you!"

When the machine was running smoothly again Ambrose went to the door to reconnoitre.

"They've gone," he said. "I don't think they'll trouble us again before morning. You can all sleep."

Daybreak and the following hours found Ambrose and his party on the qui vive for a renewed demonstration from the other side. None was made. Neither Macfarlane, Gordon Strange nor Colina could have mustered a corporal's guard of the natives to their aid. The breeds in their own mysterious way had simply disappeared.

Without them, the half dozen whites could do nothing against Ambrose's strong party. Colina herself had suffered a moral defeat, and required time to recoup her losses.

In the back of the store the white men and Gordon Strange held lengthy consultations without agreeing on any course of action. Strange in his modest way deferred to Macfarlane and the others.

But John Gaviller's absolute sway at the post had sapped the lesser men's initiative. He was not able to be present, and they were helpless.

It was decided to send for help to police headquarters at Caribou Lake. They could not despatch the big steamboat which had been dismantled for the winter, but the launch was available.

Gaviller had it to use at the end of summer when the water ran low in the river. They managed to collect enough half-breeds for a crew; Masters ran the engine, and Captain Stinson piloted.

Thus in order to send for help the little force had to rob itself of two of its best defenders. They got away in the middle of the afternoon. With luck they could be back with the redcoats in two weeks or three.

Meanwhile the mill was grinding blithely.

Ambrose, who desired at all costs to keep the Indians in ignorance of what was happening, for fear they might get out of hand, sent Germain Grampierre to his father's house to get what little flour they had, and carry it to Watusk to feed the Kakisas for that day.

As far as he could see there was no other communication from one side of the river to the other. He observed the departure of the launch with a calm brow. He guessed its errand, and was not at all averse to having the police brought down and the whole matter thoroughly aired.

All day the wheels revolved, and all during the following night, Ambrose and young Greer watching the machine by turn.

At breakfast time on the second morning the hopper was empty, and the last bag of flour tied up. They had enough to satisfy the Kakisas' demands, and something besides.

In the center of the shed Ambrose left the miller's tithe in payment, with an ironical note affixed to one of the bags. The flour was loaded in the york boat, and the entire party set off in high feather.

Their arrival with the flour at the Indian camp created something of a sensation. The children came running down to the water, capering and shrieking, accompanied by the barking dogs.

Men followed, eager to toss the bags to their shoulders. They made a long procession back to the tepees, the women crowding around, laughing, gesticulating, and caressing the fat, dusty bags.

By Ambrose's orders the bags were piled up in an imposing array in the middle of the square. He knew the value of a dramatic display.

The half-breeds who had been on duty for thirty-six hours, scattered to their homes up and down the river, Simon Grampierre and Tole remained with Ambrose.

The york boat was left drawn up on the beach below the camp. To this fact Ambrose traced all the subsequent disasters. But he could not have foreseen what would happen. The Indians at the sight of so much food were as candid and happy as children.

When the last bag of flour topped the pile, Ambrose sought out Watusk. He found the head man as before, evidently awaiting an official communication, with his dummy councilors on either hand. Watusk's smooth, flabby face was as blank as a plaster wall.

"I have brought your flour," said Ambrose with a note of exultation justifiable under the circumstances.

Watusk was not impressed. "It is well," he said with a stolid nod.

Ambrose was somewhat taken aback. An instant told him that Watusk alone of all the tribe was not glad to see the flour. Ambrose scented mystery.

"Where you get the flour?" asked Watusk politely.

"I borrowed Gaviller's mill to grind it," Ambrose answered in kind.

Watusk's eyes narrowed. He puffed out his cheeks a little, and Ambrose saw that an oration was impending.

"I hope there will be no trouble," the Indian began self-importantly. "Always when there is trouble the red man get blame. When the fur is scare, when summer frost turn the wheat black it is the same. They say the red man make bad medicine.

"Two white men have a fight, red man come along, know nothing. Those two white men say it is his fault, and kick him hard. You break open Gaviller's mill. Gaviller is mad, send for police. When the police come I think they say, it is Watusk's fault. Send him to jail!"

It was evident from this that Watusk was pretty well informed of what had happened. "How do you know they have sent for the police?" Ambrose demanded.

Watusk shrugged expressively. "I see the launch go up the river in a hurry," he said.

In the light of his insolent demand two days before, the Indian's present attitude was more than exasperating.

"This is foolishness," said Ambrose sharply. "I sell you the flour. How I got it is my affair. I take the responsibility. The police will deal with me!"

"I hope so," said Watusk smugly.

"I have made out a receipt," Ambrose went on. "You sign it, then distribute the flour among the people, and give me the men's names so I can charge them on my book."

"Tomorrow I give it out," said Watusk. "Today I put the flour in Gaston Trudeau's empty house by the river. Maybe goin' to rain tonight."

"Just as you like about that," said Ambrose. "When are you going to pull out for home?"

"Soon," replied Watusk vaguely.

"They tell me it is the best time now to hunt the moose," remarked Ambrose suggestively. "And the bear's fur is coming in thick and soft. You have been here two weeks without hunting."

Again Watusk's eyes narrowed like a sulky child's. "Must the Kakisas got hunt every day?" he asked spreading out his hands. "The people are weak with hunger. We got eat before we travel."

Ambrose left this interview in a highly dissatisfied state of mind.

Later in the day Watusk must have thought better of his surliness for he sent a polite message to Ambrose at Simon Grampierre's house, requesting him and Simon to come to a tea dance that night.

He had borrowed Jack Mackenzie's house for the affair since no tepee was big enough to contain it. Mackenzie's was the first house west of the Kakisa encampment.

"Tea-dance! Bah! Indian foolishness!" said Simon.

"Let us go anyway," said Ambrose. "I feel as if there was something crooked going on. This Indian will bear watching."

CHAPTER XXI

The Subtlety of Gordon Strange

At the same moment Gordon Strange was sitting on the bench at the foot of the flag-staff, smoking and gazing speculatively across the river at the tepee village.

Colina issued out of the big house, and seeing him, joined him. It was her first public appearance since the scene at the mill, and it was something of an ordeal.

Her face showed what she was going through. She was elaborately self-conscious; defiance struggled with a secret shame. In her heat she knew she was wrong; yet she thirsted for justification.

"What is the situation?" she asked haughtily.

Strange told her briefly. His air was admirable. He betrayed no consciousness of anything changed in her; he was deferential without being obsequious.

He let her understand that she was still his peerless mistress who could do no wrong. This was exactly what Colina wanted. She warmed toward him, and sat down.

"Ah! I can talk straight to you," she said. "The others act as if the truth was too strong for me!"

"I know better than that," said Strange quietly. "You have the best head of any of us."

"Except when I lose it!" Colina thought. She smiled at him more warmly than she knew. A little flame that leaped up behind the man's eyes warned her. "Would he ever dare!" she thought.

"How is your father?" he asked quietly.

She shrugged helpessly. "Still weak," she said, "but there has been no return of fever. I have managed to keep the truth from him, but he suspects it. I cannot keep him in his room much longer."

"Ah! It makes me mad when I think of him!" Strange muttered.

There was a silence between them. His sympathy was sweet to her. She allowed it to lull her instinct of danger.

"What about the Kakias?" she asked. "I gathered from Macfarlane and Dr. Gidding's careful attempts to reassure me, that they feared danger from that source."

Strange smiled enigmatically.

"Surely the idea of an Indian attack is absurd," said Colina. "There hasn't been such a thing for thirty years."

"I know the Indians better than any man here," said Strange. "One may expect danger without being afraid."

"Danger!" cried Colina, elevating her eyebrows. "They would never dare!—"

"Not of themselves—but with a leader!"

"Ambrose Doane?" said Colina quickly. Her intelligence instantly rejected the suggestion, but self-love snatched at it in justification. Wounded vanity makes incongruous alliances. "That would be devilish!" she murmured.

Strange shrugged. "I can't be sure of what is going on," he said. "I don't want to alarm you unnecessarily. But I have a reason to suspect danger."

Colina turned pale. "Tell me exactly what you mean," she said.

"The Indians have learned by now how easy it was to seize the mill," he said with admirable gravity. "It seems to me that to the Indian mind looting the store will next suggest itself. We know they are incensed against your father. His long weakness makes them bold."

"But these are merely surmises!" cried Colina.

(Continued next week.)

Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., May 22, 1916.

The supply in practically all lines of green vegetables has been limited during the past week and with an excellent demand high prices have been maintained. Southern produce, especially the Florida vegetables, are becoming very light and near-by produce commanding more attention. Old potatoes have been on the market in small quantities and are finding a good steady demand. The prices remain as quoted last week, fancy Pennsylvania stock selling at $1.15 to $1.20; York State and Western selling at $1.05 to $1.10.

New potatoes have been in liberal supply but the market has utilized them with remarkable promptness. Receipts in the past few days have been heavy and the quality generally good. With 51 cars on the tracks this morning prices continued at the high figure of $5.50 to $5.75 per barrel for firsts and $4.50 to $4.75 for seconds. Some stock is arriving from Charlestown but are not equal in quality to the potatoes arriving from Florida. Charlestown stock sold at $5 to $5.25 per barrel for firsts and $3.50 to $4 per barrel for second grade.

Sweet potatoes continue to be a drag on the market and the best stock of Jersey sweets is selling at 40 to 45 cents per basket. Hamper sweets from Jersey, Delaware and Maryland are selling principally at 75 cents.

Near-by Vegetables

Shipments of asparagus have been fairly heavy during the past week but the prices secured have been on a higher average than at the same time in former years. Fancy grades are selling at $1.75 to $2.25 per dozen bunches with some extra fancy marks bringing as high as $3 per dozen bunches. Choice grass is moving freely at $1.25 to $1.50 per dozen. In former years there has been a more decided and continuous drop in the market for asparagus after the first two weeks of the season; this year fair prices seem to be maintained over a more prolonged period.

When the strawberry business advances it is usually a sure indication that rhubarb will be on the decline. At the present time the best stock of rhubarb offered on the market can be bought at $1 per 100 bunches. Large quantities are being sold as low as 75 cents per 100 bunches. Hot-bed lettuce is proving a good crop with several of the local growers and in the past week frequent sales were made at $2 to $2.25 per box of 18 heads. Hot-bed carrots are also offered in limited quantities at 3 cents per bunch.

The Pennsylvania truckers are placing their cutage of spinach on the market and receiving an average of about 50 cents per bushel box. Jersey spinach has not been in evidence the past few days, their spring spinach being due in about another week.

Radishes are proving profitable to the Jersey growers and the market has absorbed all the offerings of good stock in the past week at $1.75 to $2 per 100 bunches, for either the white or the red button radishes.

A number of Pennsylvania truckers have been hauling flowering plants to the market in the last month. The stock is grown under sash and appears to be a money maker. Pansies sold at 60 cents to $1.00 per box of 20 plants, depending on the type and strength of the plant. A number of button daisies were hauled to the market and sold freely at 50 to 65 cents per box of 20 plants.

Southern Vegetables

South Carolina cabbage is the only stock offered on the market at this time as the New York State cabbage is finished for the season. Thruout the major part of last week South Carolina stock sold at upwards of $3 per crate, during this week, however, shipments have been heavier and the sales this morning are being made at $1.50 to $1.75 per crate.

Eighteen cars of tomatoes were unloaded here this morning which is considered a moderate supply. The demand has decreased somewhat during the last week owing to the extreme high prices secured at that time. Today's market prices are: Fancy, $2.50 to $3.25; choice, $1.75 to $2.25. These prices are about equal with the market of two weeks ago. The receipts of onions have been increasing under the demand which is only fair. The quality and condition have been generally good and most of the receipts are of yellow Bermudas arriving from Texas. Forty-three cars were on the tracks to-day, only a small portion of which were unloaded. Yellow Bermudas in standard crates first grade sold at $1.90 to $2; second grades, $1.50 to $1.75. The standard crates of white onions sold at $1.60 to $1.90.

Celery continues to arrive from Florida and is selling at $1.75 to $2.25 per crate. Florida beans are selling at $1.25 to $1.75 per basket; peppers, $1.75 to $2 per carrier; eggplant, $1.75 to $2.50 per crate; squash, $1.50 to $1.75 per crate.

Lettuce is now coming from points in North Carolina and is quite variable in quality. Sales range from $1.50 to $2.50 per basket.

Fruits

The berry season is moving further north and the principal shipments arriving here are from Norfolk section and the Eastern Shore. Twelve cars of Norfolk berries sold this morning at prices ranging from 3 to 7 cents per quart with the average sales being made at six cents. They are generally in poor condition on arrival and consequently check the demand. Six cars of Eastern Shore berries show signs of better quality than the Norfolk stock and were moved out promptly at 7 to 10 cents per quart. The Eastern Shore should be heavy during the latter part of the present week and within another week the first shipment of Jersey berries is expected.

Apples are running in fairly liberal receipts considering the lateness of the season. Prices are being maintained at high figures with sales being made as follows: York State Baldwins, $3.25 to $3.75; Ben Davis, $2.25 to $2.50; Greenings, $2.75 to $3.50 when free from scald. Western boxed apples are in more liberal receipts and selling at $1.50 to $1.75 for the best grades.

Poultry

A certain steady trend is evidenced in the poultry market with quotations but slightly changed from week to week during the past month. There has been a fair request for fowls and chickens of desirable size and quality and while the supply has been adequate for the demand there has been no over abundance of either live or dressed poultry on the market. Live fowl continues to sell at 19 to 20 cents per pound. Spring chickens weighing from one to two pounds apiece sell freely at 34 to 38 cents; white Leghorns of desirable quality sell at 30 to 3_ per pound. Live ducks and geese remain quiet with the price as quoted a week ago. Ducks, 15 to 16 cents; geese 14 to 16 cents.

Receipts of dressed fowl are light and the market firm under good demand. Fresh killed dry-packed fowls are selling at 22½ cents per pound with the lighter weight-stock selling at prices ranging from 20 to 22 cents. Fancy New Jersey broilers continue to sell at 50 to 55 cents and other near-by broilers of heavier weight 40 to 45 cents. Near-by spring ducks are selling at 26 to 28 cents.

Eggs

Offerings in the egg market have been only moderate in the last week and the market has continued firm. Near-by extras sold at 26 cents per dozen; near-by firsts, 23½ cents, near-by current receipts, 22 cents; fancy selected candled fresh eggs jobbed at 28 to 29 cents.

—Selmarad.

NEW YORK PRODUCE

New York City, May 22, 1916.

Butter is in fair supply and buyers are not anxious, awaiting a possible fall in price. The quality is better. Egg market opens quiet and tone is less firm. There is a fair supply of dressed poultry, prices somewhat lower. Apple market firm and prices higher. Old potatoes firm.

Butter.—Creamery, extra, (92 score) per pound, 31c; higher score, 31@32c; thirds to firsts, 27@30c; state dairy, 26@31c; packing stock, 24@25c.

Cheese. — Whole milk specials, 17½c; daisies, 17¾c; skims, 11@14¾c.

Eggs.—Fresh gathered, extra, 24½@26c; dirties, 19@20c; nearby whites, fine to fancy, 25@26c; ordinary to good, 23@24c; browns, 25@26c.

Dressed Poultry.—Philadelphia and Long Island, fancy 3 to 4 pounds to pair, 40@45c; Philadelphia fancy roasters, 26@30c. Fowls, 19@22c; old roosters, 16c; squabs, $2.50@5 dozen. Spring ducks, per lb.— Turkeys, dry picked, 36c.

Asparagus. — Jersey and Pennsylvania green, colossal, dozen, $3.00@3.25; do., green, extra, $2.50@2.75; do., green prime, $1.75@2.25; do., green, culls, $1.50; do., white, colossal, $2.75; do., white, prime, $1.50@2.00; do., white, culls, $1.00@1.25.

Vegetables and Greens.—Lettuce, per bbl., $2.50@4.00; radishes, 100 bunches, 75c@$1; spinach, per bbl., $1@1.50; water-cress, per 100 bunches, $1@1.50.

Apples.—Greening, bbl., $2@3; Northern Spy, $2@6; Baldwin, bbl., $2@4.25; Ben Davis, bbl., $1.50@2.75.

Country Dressed Veals.—

Choice,	16	@16½
Prime	15	@15½
Fair to good	14	@14½
Coarse, heavy	14	@14½
Common	12	@13
Buttermilks	11½	@12
Grassers	10½	@11
Hothouse lambs, choice carcass		@ 9.00
Poor to fair, carcass	4.00	@ 7.00

YORK PRODUCE MARKET

York, Pa., May 22, 1916.

Prices ruled steady in most lines, with eggs firmer. Butter weak, and a good demand for all fresh produce. The supply of lettuce is much below the demand, and anything like a small stock sells at 5 cents. Old potatoes are weak, small quantities coming from all quarters, many of which would have gone to feed lot for hogs or to the dump, but a high price makes the marketer hunt up all sorts of stock.

Eggs.—22@23c per dozen.

Butter.—Country, 32@34c lb; separator, 32@35c lb. Milk, 6c quart.

Poultry.—Hens, 13@17c lb; springers, 34@38c lb; dressed, 45c@$1 each.

Vegetables.—Potatoes, 12@18c ½-pk; 90c @$1.10 per bushel; new, 35@50c ½-pk. Lettuce, 3@8c per head. Cabbage, 5@8c head; new, 3@8c. Beets, 3@5c bunch. Radishes, 4@5c bunch. Onions, 3@5c bunch; 10@12c ½-pk. Lima beans, 16@18c quart. Soup beans, 12@15c qt. Lard, 14@15c. Turnips, 8@10c ½-pk. Sauer kraut, 6@8c quart. Spinach, 10@12c ½-pk. Southern beans, 30@40c ½-pk. Peas, 35c ½-pk.

Fruit.—Apples, 15@40c ½-pk. Pears, 15c ½-pk. Strawberries, 18@30c box.

Retail Grain Market.—Wheat, $1.22; corn, 92c; oats, 65c; rye, 80c; bran, $1.40 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.12; corn, 80c; oats, 56c; rye, 75c; bran, $27 per ton; middlings, $32 per ton.

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., May 22, 1916.

Receipts for the week ending Saturday evening, May 20:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,435	6,250	6,922
Previous week	3,315	8,421	6,880

Calves.—Total receipts of calves for this week were 1,539 against 1,606 last week.

Beef Cattle.—An undertone of considerable strength was noticeable thruout the market, manifesting itself particularly on the most desirable stock, and with fair trading current prices ruled quite firm. Illinois and Lancaster County, Pa., stock was principally on sale. Bulls and cows closed firmer, and calves were under an upward revision.

Best steers	$9.75@10.00
Choice	9.50@ 9.75
Good	9.00@ 9.25
Medium	8.50@ 8.75
Common	8.00@ 8.25
Bulls	6.00@ 8.25
Fat cows	5.00@ 8.00
Thin cows	3.25@ 4.50
Veal Calves.—	
Exceptional lots	$12.00@12.50
Good to choice	11.00@11.50
Medium	9.75@10.25
Common	7.75@ 8.25
Southerns and barnyards	6.00@ 7.50

Sheep and Lambs.—Inasmuch as wool offerings have about ceased to arrive, we give a full revised range of values on shorn stock only, as the present shipments were on the decrease and comprised in the main, clipped sheep and lambs. Demand was normal.

Wethers—Extra	$8.50@ 8.75
Choice	8.25@ 8.50
Good	7.75@ 8.00
Medium	7.00@ 7.25
Common	4.25@ 6.00
Ewes—Heavy, fat	7.00@ 7.50
Lambs, extras	11.00@11.25
Good to choice	10.25@10.50
Medium	8.00@ 9.00
Common	7.50@ 7.75
Early spring, per lb.	10½@13½

Hogs.—Former rates predominated, with arrivals under satisfactory control. Westerns, $11.20 gross weight; $14 net weight.

City Dressed Stock.—All varieties of choice and prime meats were firmly held under a rising tendency. Inquiry was fair.

Steers	11	@15
Heifers	10½	@14
Cows	8	@12
Veal calves	13	@15
Extra,	17	@
Southerns and barnyards	10	@12
Country dressed	12	@14
Extras	16	@
Sheep	15	@16
Extra wethers	17	@
Lambs	17	@19
Extra lambs	21	@
Hogs	14¼	@

PITTSBURG LIVE STOCK

Pittsburgh, Pa., May 22, 1916.

Cattle.—The supply on sale Monday was 75 loads. The market ruled active and generally 10 to 15c per cwt. higher on the good cattle with weight and the tidy fat grades, while the medium grades were steady. Fat cows, heifers and bulls were in fair supply and sold generally 10@25c higher. Best fresh cows steady, while medium and springers were slow. There were 45 carloads of cattle in supply today; demand good; market active and 25c higher.

Good to choice	9.85@10.30
Good, 1300 to 1400 lb.	9.40@9.65
Medium to good, 1200 to 1300 lb.	8.80@9.10
Tidy, 1050 to 1150 lb.	8.75@9.25
Fair to medium, 1000 to 1100 lb.	8.25@8.75
Fair, 900 to 1000 lb.	7.50@8.25
Common, 700 to 900 lb.	6.25@7.25
Rough, half-fat, 1000 to 1300 lb.	7.00@8.00
Common to good fat oxen	6.00@7.75
Common to good fat bulls	5.00@8.00
Common to good fat cows	4.50@7.50
Heifers, 700 to 1100 lb.	4.75@9.00
Bologna cows	3.75@4.50
Fresh cows and springers	$25@80

Calves.—Receipts of calves light. Market closed 75c above Monday's prices. The receipts of calves today reached 700 head; market active.

Veal calves	$8.50@11.25
Heavy and thin calves	5.00@ 7.50

Hogs. — The supply on sale during the week was liberal, and prices ruled easier, the close for the week being about 15c per cwt. below Monday's prices. Hog receipts today numbered 50 double-deck loads; market slow at steady prices.

Prime heavy	$10.25@
Heavy mixed	10.25@
Prime medium weights	10.25@
Best heavy Yorkers	10.25@
Light Yorkers	9.80@
Good pigs	9.50@9.65
Common to good roughs	8.90@9.15
Stags	7.00@7.40

Sheep and Lambs.—Sheep and lambs have been in fair supply and with a good demand the market ruled active and higher on both sheep and lambs, the choice grades having the better call. Sheep and lamb receipts today totaled 25 double-deck loads; market active on choice sheep and lambs, while other grades are slow at steady prices. Spring lambs in fair supply at steady prices.

Prime wethers	$ 8.60@ 8.75
Good mixed	8.25@ 8.50
Fair mixed ewes and wethers	7.25@ 8.10
Culls and common (clipped)	4.50@ 6.50
Heavy lambs	7.00@10.90
Spring lambs	10.00@15.50
Culls to choice yearlings	6.00@ 9.50
Clipped lambs	6.00@10.25

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., May 22, 1916.

Hay and Grain.—Top grades of hay are scarce and in active demand. Prices are firm and trade fair. Lower grades are more plentiful and the market is dull and weak with the demand only fair. Straw is quiet at unchanged prices.

Grains.—The wheat market showed a decline at the close of last week, due mainly to speculative advices. The cash trading is small. Corn is in fair demand and the market rules firm. Oats are in light demand and prices are weak. The light arrivals are sufficient to meet the needs.

Hay.—No. 1 timothy, medium bales, $24@25.50; No. 2 do., $22@23; no grade, $11@16. Light mixed clover, $23@23.50; No. 1 do., $21.50@22.50. No. 2 do., $17@18.

Straw.—No. 1 straight rye, $15@15.50; No. 2 do., $14@14.50; No. 1 tangled rye, $12.50@13; do., No. 2, $11.50@12. No. 1 wheat straw, $10.50@11; No. 2 do., $9.50@10; No. 1 oat straw, $10.50@11. No. 2 do., $9@9.50.

Wheat.—No. 2 red, $1.09@1.11; No. 3 red, $1.09@1.11; rejected A, $1.06½@1.08½; rejected B, $1.05@1.07.

Corn.—No. 2 yellow, 83@83½; steamer yellow, 81½@82½c; No. 3 yellow, 79@80c; No. 4 yellow, 76@77c; ear corn, 82@83c per 70 pounds.

Oats.—No. 2 white, 51@51½c; No. 3 do., 48½@49½c; No. 4 do., 47@48c; standard white, 50½@51c; sample oats, 43@44c.

Feed.—Winter bran, 100-lb. sacks, $26.00@26.50; spring bran, do., $24@24.50.

Flour.—Car lots, winter clear, $4.90@5.15; straight, $5.25@5.50; patent, $5.60@5.85. City mills, choice to fancy patent, $6.25@6.50; do., regular grades, $4.90@5.15. Rye flour, $5@5.50 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., May 22, 1916.

Hay.—While receipts of hay were heavy during the beginning of the week and market had a much easier feeling, nevertheless, there is no accumulation and all arrivals are disposed of at top figures. There is no trouble disposing of the different grades of hay at present market values altho clover hay and heavy mixed hay are hard to sell. No. 1 timothy, $22.75@23; No. 2 timothy, $20@21.50; No. 3 timothy, $16@17; No. 1 light mixed, $19.50@20; No. 1 clover mixed, $16.00@17; No. 2 clover mixed, $13.50@15; No. 1 clover, $14@14.50; No. 2 clover, $9@11; No. 3 prairie, $13@13.50; No. 4 prairie, $9.50@10.

Straw.—Receipts have increased and are more than equal to the demand; market a trifle easier. No. 1 oat, $9.25@9.50; No. 2 oat, $8.75@9; No. 1 wheat, $9@9.25; No. 2 wheat, $8.50@8.75; No. 1 rye, $10@10.50; No. 2 rye, $8.50@9.

Ear Corn.—Very little ear corn arriving but the demand is very light; market quiet with a tendency to decline. New stock, No. 2 yellow, 79@80c; No. 3 yellow, 74@76c; No. 2 high mixed, 77@78c; No. 2 mixed, 75@76c.

Oats.—Receipts of oats in excess of demand; market weaker. No. 2 white, 48@48½c; Standard, 47@47½c; No. 3 white, 45½@46c; No. 4 white, 43½@44½c; rejected, 40@43c.

NEW YORK HAY AND GRAIN

New York City, May 22, 1916.

Hay and Straw.—A little more hay is being offered and top quotations are not so easily reached. Top grades are generally steady, however, while lower grades are dull and lower in price. Rye straw continues firm.

Grains.—Wheat is lower. The market has fluctuated somewhat with reports of the growing crop but there is no regular buying to support an advance in price. Poor crop conditions are reported from Kansas, but other sections are generally favorable. The export demand is moderate. Corn is steadier than wheat but is not active. Oats are quiet at about steady prices.

Hay.—Large bales.—No. 1 timothy, $29@30. No. 2 $26@28; No. 3 $21@24; fancy No. 1 clover, clear, $18@19; lower grade, clover, light mixed, $26@27; No. 1, $22@24; $11@16.

Straw.—Per ton, No. 1 rye, $15.50@16.50; do., No. 2, $14@15.

Wheat.—No. 1 Northern, $1.28½; No. 2, $1.26¾; No. 2 hard winter, $1.22½.

Corn.—No. 2 yellow, 86⅞c; No. 3 yellow, 83⅜c.

Oats.—No. 3 white, 49@49½c; No. 4, 48@48½c; ordinary to fancy, 48½@49½c.

Rye.—$1.07.

Mill Feed.—Coarse Western spring ons hundred-pound sacks to arrive, $23.60@23.85. Standard middlings, $25.35; flour, do., $29.10 to arrive. Red dog, to arrive, 140-pound sacks, $31.10. Oil meal, $31@31.50. City feed bulk bran, $23. Heavy feed in bulk, $24. Red dog, $33. Flour middlings, $32.50.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., May 22, 1916.

Receipts of western creamery butter hold about steady and prices are firm. There is a fair demand that keeps supplies well cleaned up. Ladles are in small supply and quiet at former rates. Fancy prints are scarce and wanted at full prices, but garlicky goods are quiet and had to be moved out on buyers' terms. Cheese rules firm under small supplies and a fair demand.

Butter.—Solid packed creamery, fancy specials, 33c; extras, 31@32c; extra first, 30@30½c; seconds, 29@29½c; ladle packed, 27@28c; nearby prints, fancy, 35c; average extras, 34c; do., firsts, 32@33c; do., seconds, 29@31c; special fancy brands of prints, 38@41c.

Cheese.—New York full cream, fancy, new, 17½@17¾c; fair to good, new, 16½@17¼c; do., part skims, 11@15½c.

ELGIN BUTTER MARKET

Elgin, Ill., May 20, 1916.

Butter today sold at 29½ cents per pound. 100 tubs sold at that figure.

CHICAGO HORSE MARKET

Chicago, Ill., May 22, 1916.

Horses were in fair supply last week and in good demand, with especially large purchases of army horses at recent prices. Horses were mostly taken on local and shipping account at unchanged values, with inferior animals selling down to $30@60 per head, farm horses at $50@130, farm mares at $135@240, commercial chunks at $165@240 and drafters of quality at $245@300.

TOBACCO MARKET

The remaining crops of last year's product are now few and far between, the grower who still holds his product being more commendable for his courage than for his judgment as prices have been such as to encourage universal sales. In speculative circles there is little tobacco to be found except of the long rejected crop of 1909 which is now sought for the first time and which is selling at higher prices than was ever expected for this crop. Prices for the 1909 crop have ranged as high as $11.50 per cwt. and some are holding for future advances. The demand of course, is from foreign countries, mainly France and Holland, where tobacco will be used for soldiers. Indicating the present shortage, it is said that a total of not more than 10,000 cases are held by local dealers, and this is being so rapidly taken as to presage an early depletion of the supply.

At this time the principal interest is centered in the new crop. Reports indicate that plants are good but late and the prevailing weather is such as to cause further lateness. Day after day it continues dry, cool and some mornings even frosty. It is well that plants are not ready to be transplanted as it would not be practical under present conditions. Growers are preparing their soil to receive the seedlings and the coming of favorable conditions would soon enable transplanting. It is evident that the crop will get a late start which is at least an indication of unfavorable results. The farmer, however, is often accused of being "scared before he is hurt" so let us not pass judgment as finalities.—H. E. Tweed, May 22, 1916.

Rights of the Road

Rights in Highways Not Laid Out by Law

A subscriber, K. C. M., of Laceyville, Pa., has raised some interesting inquiries concerning the use of highways, suggested by the articles that have appeared in Pennsylvania Farmer on that subject. He says that many or most of the roads in the country were never laid out by a set of viewers, but have become roads from paths and trails thru the woods; and that the owners of the lands never received anything for the right of way. Furthermore, he says that after the land was cleared they placed the road fences from 30 to 60 feet apart.

The first question to be considered in answering his inquiry is, has the public the same rights in such roads as in those laid out by viewers? The public may acquire the use of land for a highway by the use or prescription, also by dedication, as effectively as if the highway were laid out by law. In one of the cases the court said: "The use of the ground by the public as a highway for more than twenty-one years, made it a public road just as effectively as tho it had originally been laid out and opened by the proper authorities." For the public to acquire the use in that manner, it must be continued twenty-one years.

In like manner, the public can acquire the right by dedication. This is "a matter of intention", and, says Justice Green speaking for the Supreme Court of Pennsylvania, "when clearly proved is as complete in one day as in twenty-one years." In such cases, the chief question is, what is proof of the intention. "Where there is no opposing proof," says Justice Green, "long continued use by the public is evidence of an intent to dedicate, but it is by no means conclusive and always yields to contrary proof of a satisfactory character." The reports contain many cases concerning this proof, and many of them relate to fences. The fencing of a strip of land apparently for a highway is usually regarded as strong evidence of dedication.

But is all the land between such fences included? This may be doubted. The inquirier says, the fences are from 30 to 60 feet apart. Doubtless in many places they are much farther apart to avoid swamps and other difficulties. In many cases a fence is placed far back from a corner to lessen its length. In such cases a court would hardly hold that all the land between the fences was dedicated. What then is dedicated? The land needed for a travelled way, with the right to all materials along the way for repair.

Now for the second question asked, growing out of the first. Has the public any right to travel beyond the usual path in the spring of the year when the ground is soft, and when the effect will be to spoil its appearance. It is doubtful whether the public has any more rights than they require for ordinary travel.

It is true that the public has a right to travel "extra viam", as the law says, which is founded on necessity. This is an old right, the right to leave the public way and go on the adjoining land when the highway is "founderous". What will justify one in going outside the highway? There must be a reasonable necessity therefore; but the necessity need not be absolute. The question has arisen when snow and ice are in the highway. The best authority we have says: "We suppose that as long as the way is in such a condition that it can be used with probable safety by one exercising ordinary care to avoid injury it would be his duty to keep in it." The same rule, we think, would apply to a muddy highway. If the mud were so deep that one's wagon would probably get stalled, if he attempted to go thru it, he would be justified in going round it, whether the land was within the highway area or beyond it; but if one goes outside of it, as generally is the case, simply because it is less difficult and because he can go more rapidly, we do not think such a situation justifies him in going outside the usually travelled way, and especially if the public has acquired no right thereto by prescription or dedication.—Albert S. Bolles.

DUCKS AND WORDS

There is a creature inhabiting many farms which is worthy a moment's mention. It is noted, among other things, for its peculiar gait, its beautiful coat. its delicious meat, and its raucous voice. It is known to literature, tho unlike the goose it is not credited with the saving of a city. It is the duck.

A duck waddles, just why I do not know, altho I can guess. I have seen other and unfeathered bipeds waddle, and they had less excuse than the duck.

The drake is the duck's gentleman friend, for the duck is a lady. This word "drake" is one of the curiosities of our language, for it is not a single word but a pair. The original form was "end rake", "end" being the earlier word for duck, and "rake" meaning lord or king; hence king of the duck. But in the course of time the first two letters of "end" were lost and the word became "drake" as we now have it. The German language still retains the old form, a drake in that tongue being styled—"Enterich". You know English and German are sister tongues and have many words alike with slight changes of spelling.

We have an Englishman working on the farm at present, and he is an interesting study in language, manners and customs. He has a great fund of stories and he tells them at the least provocation. Anent the duck, he told us he had an uncle in the old country who was fond of giving riddles and one was:

One dook before two dooks,
Two dooks behind one dook,
Hand one in the middle.
'Ow many dooks were there?

"Well," I said, "How many?" Said he, "Hi don't know. Some said five hand some said seven, hand some honly three; but my huncle would never tell." When he first propounded this wonder I thought he referred to that other curiosity, the English Dukes; but later I found he called the Dukes "Jukes."

From the duck's habit of diving or dipping quickly we get the verb "to duck", of which all boys and some girls know the meaning. A strange usage in our language is peculiar to "duck". Any boy who would call the only girl a "goose" or a "hen" would not rise much in her favor; likewise, let him apply the names of other creatures—cat, mule, calf, cow, pig—and watch the result, if he is brave enough. But let him call her a "duck" and what a change! The clouds disappear as if by magic, and a flood of sunshine makes all things radiant. Such is the power of a little word.—H. M., Northumberland Co., Pa.

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HAVE you ever considered the possibility of increasing the cash yield of your farm by means of game breeding? There is a constant and growing demand for game birds and for the eggs of game birds. This demand, which comes largely from city markets, from small breeders and from sporting clubs owning game preserves, is so much greater than the supply that good prices are received by the comparatively few people at present engaged in game farming.

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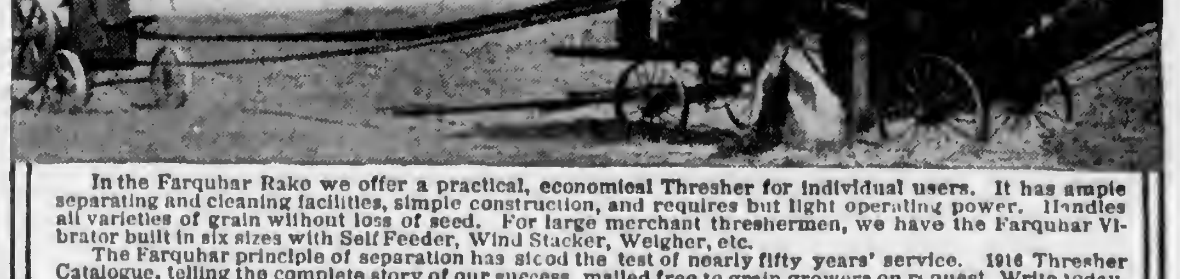

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Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the cause in full; also the name and address of writer.. initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Water Farcy.—I have a seven-year-old mare that has water farcy and her leg opens in several places, discharging watery pus. E. H., Black Creek, N. Y.—Give her 1 dr. of powdered sulphate iron and 1 dr. of acetate of potash at a dose in feed, three times a day. Dissolve ¼ lb. of sugar of lead in a gallon of water and wet leg three times a day.

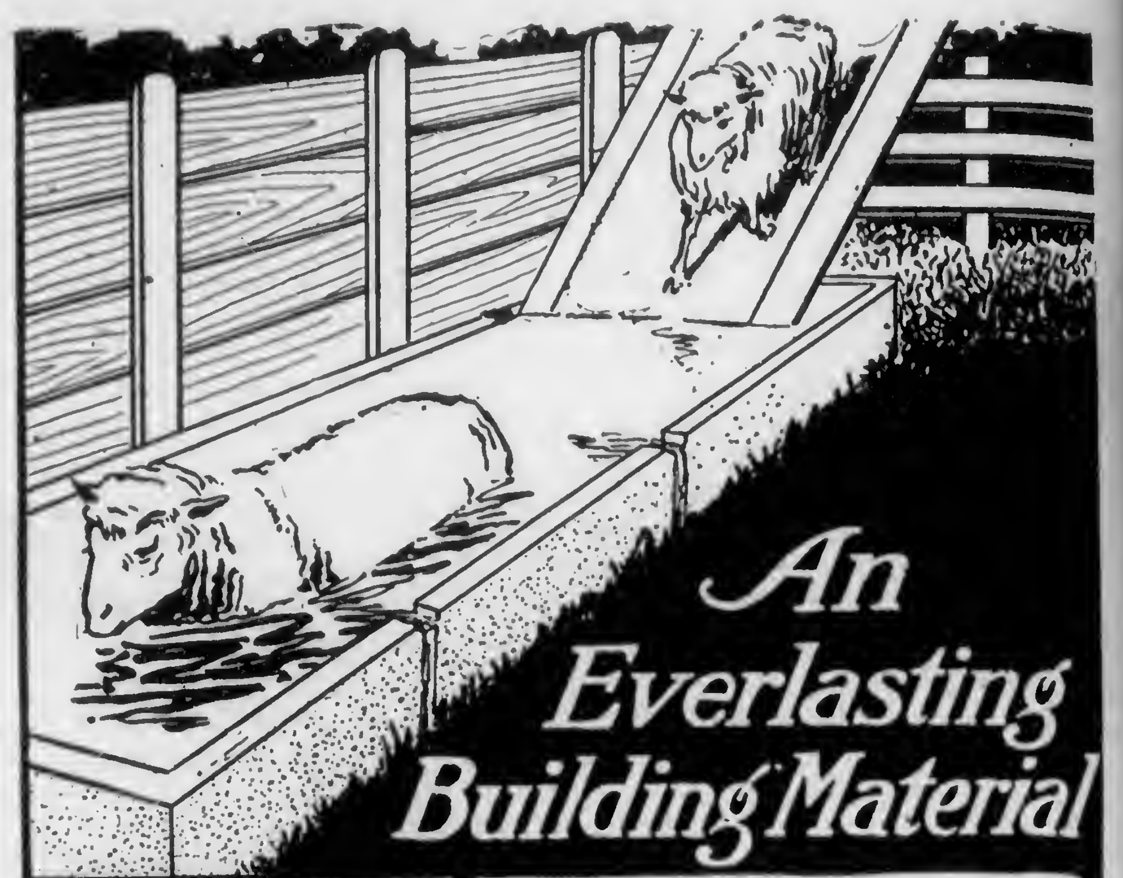
Weakness.—I have a very nice 12-year-old pig that is weak in its knees, or legs and when walking, instead of walking on its feet, walks on knees. This pig's mother had four pigs and this is the only one that lived, but I attributed the death of others to cold as they were farrowed on a very cold night. I am feeding this pig middlings and thick milk. G. H., Cly, Pa.—Rub his fore legs with alcohol, twice a day. Feed him some ground oats, a little oil meal and some roots. Keep him dry and warm. Giving him drugs will do very little good. The pig has been fed too much-fat producing food and not enough protein feed.

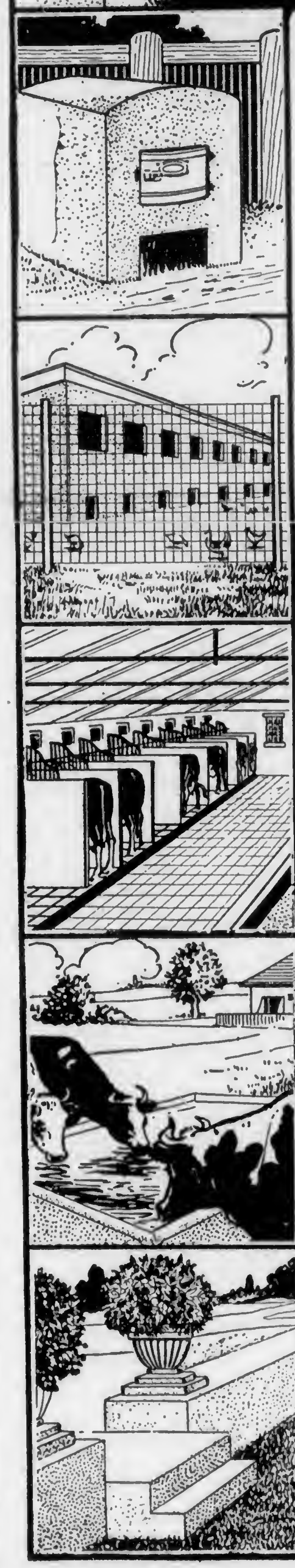
Wind Puffs—Sprained Tendons. — I have a 10-year-old horse that has wind puffs on right hind leg. He has had this bunch since he was three years old, but never showed any lameness until three days ago. I am not certain that the puff is causing his lameness. When pressure is applied to leg above fetlock joint, it causes pain; this is why I believe this old trouble is causing lameness. I also have another horse that sprained his tendons and when walking appears to travel on his toes. J. M., Fogalsville, Pa. — Apply 1 part red iodide mercury and 8 parts lard to puff, once a week. For your other horse clip hair off sprained tendons and apply 1 part powdered cantharides and 8 parts lard every week.

Thrush.—I have a driving horse, not less than 13 years old, that has a very sore foot. Our veterinarian thought it a case of canker. We have tried several different remedies, all of which have failed to effect a cure. The frog is about all gone. I have noticed that foot was contracted. Now I would like to know if you believe that the horse can be cured. A. M. K., Chambersburg, Pa.—Apply equal parts calomel and boric acid to diseased portion of foot, once a day. It is perhaps needless for me to say that filth and too much moisture is the most common cause of this ailment.

Slight Brain Hemorrhage.—I have a 12-year-old mare that during the last 10 days appears to have gone dumb. She has been a good family mare, eats her grain feed, but very little hay. Today I could scarcely plow with her, she refuses to back, is hard to turn around, hangs her head low all the time and stands with all four feet huddled together. I would like to have her put in shape to work. L. C., Millerstown, Pa.—Give your mare 1 dr. carbonate of ammonia and 1 dr. bromide of potash at a dose in soft feed, 3 times a day. I might say that these cases are treated with a good deal of speculation, and a recovery is always doubtful.

Thick Wind.—I recently purchased a team of Western horses, both 5 years old. When I drove them home I noticed one horse breathing rather loudly, I could hear her in the light wagon pulling uphill. The next day I hitched them to a lumber wagon and she blowed pretty hard, going uphill with the empty wagon. I have had her about four weeks and she does not blow unless I draw her real hard. Both of them have had the distemper during the winter. A good harness maker selected their collars. J. J. D., Cochecton, N. Y.—Apply equal parts tincture iodine and camphorated oil to throat of mare, once a day. She will perhaps get over it gradually; however, if she does not, it may be necessary to perform a sur-





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BOYS' AND GIRLS' CLUB WORK

By C. W. CLEMMER
State Leader in Club Work

There has probably been no phase of agricultural work which has received more just attention during the past few years than the development of Boys' and Girls' Club Work, unless it might be the growth of the county agriculturist movement. This latter agency recognizes club work with the young farmers as a very essential part of its duties, and the two are closely associated. However, there are still only a comparatively few who realize the vital importance of this undertaking and who are assisting in affording our young people of the farms the opportunities which they justly deserve.

Purposes

As with other rural problems which are certain to succeed, so the Boys' and Girls' Club Work has a good cause and an obvious reason for existence. The primary purposes are to interest the young people in farm and home life, to develop them into better farmers and more efficient farm women of the future, to make the home more attractive, and to improve the character and value of crops and animals and their products. It constitutes a part of the completed rural educational system, which enables the individual to apply the knowledge which he or she has gained and to associate it with the every-day life on the farm. Who would not want to support that which serves to make the young people more interested in farm life, so that they may better be able to enjoy country life in the years to come? What father or mother does not want his boy or her girl to be at least a little better equipped than he or she has been? We all want to strive toward a better economic standard in rural affairs.

In order that the greatest amount of unselfish service may be rendered in the interests of our boys and girls, this work demands the attention and effort of every lover of the young people and all those interested in their proper development. These forces should be so co-ordinated that there may be perfect harmony and team work in carrying on the various projects in Club activities. There should be team work among children and parents; teachers and county superintendents; county agriculturists and the state and federal Extention Departments of Agriculture. By an intimate relationship of all of these agencies, and thru the assistance of the press, public sentiment will be so promoted as to demand that this great work with the farm boys and girls shall produce the desired results.

What Clubs are Doing

There have been a number of Boys' and Girls' Club projects in active operation during the past. Among them are the ones pertaining to corn, potatoes, tomatoes, poultry, pig, calf, stock judging, canning, gardening, sewing, bread and cake making and the general or elementary club projects. Those which relate to farm crops such as corn, potatoes, tomatoes and gardening, strive to teach the cultural directions of the respective crops, endeavor to demonstrate the best known methods of treatment to avoid as well as destroy injurious insects, diseases and other detrimental factors. Particular emphasis is placed upon the value of observation, and the training of business principles, as relating to the various farming operations. The elimination of waste and the utilization of by-products are some of the fundamental principles encouraged, so that the club member may achieve the greatest measure of success. These latter factors are especially important considerations in the canning projects, as the elimination of waste and the utilization of bi-products are the cornerstones upon which the canning industry is constructed. They are also important features in developing efficiency in the home.

CORN CLUB BOYS DESTROYING SMUT EARS.

MATERIAL FOR EFFICIENT CLUB WORK.

The live stock projects, such as those in stock judging, the feeding and rearing of pigs, calves and poultry, all strive to acquaint the boys and girls with the desirable and undesirable characteristics of the respective forms of live stock, their methods of care and management and the multitude of subjects related to them.

The sewing, canning and the bread and cake baking clubs deal with the principles involved in the making of a true and thoroly enjoyable home life, and the girls and boys, as well as women and men all over the country are striving to accomplish that very thing. Probably every mother is thoroly convinced that her particular method of sewing, canning, bread baking and cake making is the best in the land. Why not then try to assemble all of these ideas and afford the mothers of tomorrow the opportunity of learning the best of everything pertaining to these necessary departments of home life?

Physical Training

Boys' and Girls' Club Work should provide the proper physical training, since a well stored, well trained mind, clear and keen is dependent upon a healthy body well kept and well used. As soon as the young people realize that they can actually do something and see results, they are immediately inspired with a self confidence which prepares them to attack the greater problems of life. The things that are "learned by doing" are seldom forgotten, and thus the physical side of the boys and girls is developed with a proper balance. As their interest in the work increases with the spirit of play, so their abilities and capacities to perform efficient work will multiply, and the father and mother will be well repaid for the interest which they have manifested in encouraging their boys and girls to carry out their club work directions to completion.

Intellectual Training

Intellectual development is considered in many phases in the club activities. The boy become acquainted with the influences of heredity, environment and training as they are engaged in club projects pertaining to plants and live stock. They see how the proper selection of seed is as essential to successful corn and potato raising as is the proper selection of a good sire in the improvement of live stock. They become acquainted with the many natural and artificial agencies which influence the growth of both plants and animals, and soon learn the limitations of human powers in coping with these various agencies.

The girls study the correct elementary stitches and character of the material and later see how with proper application their understanding of the fundimentals enables them to construct the completed garments, aprons or other articles. Their questions of why and how to do a thing are answered by the deeds which they actually perform with their own hands, under the direction of the best local leadership. The intellectual education thus obtained creates power within the individuals and later on we will see how such applied power shall be turned into service for the development of better farmers and more efficient farm women; better community builders.

Club work would be incomplete if it did not afford the proper moral training so essential in moulding the lives of our boys and girls. The greatest prize is the honor of producing the best, and by encouraging this noble principle we construct a high moral characteristic in the individual. Improve seed can never be as valuable as the boy producing it; a convinced father can never be as great a facter in future agricultural development as it is possible for the son to be. Another highly moral quality which club work promotes is that of honesty and truthfulness. Since reports of the season's progress are generally required in all club projects, the boys and girls are placed upon their honor to submit the correct statements of their operations.

The proper use of time is another moral principle upon which this work is materially based. The immoral can only be replaced by the moral and one thought can only be replaced by another thought. Therefore, if difficulties arise, the first remedy is to occupy the mind with better things. Club work also encourages added responsibility which is a moral stimulus to strengthen the boys and girls to face the problems of life. The boys and girls in club work are partners with "Diety" and no better or closer companionship than this could be hoped for.

Social Training

The social training which club work affords can hardly be over emphasized. The things which make our lives more livable and enjoyable with those about us are the best gratifications of life. Friendly competition is fostered in order that the members may understand the true brotherhood of life as it actually exists. Organization and co-operation are the keynotes of success in all social endeavors, and it is in these club groups where the young folks learn their first lessons along these particular lines. The members of clubs elect their own officers and make the constitutions and by-laws under which their clubs are to operate.

Recreation

The recreational features are quite numerous and the spirit of play makes all this work more vital to the boys and girls. Since play is entirely voluntary, every action being chosen, and as it expresses will and preference, we see that play is highly moral. This spirit of play is born in every child, but by years of persistent hard work any one may starve to death the social cravings in themselves. At the club meetings many games are played which are directly allied to farm and home life and to the very projects in which the club boys and girls are interested. During the summer months, camps and hikes are being conducted in various parts of the country and on such occasions the young people, under high moral leadership, are able to express themselves with nature.

Economic Training

Last, but not least, club work provides economic training, since it encourages a maximum production of the highest quality at a minimum cost. The members are required to keep accounts of receipts and expenditures and it is here that the boys and girls often learn their first lessons in business principles as they should be applied to operations on the farm and in the home. The principle of thrift is especially emphasized and many boys and girls thruout the country have started bank accounts thru the influences of their contact with club work. By stopping up the leaks they find that a penny saved is a penny earned. They are taught the value of land ownership and the dignity of labor and soon realize a higher interest and respect in farm life.

Surely there can be no fathers or mothers who will discourage their sons and daughters in participating in such a broad educational endeavor. And after a complete understanding of the objects in view and the methods of procedure, the boys and girls and their parents will boost the movement and enthusiastically endorse boys' and girls' club work wherever it may be found and encourage its introduction wherever feasible. The work is laid out on broad economic and psychological principles, for bringing out and developing the best there is in the members. It combines thoughtful work and recreational moral and social development and all to the one purpose of making bigger, better and broader farm boys and girls to grow into broader and better equipped farm men and women. Club work is not a fad. It is here to stay because it is wisely founded and conducted on lasting principles.

Glimpses of Penna. Agriculture

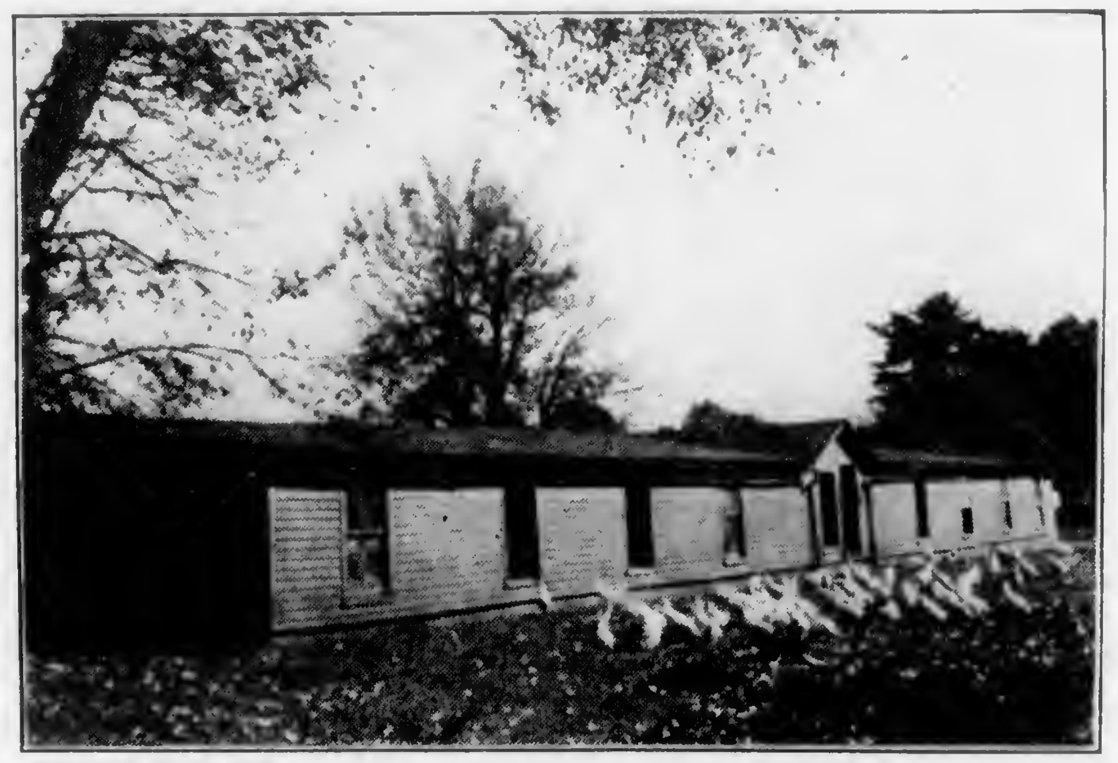
NOTEBOOK AND CAMERA AFIELD

By J. T. Campbell

North Western Crawford County is a land of opportunity for the man who likes to work hard and see results in the way of splendid crops. The season here is rather short for dent corn to mature. The flint varieties do all right. Oats, potatoes, buckwheat and grass grow to perfection. With the silo and cheap pasture lands dairying is profitable and poultry production is rapidly becoming a leading specialty on many farms. Land convenient to railroad can be bought at fifteen to twenty-five dollars an acre. True this land is not well improved, much of the land at this price being in an unproductive state, having been pastured for many years until the natural grasses which come with the clearing of the forests are mostly gone and the lands will have to be put under cultivation for a few years before they can be profitably seeded to pasture grass.

CLUB GIRL HARVESTING HER TOMATO CROP.

HOMES OF STRANAHAN BROTHERS, CRAWFORD CO., PA.


STRANAHAN BROS. POULTRY HOUSE WITH FOUNDATION VENTILATION.

The soil here is not stony and much of it is primarily in need of tile drainage. It will cost about twenty to twenty-five dollars an acre to drain the land and an application of lime and phosphorus should follow the draining, yet when all this is done the land has not cost over fifty or sixty dollars and is in condition to return really wonderful crops. Owing to the natural strength of the soil, the ease of working, and the natural grass producing qualities of much of this land hay growing could be made profitable. I think on this cheap land it is possible to maintain the productive power of the soil and sell enough hay to leave a good profit.

Not the least among the good farmers in this valley are Strannahan Brothers. I have seldom met a more intelligent, enterprising pair of young farmers. Dairying and poultry are their special lines. A considerable portion of their farm consists of creek bottom land which produces heavy crops of silage corn and with the good pastures afforded in the summer months they are in position to produce dairy products at a profit. Their profits are made by applying the principles of economic production. These brothers are having fair success with alfalfa and have hopes of making it a leading part of their winter roughage for their cows. With plenty of good silage, alfalfa hay and cheap pasture a dairyman is in position to compete with any other man in the production of dairy products and, if need be, can be independent of the feed dealer.

Strannahan Brothers have been adding to their farm by buying some of the cheap unimproved land adjoining, and bringing it under cultivation, thus affording an example of what this land is capable of when well farmed. On some of their land I saw some sods of grass that would astonish the farmers in some parts of the state where the land is high in price and considered very fertile. I have traveled a little studying farming as I went, but I have yet to see any other section of country that will produce the grass and the sods that can be produced on the Volusia soils of much of Northwestern Pennsylvania when these lands are given fair treatment. Some day these lands will be valued at their true worth.

Much poultry is kept in this valley and Strannahan Brothers are making eggs a specialty. Eggs are produced and shipped to the New York markets. White Leghorns are the leading breed and variety, all thru this valley. The accompanying cut shows one of the buildings on the Strannahan farm. This building was put up some years back and for a long time was not satisfactory on account of poor ventilation. It was always damp in winter and the litter on the floor could not be kept dry. Later the building was raised three inches on the foundation and blocks inserted between the sills and the foundation wall, thus leaving a three inch open space at the bottom as shown in the picture. Sinco this was done the litter stays dry and the house is highly satisfactory. Some other observations and experience lead me to believe that bottom ventilation for the poultry house will frequently be found much more satisfactory than ventilation near the top. The idea is worthy of trial by those who have trouble with unsatisfactory ventilation.

The Snake

A Useful Creature

The impulse of most farmers, when they see a snake dart out from a haycock or cross the road ahead of them, is to kill it; and when the mangled body is dead before them, suppose that they have done the community a service in ridding it of a dangerous reptile. In nine case out of ten, however, they have done themselves and the community a great injury, because the majority of snakes, especially those which inhabit the fields and meadows, are among the most efficient destroyers of mice and rats that can be found, while causing no harm themselves. This is especially true because snakes are fitted to pursue the vermin in their holes, and destroy old and young alike. Unfortunately, there is such a mass of misinformation, and so little true knowledge of the habits of snakes, that no matter how useful they may be, they are usually killed on sight.

If we take the area included within the upper Mississippi Valley—the Central States—and the Atlantic Coast States to Virginia, we shall find perhaps thirty species of snakes which are economically important. Of these, but one-sixth are venomous. They are: three species of Rattlesnakes, the Copperhead, and the Moccasin or Cottonmouth. These serpents are no where abundant, and occur chiefly in the rough and wild portions of the country. Nine of the twenty-five remaining varieties can hardly be classed as useful, because they prey upon frogs, toads, and fish, which are useful to man. However, it is doubtful if much actual harm is done in that way. The group includes six species of Watersnakes; and three species of Hognosed Snakes, so-called because of their peculiar upturned snouts. On account of its apparently vicious actions, the Hognosed Snake is commonly considered to be deadly; it is often known as "Blow Adder," "Puff Adder" or "Hiss Adder", and much feared. Strangely enough, the snake is absolutely harmless, and rarely attempts even to bite.

The remaining sixteen species are all of very great economic importance and value to the farmer, because they destroy large numbers of rats and mice and similar rodents annually, and are harmless in nature. They are common snakes of our fields and meadows, and because of their useful habits, should receive just as much protection as is given certain birds.

The Black Racer, or Blacksnake, is one of our most useful reptiles. It is popularly supposed to be poisonous, liable to chase people, and to be able to squeeze or constrict its victims—human or otherwise—more or less dangerously. Nothing could be farther from the truth. The Blacksnake is absolutely non-venomous, unable to squeeze even small animals, and does not attack persons. It is true that almost every snake of any species will fight if cornered, but it is rarely that a snake will not seek to escape if a way is open. The food of the Blacksnake consists of frogs, birds, mice, and rats; it destroys large numbers of rodents every year, which greatly outweigh the number of birds eaten. It might be well for many of us to inquire how many bobolinks and orioles our cat killed last summer, before we condemn the Blacksnake for eating birds. The cat is likely to be the worst offender. The Blue Racer is a Western species of similar habits.

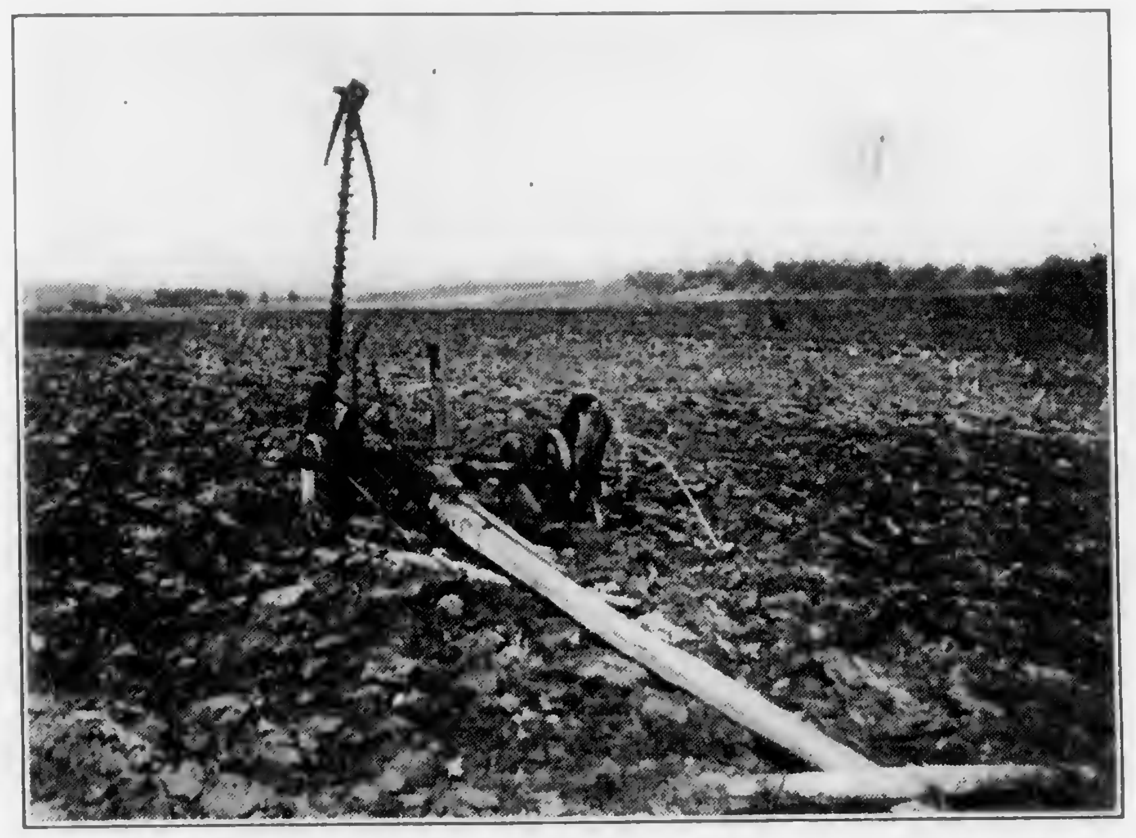
Another group, the Rat Snakes, includes three species in the region mentioned. These are: the Fox Snake, the Corn Snake, and the Pilot Blacksnake. All these attain five feet or over and are constrictors, killing their prey by squeezing it. They are non-venomous serpents of very great value to the farmer, because of the very great number of rats and mice they destroy. Their presence in grain fields means death to many of the small rodents that infest the grain, and they should on no account be killed, because of the good that they do. Such snakes are much more efficient destroyers of rats and mice than are cats and traps; because they follow the rodents in their holes and catch the whole brood. It is utterly foolish for a farmer to destroy such natural enemies of mice and rats—simply because they are snakes—and depend upon inefficient cats, traps, and poisons to protect his fields and his grain from rodents.

Another group includes the Pine Snake, of the East, and the Bull Snake, of the West. These are very large, non-venomous serpents, likewise beneficial in destroying rats and mice.

The Milksnakes and King Snakes are included in another group containing nine species notable in that they are immune to snake venom. They are non-venomous constrictors of very great benefit.

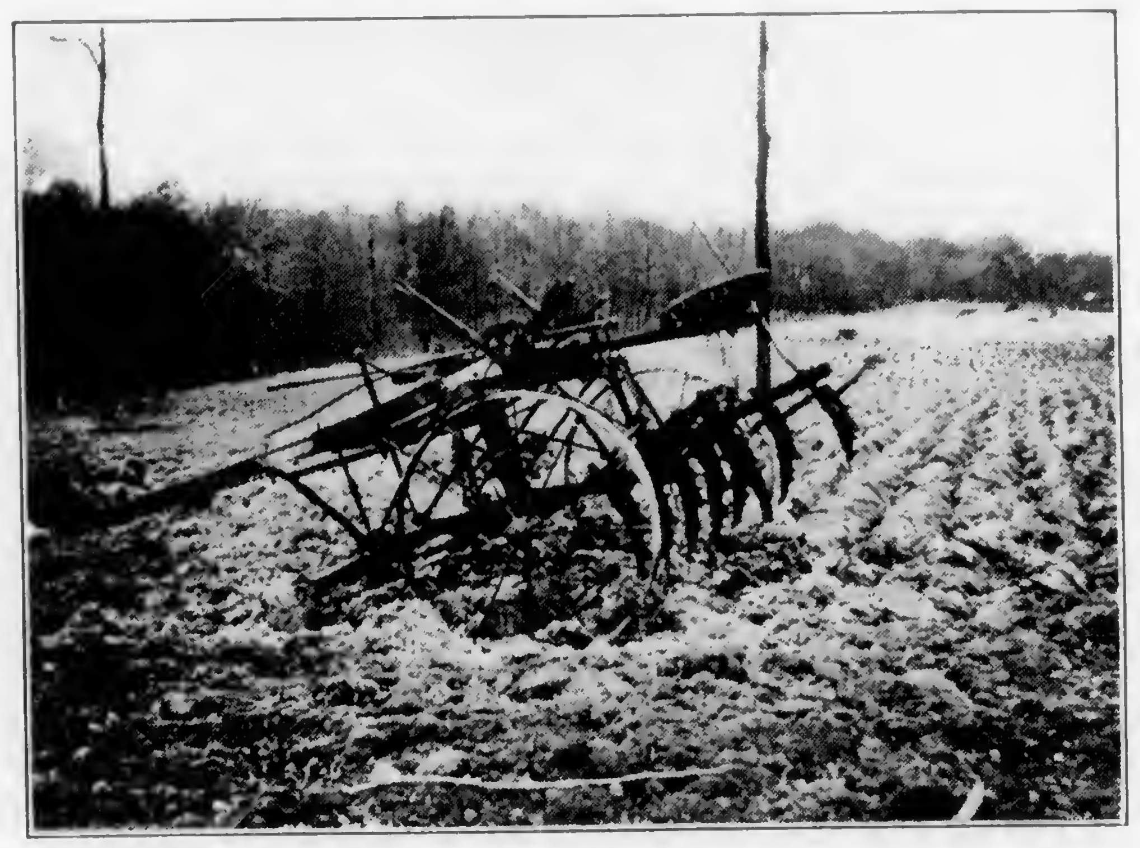
The idea that the Milksnake milks cows is widespread and commonly believed, but wholly without foundation. In the first place the snake does not like milk; in the second, it could not possibly milk a cow; and in the third place, if it could, the snake would be able to consume about a tablespoonful—a quantity hardly to be missed at milking time. However, the Milksnake is very fond of mice and young rats, and destroys very many of these harmful rodents every year. It is commonly found in meadows and grainfields, or about houses and stables, where these pests abound. To kill a Milksnake is absolutely wrong; it is equivalent to encouraging rats and mice.

The King Snakes are non-venomous constricting serpents of good size, feeding upon small rodents and other reptiles. Not only do these snakes destroy rats and mice, but they kill and eat other snakes as well; a mighty useful habit where poisonous snakes are the victims. A King Snake is not affected by snake-venom, and a large specimen could probably overpower any other snake it might encounter. This is a very useful snake, and should never be killed.


THE MOWING MACHINE SHIFTED FROM PLACE TO PLACE TO PERMIT PLOWING IN SPRING OF 1916.

Such small snakes as the Garter Snakes, the Brown Snakes, and the Green Snakes are harmless, often very pretty creatures; there is no need of killing them.

The poisonous snakes of the region outlined may be distinguished from the harmelss ones by the presence of a pit-like depression in front of the eyes, and of long hollow fangs in the upper front jaw. Rattlesnakes, of course, have a "rattle" on the tail. A snake that is striped from head to tail, or of one color, is harmless; if it is ringed about the body, it may be poisonous or not, according to the above mentioned characteristics.


THE CORN PLANTER AFTER NEARLY A YEAR OF WEATHERING.

A harmless snake may be thick-bodied and possess a triangular head, as well as a venomous one. The hollow fangs of the venomous snakes communicate with poison glands in the head. It is only by biting that such a snake can "poison" one. All snakes have solid teeth, and will bite; and the larger non-venomous varieties can inflict a severe wound; no more dangerous, however, than any other ordinary wound.

The annual loss to the farmers of the United States caused by rodents is enormous. The best way to keep this loss down is by protecting their natural enemies, foremost among which are the snakes. It is estimated that a rat will destroy as much grain in a year as a hen will eat—about a dollar's worth. If the Milksnake gets into a rat's nest and eats six young rats, it has saved the farmer six dollars— in one meal. Suppose we bear this fact in mind, the next time we are tempted to kill a snake.
— R. L. Scherring-Housen.

Rusting Money

Any man that would throw a handful of loose change out onto the ground to be picked up when he had time to spare would acknowledge himself a fool. Yet owners of the two implements shown in the accompanying illustrations are throwing money away; and owners of farm machinery thruout the country are throwing away thousands upon thousands of dollars in just that sort of loose change every year.

It is almost hopeless to point out the folly of exposing farm machinery to such abuse. The man who does it knows that it is a shiftless, wasteful practice without a single redeeming quality, yet he goes on year after year. He knows that he shortens the life of the machinery and hastens the time of a second investment in new equipment. He knows that he impairs the efficiency of the implements, making it harder for himself and his teams to operate the machines. He knows that the exposure makes it impossible for the machine to do good work. He knows that he is throwing away money; letting it rust away and waste away.

The accompanying illustrations show two articles of farm machinery that were left in the field where last used last year. When each of these fields was plowed, the machine in each was pulled over on the plowed ground when the plow came to where it stood. The teams went to the barn several times a day and still the machines were left, to be dragged over the plowed ground, taking time and making unnecessary labor.
—Reader, Westmoreland Co., Pa.

Queries and Comments

(This department is open to all of our subscribers.
will be answered by best available authorities.)
Queries and short comments are invited. Queries

Government Whitewash

"Will you kindly publish directions for making what is called Government whitewash?" A. K., Lancaster Co., Pa.

Slake ½ bushel of lump lime in boiling water, covering it to keep in the steam. Strain the liquid and add a peck of salt previously dissolved in warm water, 3 pounds of ground rice boiled to a thin paste and stirred in while hot, ½ pound of Spanish whiting and 1 pound glue dissolved by soaking in cold water and then hung over a slow fire in a glue pot. To this mixture add 5 gallons of hot water, stir well and let stand for several days covered from dust. Apply the mixture hot.

Government Paint

"Can you furnish me with what is known as the Government formula for paint? I think it contains cement, skim milk and Venetian red." J. K., Parkesburg, Pa.

Farmers' Bulletin No. 474 gives the following directions for making a wash for exterior work, such as buildings, fences, etc.: (1) Sixty-two lbs. (1 bushel) of quicklime, slaked in 12 gallons of hot water. (2) Two pounds common table salt, 1 pound sulphate of zinc, dissolved in 2 gallons of boiling water. (3) Two gallons of skimmed milk. Pour (2) into (1), then add (3) and mix thoroly. One pound of cheap bar soap dissolved in a gollon of boiling water and added to about 5 gallons of whitewash will give it a gloss like that of oil paint.

Strawberry Acreage. — The acreage in strawberries in leading berry states is estimated by the U. S. Department of Agriculture at 111,543 acres in 1916, as compared with 93,155 acres in 1915; an increase of 18,388 acres, or 19.7 percent. New Jersey has 5,015 acres as compared with 4,559 acres last year; Maryland 9,175 against 8,688.

A Danger Signal

"Come back!---Come back!! When you see that Pyrox on a leaf, you just come right back home to mother!"

Pyrox disposes of the bug question on all kinds of vegetables and fruits. If you believe in growing good products, free from disease and insect damage, ask Bowker Insecticide Co., Boston, Mass., or Baltimore, Md., for their large catalogue, and name of nearest dealer or send $1 for enough Pyrox to make 30 to 50 gallons spray. Sold for 15 years.

Read what C. H. Hansing, Southport, Ind., says about it: "I used Pyrox on pears, cherries and apples. I only sprayed once, but I have 70 per cent sound apples, 90 per cent pears, and practically 100 per cent cherries. Last year I was able to spray three times, and got 98 per cent sound fruit on my apples. If there is anything better than Pyrox, I would like to know it. If I cannot get Pyrox I will quit spraying."

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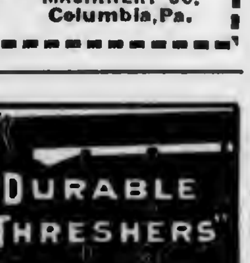
HOW TO GET MORE MONEY FOR YOUR CROP



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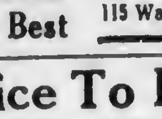

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Horticulture

COMPANION CROPS WITH PEAS

Market gardeners who wish to intensify their operations to the utmost should look carefully towards selecting crops that are adapted to the climate and conditions and will give adequate returns.

Market gardeners grow early peas, the crop being harvested anywhere from the 17th of June to the 17th of July and ample growing season remains for at least one crop and perhaps two. Some of the crops that can be used successively following peas are celery, turnips, beets, cabbage, cauliflower, spinach, lettuce and kale. Where two crops are desired: Lettuce followed by radishes, and lettuce followed by spinach, will give the desired results.

The practice in succession cropping should be that of harvesting the crop of peas when ready for market, remove the vines immediately, disk or shallow plow the ground and plant the new crop immediately. Many gardeners perform the operation within twenty-four hours.

Where celery, cauliflower, cabbage and lettuce are to be planted, it would be advisable to start the seeds a considerable time ahead in order that plants of the proper size may be available for transplanting at the proper time. Celery, 3 to 6 inches in hight, the larger size being preferable, cabbage and cauliflower, 6 to 8 inches in hight and lettuce 2 inches in hight are about right. With the second crops, it will be necessary to supply plant food especially in an available form, particularly so if large amounts of manure have not been previously supplied to the soil.—A. E. Wilkinson.

BIRDS THE FARMERS' FRIENDS

There is an important lesson in studying the economic value of our wild birds. Too often the esthetic value is given dominance over the practical value of the song birds. It is true that, in order to live, the birds will eat some of the farmers' fruit, cherries, strawberries, corn and grain, but most of them repay many times what they consume. Even the crow helps the farmer, while the red-headed woodpecker does wonders in killing insects that prey on the orchards.

It is a pleasure to know that many farmers love, protect and feed their feathered friends, but many do not think it worth their while to do so. We should compensate the wild birds for what they do for us. This we can do in numerous ways, such as building suitable little houses for them, and by feeding them in inclement weather. Many birds, especially quail, starve in severe weather in winter when the snow is deep. The state of Pennsylvania will pay a man if he feeds the quail in winter, and I suppose other states do likewise. However, that is not the point, as we should be sufficiently interested in the wild birds to protect them from some of their natural enemies, such as the cat, and the martial sparrow for instance. The sparrow has either killed or driven away many of our fine song birds. While the sparrow is not without his good points, there are far too many for the welfare of the other wild birds. It is a good plan to catch in traps the sparrows, and destroy them.

In these times of nature lovers and Audubon Societies even the suburbanite should build bird-houses, which can be easily erected with little expense. In fact, a few artistic bird-houses are an added attraction to an estate. Then, what a pleasure it is to have the birds in your yard, or orchard! With a little attention they will soon become practically as tame as pigeons, and they will repay you many times with sweet songs, and by destroying obnoxious insects that prey on plants and trees.

Speaking of bird houses reminds me of an interesting one that I heard a Kentucky farmer erected. He took a dozen bottle-neck gourds, stringing them to five or six cross-pieces on top of a long pole. By cutting holes in the gourds, he turned them into homes for small wild birds. That man was a practical genius, as he planted beans around the pole, the vines grew up and entwined about the ungainly pole, incidentally yielding sufficient beans to supply his own family and a customer! Talk about a poet being impractical—and that farmer sure did have some "poetry in his soul". It is the dreamers who make the world a happy place in which to live. Birds, with their wonderful instincts and men, with their extraordinary reason, should co-operate for the mutual benefit of all.—H. M. East, Jr., Montgomery Co., Pa.

SUMMER SPRAYING OF PEACHES

I have noticed considerable trouble during this past season from the summer spraying of peach trees for plum curculio and brown rot. We always have more or less plum curculio and during a wet season like the past one the brown rot is usually a pretty serious disease.

The plum curculio is a chewing insect and by applying an arsenical at the right time, we are able to kill the adult beetles and thereby have very little injury. The brown rot, on the other hand, is a fungus disease and must be controlled by the use of a fungicide. A number of years ago the self-boiled lime and sulphur solution was used almost entirely to control this disease, but as it is rather unhandy to make, a great many men are using the dilute concentrated lime-sulphur material instead. I have used this material for quite a number of years on peach trees and even at a strength of one gallon of lime and sulphur to fifty gallons of water, I have never had the least bit of trouble with having it burn the foliage.

You can control brown rot by using it at a strength of one to eighty and I would not advise a greater strength than that. Even with this weaker material I have found considerable injury on peaches in this state. I know of one man last season who used a dilution of one quart of lime and sulphur to one hundred gallons of water and still burned almost all of the leaves and fruit on his peach trees. The question then arises—is it safe to use the concentrated lime and sulphur as a summer spray on the different stone fruits? My experience has been that it is, if we will pay attention to two very important things. First—Do not use a heavy pressure, one hundred pounds is sufficient. Where two hundred pounds or more pressure is used it seems to drive the material into the leaf itself and injury is sure to follow. Second—Use a very fine nozzle and only apply sufficient material to wet the leaves and the fruit without causing it to run from the leaves. Here is where most people make their mistake, they want to cover the trees thoroly, with the result that they get too much material on and burn the leaves, fruit, and in many cases, kill the smaller twigs.

I realize that where you have incompetent help, there is some objection to the use of the concentrated material as a summer spray but it is so much more convenient and if you will only watch the two things which I have mentioned you will find that one gallon of lime sulphur, three pounds arsenate of lead paste and eighty gallons of water will give you splendid results when used for the plum curculio and brown rot. I make the first and only application just after the husks or calyces have fallen from the small fruits.

If your orchard has good air drainage and the trees are well pruned and you practice thinning the fruit, one application is sufficient; if not, make one or two more. In using this mixture you will notice that you have a dark colored mud in the bottom of the sprayer, this is merely a precipitation of lead and does not injure the material. I would not let the material stand over night or some of the arsenic may be precipitated and thereby weaken it as a poison.

Where late varieties of peaches are being grown or where you have a location that is conducive to the development of peach scab, I would make three or four sprayings of this same material at intervals of about two weeks after the spraying mentioned above. Late varieties in particular are very susceptible to scab and if it is not prevented it is liable to ruin the entire crop.

If you are afraid to use the concentrated material for the above named troubles, then use the self boiled lime and sulphur. The best formula is eight pounds of good caustic lime, eight pounds flowers of sulphur to fifty gallons of water. Put three or four gallons of warm water in a fifty gallon barrel, then drop in the lime and as soon as it starts to slake add the sulphur. Stir the mixture vigorously and if it becomes too dry, add a little more water so as to prevent burning. When the lime has stopped slaking dilute to fifty gallons and add two pounds of arsenate of lead paste. This material will not burn and can be used on all of the stone fruits.—Sheldon W. Funk.

Timely Fruit Notes

By Dr. J. P. Stewart

Fertilization of Dahlias

"How much unleached oak wood ashes broadcasted on 1600 square feet of ground would it require to get good results for growing dahlias?" L. E. F., New Jersey.

In growing dahlias, most commercial florists seem to prefer fertilizers that are fairly rich in nitrogen and phosphorus rather than those that are relatively strong in potash, as is the case with wood ashes. Sheep manure or well-rotted stable manure, and tankage, dried blood, ground bone, or acid phosphate are largely used by such growers.

If the soil is deficient in potash, however, the wood ashes should be very helpful. If the ashes are wholly unleached, they should contain from 6 to 8 percent of potash, and hence 150 lbs. of them should furnish an abundance of this element for the plot under consideration. To balance it up, however, I would suggest the addition of about 30 or 40 pounds of nitrate of soda, and about 70 or 80 pounds of acid phosphate, or their equivalents.

About three applications at intervals of 3 or 4 weeks, using about one-third of the above total at each application, should give the best results. The first application may well be made shortly after growth starts.

Peach Varieties Ripening Late

"Please send me a list of leading varieties of peaches that will ripen in Delaware County after Sept. 18th." A. G. S., Delaware Co., Pa.

The following varieties are likely to be the most satisfactory of the late peaches in your locality: Frances, Fox, Smock, Iron Mountain, Stevens, Salway and Krummel.

These varieties are named approximately in order of ripening, and the Frances should ripen approximately a week after the Elberta. You can doubtless tell whether this would be late enough to come in after September 18th in your locality.

Use and Composition of Lime-Sulphur Sediment

"In making lime-sulphur solution around 32, after the solution is cold and drawn off, we have a putty-like substance which slides off the sediment. This we draw off in open barrels, and after it settles a day or so there rises on the top a solution of 32.

"What I would like to know is the value of this putty substance. How would it do as a tree paint? When it gets dry on the barrels, it is hard to wash off. How would it do to mix with soap for a tree wash or paint?" J. E. F., Illinois.

The putty-like substance referred to here is doubtless largely composed of the finer precipitates which are formed chemically in the process of boiling. In this case, it is composed largely of calcium sulphite, together with more or less of the regular lime-sulphur solution. The latter always remains in it to some extent unless completely forced out by a filter press.

This sediment is often of some value as a tree paint, altho we have had some difficulty in getting a very similar material to stick well on the trees. It usually forms a lime-like crust, which flakes off in a rather short time, particularly if the trees are small enough to be swayed much by the wind. If the material that you describe will stick well, however, I see no objection to its use as a tree paint, and it should also be as safe on trees as any other material that is readily available. The addition of soft soap would probably result in little or no benefit.

Reducing the Fly Nuisance—Use of Salt Around trees

"Kindly permit me to impose on your good nature by asking you one or two more questions. What had I best use as a spray about the house and barn to rid ourselves of house flies?

"How about the use of salt around some old trees that I am cleaning up, top-grafting, and renewing — some of them apple and some pear? How about using salt around young trees—in small amounts?" G. C. S., Adams Co., Pa.

This is certainly a worthy object and one that should be encouraged. I am therefore glad to state that you can get complete directions for controlling flies in Farmers' Bulletin 679, by Doctor Howard, who has been giving special attention to this matter for several years. This bulletin can be obtained on application from the U. S. Department of Agriculture. It gives the best and latest information available on the subject involved, and its recommendations should be followed out by everyone who has any of the usual breeding places for flies on his premises. Several of the control methods described there have been used very successfully at the Pennsylvania State College.

In regard to the use of salt around apple and pear trees, would say that it has no value for such purposes, so far as I am aware, and it may even be to a disadvantage, unless the applications are very light.

BEST LOCAL FARM PAPER

"I am sending you an article on Costs of Production for publication in Pennsylvania Farmer. I am sending it to you because I consider your paper the best of our local farm papers; also because you give more attention to the business end of farming than any of the others." W. H. Rothenberger, Palm, Pa.

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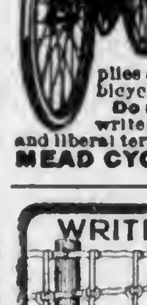

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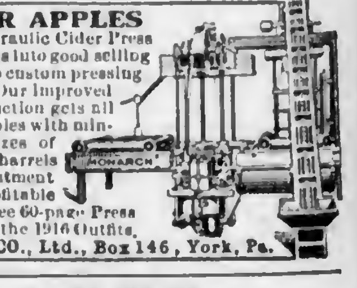

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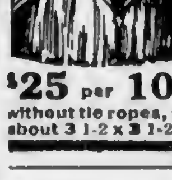

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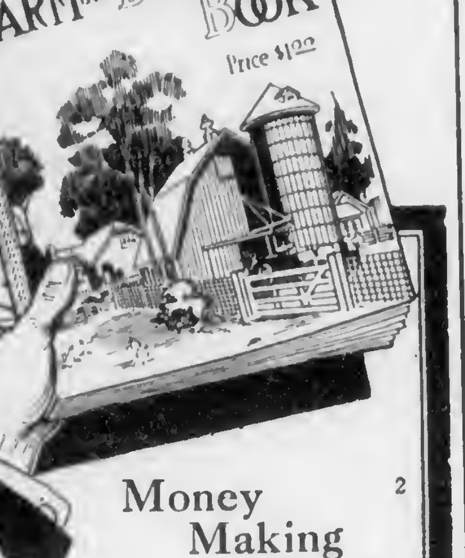

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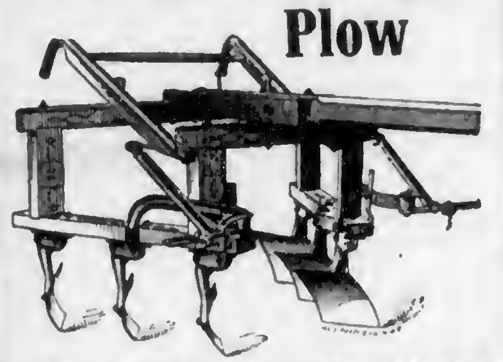

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Philadelphia, Pa., June 3, 1916.

HONEST COMMENT

Pennsylvania Farmer was complimented the other day by the expression that its criticisms always seem to be fair and sincere. We appreciate that discernment. We regretfully feel under the necessity occasionally of throwing a stone or brickbat, and are glad for every opportunity to throw a bouquet, but we never throw mud. Unfortunately this latter material seems to be the favorite ammunition of attack in some activities, especially in politics. Politicians seem to forget the Biblical declaration, "They that touch pitch shall be defiled." Business men learned better long ago, and a newspaper that stoops to that method besmirches itself in the eyes of the public and advocates no good cause. A farm paper is disloyal to the cause it represents if its fails to attack methods it believes to be inimical to the best interests of agriculture. On the other hand, the paper that continually caters to the prejudices and flatters error on the part of farmers serves no good purpose and should be looked upon with suspicion. We hope to continue to merit the appreciation of our readers for fairness and honesty, even tho we do not continually call your attention to our purpose.

WHEAT PROSPECTS

The government crop report for May 1 shows unusually heavy winter damage to wheat and a material reduction in acreage to be harvested. The area of winter wheat to be harvested is given as about 33,020,000 acres, or 11.4 percent (4,236,000 acres) less than sown last fall and 18.4 percent (7,433,000 acres) less than the acreage harvested last year. The average condition of winter wheat is given as 82.4, as compared with 92.9 on May 1 last year. On these estimates, the yield would be about 499,280,000 bushels or 23.8 percent less than the 655,045,000 bushels produced last year. The greatest loss occurred in the corn-belt states from Ohio to Kansas. Condition of the crop in Pennsylvania, New York and New Jersey is better than last year, with Maryland and Delaware showing but slight loss. This decline in yield as compared with last year is likely to be more than offset in the markets next fall by the heavy surplus held over. The decline in export demand, due to freight rates, heavy South American supplies, etc., has left a large percentage of last year's crop still to be disposed of. This surplus will likely be an important factor in the wheat market next fall and winter.

CLUB WORK

We print this week an article explaining the work and purposes of Boys' and Girls' Clubs. There are great possibilities in this as in other co-operative enterprises having a right motive and proper direction. There is one phase of the work in connection with the development of the Club movement that we want to call attention to, and that is the spirit of co-operation, or community spirit—the ability and willingness to work together for the common good. This is a quality that was not developed to any great extent by the education and associations of past generations in rural communties and for that reason it is now difficult to forward co-operative enterprises. We sometimes fear that too much emphasis is laid in club work upon prizes for excellence, or in other words, the spirit of competition is fostered to the detriment of co-operation if all the energies of each are directed towards excelling the rest. The greatest good that can come from the Club movement is in the direction of unifying effort that is inspired by common knowledge and common needs. If prizes alone are the chief object, secrecy and selfishness may be engendered in some while those less favored by locality or opportunity may lose heart, altho putting forth as great and intelligent effort as successful prize winners. It has long been a mooted question with educators whether or not prizes and rewards are not more harmful than helpful; whether or not the individual should learn that the natural and logical results of his labors are a just and sufficient reward for his efforts. We throw out these suggestions so that the practice of prize giving may not be carried to such extremes as to develop qualities in boys and girls as will defeat the greater possibilities of the work.

RURAL CARRIERS' PAY

A New Jersey subscriber writes stating his disappointment that we "shut off" further discussion of the question as to the amount of pay which rural carriers receive. It is not our purpose to close our columns to new or further information on any subject pertaining to the welfare of agriculture. However, we feel that the most pressing question at this time is the efficiency of the service. That the service of the Department, both as regards the extension of the rural routes so as to serve all citizens, as well as the further development of the parcels post, needs attention, few will dispute. The objection to both these objects is on the ground of cost, and the answer is made that if business economy were practiced in every phase of the work there would be plenty of money to provide the needed service. But we are not sure that it would be true economy to lessen the carrier's pay. There may be individual cases where carriers receive more than a just amount, owing to light service or very short routes, but if so they are few and far between. We are convinced that the majority deserve the salary they receive, and that few have more than is needed to maintain their equipment and a satisfactory home. It is hardly fair to set up the average farmer's income as a fair standard of what a man should receive for a year's work. It is not enough—not as much as he deserves and this not only the farmers but all others interested know to be a fact. The remedy lies in finding a solution for a number of problems connected with agriculture. We believe that these questions are being solved slowly and that the farmer's income in the future will be greater and more stable than it has been for half a century. The reason we suggested closing the discussion of the subject was because correspondents seemed to have run dry of arguments and were merely making uncomplimentary comments on the intelligence, ability, labor and habits of their opponents.

WORLD DEMOCRACY

Every day the writer passes the site where the house stood in which Jefferson drafted the Declaration of Independence; a little father down is the historic building where our nation builders a few years later formed the Constitution of the United States, and sent it forth to the colonies to be accepted or rejected. Strange as it may seem to us it came near being rejected. Democracy was an untried principle and a great many feared to unite their efforts with the others in the formation of a common government. There was more or less suspicion and fear in each colony, believing that every other colony had designs upon it and would take an undue advantage. There was more or less class feeling and class prejudice and the feeling of equality and brotherhood that inspired the writers of the above named documents was not shared by the multitude. But by a close margin it was decided to try the experiment. The principle has been vindicated. One hundred and forty years has proven that men prosper most when the common good rather than the individual or class interest is fostered. As this is written, there is in session in Washington a meeting of noted and able people under the name of a League to Enforce Peace. It is an effort to extend thruout the world the same principle that is contained in the Constitution of the United States and which brought the colonies under common law and government and which allayed existing suspicion, envy and jealousy. While the new proposition contemplates nothing more than its name indicates, yet it would naturally do more and would extend the spirit of democracy thruout the world—something that is more or less restricted at present because of the exaggerated ideas on nationalism. The conception of democracy that stops at national boundaries is narrow and provincial. Every true patriot should welcome an opportunity to reach his hand across the borders and join with every other in a compact to enforce peace between nations, as was done here between the states, and in all nations between individuals.

LIGHTNING ROD PROTECTION

Lightning rods were so long in the gold brick class that prejudice dies slowly. The early unscrupulous venders of lightning rods were past masters in the art of deception. Their work was so notorious that the lightning rods have suffered ever since. But no worthy article can be kept down forever by deception. There is much more or less convincing theory supporting the claims that lightning rods really protect buildings against lightning. But lightning is an uncertain quality to theorize on; it refuses to conform to orthodox reasoning. However, the data accumulated by fire insurance companies all over the country, based on accurate records of fire losses from all causes on rodded and unrodded buildings, are more convincing than any theory. And the figures all indicate that the protective powers of lightning rods properly installed are sufficient to warrant strong faith and reasonable investment. A recent discussion before the Washington Academy of Sciences brought out the statement that the property loss by lightning for the entire United States is approximately $8,000,000 per year, of which by far the greater part occurs in rural districts. Taking lightning rods as they come and in the general run of installations, they reduce the fire risk from lightning from 80 to 90 percent in the case of houses and considerably above 95 percent in the case of barns. Just why the figures are higher on barns than on houses is not stated, but the figures given were based upon actual comparative results as shown by insurance figures. Resistance to atmospheric and soil corrosion is the chief essential to be considered in selection of lightning rod material. Good mechanical construction, proper groundings in permanent moisture and well placed aerial terminals are the essential points in installing the rods. All figures go to show that a well-rodded building affords a high degree of safety and the investment in rodding is fully justified wherever the risk of human life or a considerable investment in buildings are involved.

THE FUTURE DAIRY MARKETS

A consular report from Ontario quotes cheese at the highest point ever known there. The record price was 19¾ cents per pound paid the producers the week of May 12. The highest previous record was 18¾ cents paid producers in May of 1915. The high prices are due to the heavy demand in England. It is reported that England is not only buying all of the cheese that Canada can supply, but buyers are also visiting parts of the United States, particularly northern and western New York, for American cheese. There is a hint here for our dairy interests. Denmark assumed her position as a dairy leader in European countries during the Prussian war. She built so well at that time that she has been able to hold her commanding position ever since. The United States has the opportunity now to establish herself as an exporter of dairy products, and any foothold she may gain thru superior quality will be of material assistance in maintaining the stability of the dairy industry here after the war is over. Regardless of temporary conditions in restricted areas, it is evident that this country will be confronted with the problem of disposing of a surplus before many years. There is a surplus of certain forms of dairy products in large areas at the present time. The milk producers of the East are selling almost continually to a glutted market. The greatest factor in depressing prices is the abundant supply which exceeds demand just enough to eliminate active or competitive buying. And in most sections the milk producers are entirely helpless. With the elimination of the old-time cheese factories, the abandoning of the local creameries, or the transfer of these institutions to the large milk companies, there is gone the opportunity of diverting the surplus milk to other market outlets. The producers must sell their milk as milk, at the prices offered, or go out of the dairy business. The dairymen of the Middle West have solved their problem, at least temporarily, by organization and control of supply. The conditions in the East may finally force a similar movement here. The development of export markets for both butter and cheese now when conditions are most favorable would do much to equalize the domestic supply and demand. This is one of the opportunities for real preparedness work.

HARRISBURG NOTES

The Agricultural Budget. — Capitol Hill is awaiting with considerable interest the framing of the budget for the State Department of Agriculture by the new State Commission, which is explicitly charged in the act creating the commission with that duty in advance of the next legislature. The department is just commencing to feel the impulse of a change in methods and the vigor with which the bureaus have taken up new work, extended their control of various matters and met the disadvantage of reduced appropriations has attracted attention. The commission has not figured very much in the news of the day due to a peculiar policy of secrecy but it is said to be engaged in an earnest effort to revive sheep raising and to secure changes of method in marketing and grading which will be of vast benefit in the long run. The duty is now up to the Commission to frame a budget and it will be interesting to watch the result because of the expansion of the work of the department and the demands already being heard from other wings of the government for increased appropriations.

Politics on the Hill.—Capitol Hill is going thru one of its periodical political convulsions and as a result of the failure of the administration forces to obtain some of the results desired, men are losing jobs. The result will be a legislature and a governor less in sympathy with each other than was the case in 1913. Many worthy objects will feel the effect of this month's primary a year from now. And with the state revenue in sight not greater than in the last session this is going to call for earnest work by men who want to see agriculture and its allied branches advance without regard to who shall be chairman of a delegation to a national convention.

Lime Registration Large.—A list of the fertilizer and lime manufacturers and importers who have registered their brands in Pennsylvania shows not only as heavy registration as before the European war upset the potash situation, but considerably more in some lines which utilize native materials. The lime registration shows ninety firms, some having as high as five and six brands for agriculural use. The list gives the names of the firms and the brands and illustrates the manner in which the State control over such materials is being extended.

Seeds Show Well.—Tests made in the laboratory of the State Department of Agriculture under the "pure seed" law of 1913 show that during 1915 there were 221 samples analyzed and that as a rule they met the tests imposed by the legislature. For instance, four of 74 samples of red clover failed to come up to the mark and only one sample in 22 of alfalfa was below the standard. One failure in timothy is reported. Seeds of the Canadian thistle and doddar were found in 15 of the total number of samples tested. The testing shows a marked improvement over conditions as reported upon a year ago and that the value of this law, like some others which were opposed at the start, is becoming apparent.

Thousands on Roads.—From all accounts, the State's second good roads day was marked by far better weather and a much larger number of volunteers than the first. Between 100,000 and 120,000 persons are believed to have turned out to work on the highways and many sent material, teams or tools, while the number who gave cash for some one to do the work was larger than expected. Had not the farmers been so far behind in their spring work there would have been many out on the highways.

Crying for Help.—Almost a fourth of the farmers of the state are shy on male help for the farms and the best efforts of employment agencies have been unable to bring about much relief. In some counties it is declared that the farmers are facing partial loss of crops which are needed to keep up food supply unless they can get assistance. In others the statement is made that half the farmers are unable to get hands.

Value of Produce and Wages. — A statement from the Department of Agriculture shows that Pennsylvania's total agricultural production is worth the magnificent total of $400,000,000 a year, which is greater than even the coal output, the state's most valuable mineral product. The total wages paid to male help on the farm is estimated at $39,953,029 and for female help on the farm $3,972,000. The figures are most impressive.

More Spraying.—The reports made here indicate that in 16 counties of the state over one-third of the farmers are now regularly spraying their trees. In the big fruit raising counties the number of farmers and orchard owners spraying are having it done regularly. —Hamilton, Harrisburg, May 29.

NEW YORK LETTER

No Cut in State Fair Appropriations. —The governor allowed all appropriations for the state fair to stand. The total is $213,280 of which $100,000 is for permanent improvement which in this case means the removal of the race track to the rear of the grounds to an addition of 27 acres bought some years ago for the purpose. Work on the removal of the track will be begun at the close of the fair next fall. The $113,000 is for current expenses, salaries, and cost of operation. Salaries and wages of employes amount to over $34,000. Printing and advertising cost about $12,000; travelling expenses of commission, $2,000; premiums, $50,000; exhibits of state institutions, $43,000; parade expenses and the like, $2,500.

State Appropriations. — The total state appropriations are over $59,000,000. The governor hewed them down $2,000,000. The largest cut was for legislative printing, namely $300,000. The $100,000 indemnity for diseased animals killed by the state was allowed to stand and an item of $84,000 for an agricultural school at Schoharie.

Grange Committee Active. — The legislative committee of the state grange is interested in getting better freight rates on milk and cream. They attended a hearing given by the Interstate Commission in New York not long ago at which the shippers' side of the question was well presented by Overseer Manning of the state grange. Other important testimony was given and a brief will be submitted concisely stating the grange and farmers' position.

Peach Growers Ask Railroads to Co-operate.—The peach growers of western New York are attempting to get the railroads to co-operate with them in getting the best peaches to market at the most reasonable price. The matter has been taken up with the Classification Committee of the railroad companies but no definite arrangement has yet been made. The growers feel that the present freight classification does not conform to present requirements. The classification was made when peaches brought $2 per bushel. Now that peaches have declined in price so that the grower does not realize more than 50 cents a bushel for them, it is held that the classification should be changed. What the committee of growers is working for is to have peaches shipped in car lots as third class freight instead of, as now, shipped as first class in car lots and in less than car lots at one and one-half times first class. It is estimated that more than 1,000 cars of peaches rotted on the trees or ground last year because the growers could not get enough for them to pay for gathering and shipping.—D.

COUNTY NOTES

York Co., Pa., (S.E.) May 22. — Weather is rather cool for this time of year. Live Stock as a rule is looking good. Beef cattle high, 8 to 9 cents per pound; hogs, 12 to 12½ cents per pound. Wheat is looking fine. Grass not so very good. Wheat, $1.10 per bushel; corn, 78 cents; oats, 52 cents; potatoes, $1.25 per bushel; butter, 35 to 38 cents per pound; eggs, 21 cents per dozen. Farmers are all busy. Some corn yet to be planted. Quite a good acreage of tobacco will be planted. —Clarence D. Emig.

Steuben Co., N. Y., (W.C.) May 22.—Weather very wet. Planting hardly begun. Sowing not finished. Only wheat and grass doing well. Peas for canning sown and coming up. Pastures luxuriant and cows doing well. Crows bothering young chicks, and extreme wet is not in their favor.—C. M. Drake.

MEETING OF STATE BOARD OF AGRICULTURE AND ANNUAL NORMAL INSTITUTE

The spring meeting of the State Board of Agriculture in conjunction with the Institute workers took place in Reading, Pa., on May 23-25. The meeting was better attended than usual by those connected with the above named bodies and a good spirit prevailed thruout the sessions something that has always characterized these meetings. The new heads of the department, Secretary Patton and Deputy Secretary Carothers were in attendance and their earnest attention and participation evidenced their interest in the work. Ex-Deputy Secretary Martin also attended thruout and was warmly welcomed by his old associates. Sorrow for the illness of a veteran member of the Board, Joal A. Herr, of Clinton county was expressed by resolution and a fine floral appreciation was sent by his many friends.

In additions to the routine business of the board, a resolution was adopted asking for the appointment of committee to consider the question of proposing such legislation as will give the State Board some power for greater usefulness, or, to repeal the present law and disband the Board because it lacks executive power to do constructive work at present. The committee was appointed and it means to go to work in earnest. The State Board was shorn of its power when the law creating the Department of Agriculture was passed 17 years ago and it has existed mainly as a figure-head for a number of years. The law passed by the last legislature re-organizing the Department was so amended and mutilated during its passage that little or nothing which the originators had in mind was achieved. As it stands today it is not satisfactory to the farmers and business men of the state, and in all probability the committee mentioned above will endeavor to draft something that will meet the needs. It invites the co-operation of other interested men and bodies, and will be glad to receive suggestions from anyone. P. S. Fenstermacher, Allentown, Pa., is chairman.

Space will not permit a review of the many good addresses made by the state men. W. D. Uhler, Chief Engineer of the State Highway Department, gave an illustrated talk on the highway system. He referred to the complaints made relative to the poor condition of the roads taken over by the state and known as state roads. This condition, he said, was due to great number of miles taken over and the insufficient funds available. By act of the legislature the state had assumed charge of 10,200 miles of road, a great deal more than it is possible to repair and maintain. Some of the routes taken over practically do not exist as traveled roads—many miles having been abandoned years ago. He advises a law turning over the automobile license fees to this fund.

Prof. Helmar Rabild, of the Department of Agriculture at Washington, discussed Community Breeding, and recommended this method as the only practical method of improving the average herd, since the average herd in Pennsylvania was composed of only four and nine-tenths cows—a number too small to warrant the individual ownership of good bulls. His belief is that bull associations are as necessary as cow-testing associations.

Howard Selby, of Bustleton, urged the necessity of co-operative activity tending to popularize farm, orchard and garden products. He pointed to the success achieved in other lines, and asserted that publicity and judicious advertising were necessary on the part of distant products.

Every address made by the local institute men was unusually good and instructive, also the address by Prof. H. R. Lewis, of New Jersey, on Modern Farm Poultry Management, and it is to be regretted that there was not a good attendance of local farmers to hear them.

One of the most interesting sessions was that devoted to consideration of the institute problems. As usual, the time allotted was too short. The discussion brought out the fact that there are still some defects, but that these men are anxious to correct them. Some suggestions made were: The creation of better community interest by more and earlier advertising in the community; more use of the local papers of publicity; the provision of respectable means of conveyance for long trips; shorter speeches from the lecturers and more local expression; change places for holding frequently so as to reach the greatest number; avoid communities that play the "hold-up" game in the matter of hall rent or entertainment; bring speeches down to date. The man who repeats the same address year after year should be dropped, etc.

STATE COLLEGE EXCURSIONS

The Pennsylvania Railroad will run special excursions to the Pennsylvania State College on following dates:

June 2, from Philadelphia Division including Lancaster County, via Tyrone.

June 3, from Pittsburgh and East Liberty, via Tyrone. (Allegheny, Beaver and Greene Counties).

June 6, from Harrisburg and Middle Division, via Tyrone.

June 16, from Wilkes-Barre and Sunbury Division, via Montandon to Lemont.

June 17, from Erie, via Lock Haven.

June 17, from Bedford Division, via Tyrone.

June 17, from Elmira Division, via Montandon to Lemont.

June 19, from Indiana and Cresson Division, via Tyrone.

June 20, from Butler Branch and Conemaugh Division, via Tyrone.

June 21, from Pittsburgh Division line stations, via Tyrone. (Allegheny, Westmoreland and Fayette Counties.)

In addition to the trains run by the Pennsylvania Railroad, the Reading will run an excursion June 7.

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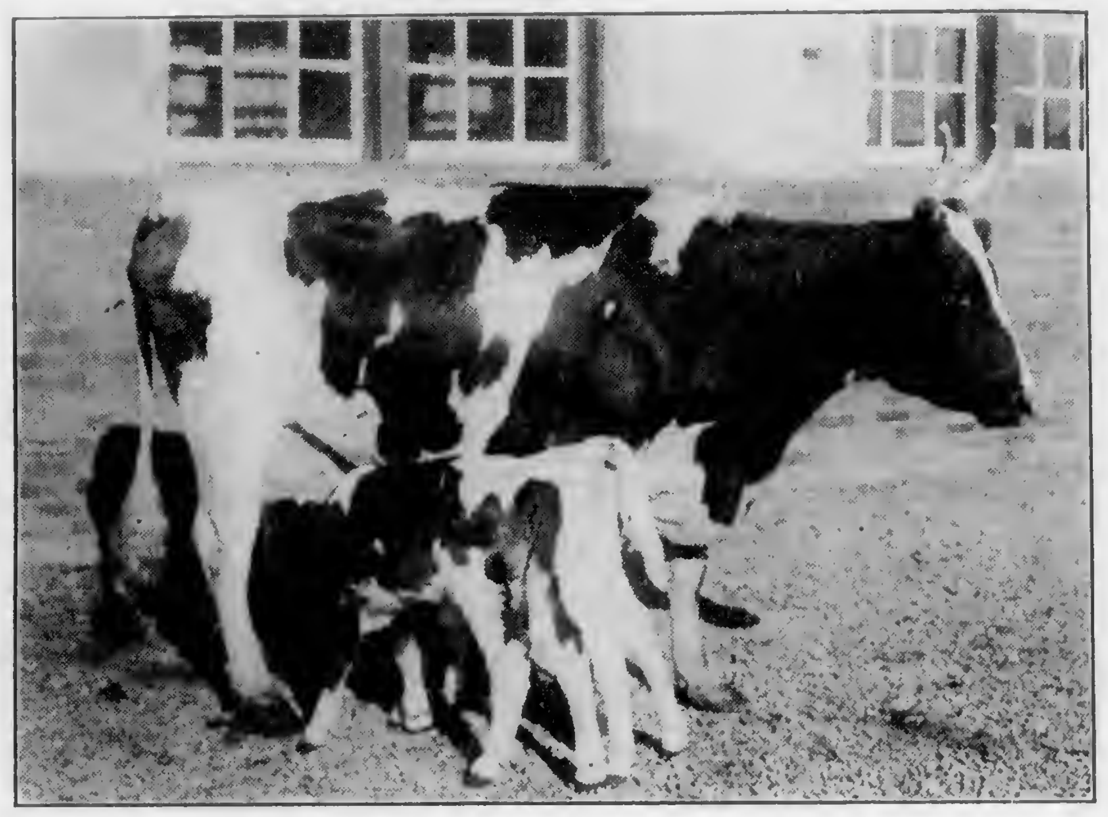
A PECULIAR CASE OF TWIN CALVES

By D. B. ETTERS
Pennsylvania State College

On October 15, 1915, one of the Ayrshire cows belonging to the Dairy Husbandry Department of The Pennsylvania State College, gave birth to twin calves, a bull and a heifer. From all appearances the calves were normal in every respect. Each weighed 52 lbs. at birth and the accompanying illustration shows their size and condition soon after birth. The dam was a pure bred Ayrshire, of very good breeding. She was dropped May 5, 1911, making her age at the time the twins were dropped, about 4 years and 5 months. The sire was also a purebred Ayrshire and was two years and six months of age at the time of service to the mother of the twins.



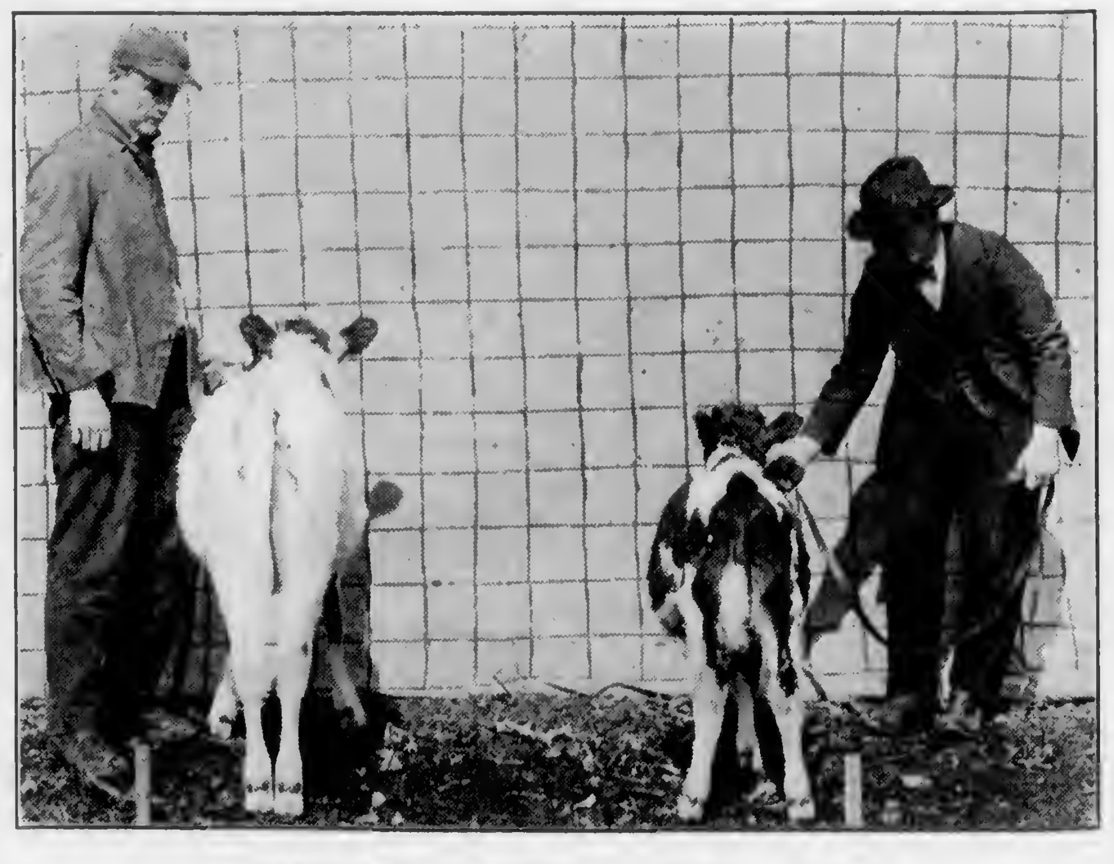
AYRSHIRE TWIN CALVES, BORN OCTOBER 15, 1915.

The calves were both handled in the same manner and allowed to remain with the dam for one week, to be in best of condition for the annual Student Agricultural Fair. They were then taken from the mother and allowed 12 pounds of whole milk daily until November 11, when they were changed to 12 pounds of skim-milk daily. The skim-milk was supplemented with one-half pound of alfalfa hay and two-tenths pound of grain daily, consisting of a mixture of 100 lbs. corn meal, 100 lbs. wheat bran, 100 lbs. ground oats, 50 lbs. linseed oil meal (O. P.) and 8 lbs. dried blood.

The bull calf did not utilize the skim-milk given him so was changed back to 8 pounds whole milk the next week while the heifer was increased to 14 pounds skim-milk daily. On the week beginning December 2, one pound of corn silage was added to the ration of each and the heifer had her grain daily while the bull's ration remained the same. The bull made slow gains, shown by the following weights, that he was continued on whole milk in the hope that he might gain more rapidly. The heifer developed so rapidly that she was increased at intervals of about two weeks until March 13, when she was receiving a daily ration of 3 pounds silage, 20 pounds skim-milk, 2 pounds of the above grain mixture and one and one-half pounds of alfalfa hay. The bull received at this time, 6 pounds of whole milk, one-half pound of hay and two-tenths pound of grain.

Rate of Gain

Date		Weight of bull	Weight of heifer	Gain bull	Gain heifer
10-15-15	.....	52	52		
11-15-15	.....	87	105	35	53
12-15-15	.....	89	138	2	33
1-21-16	.....	94	186	5	48
2-15-16	.....	101	215	7	29
3-20-16	.....	122	273	21	58



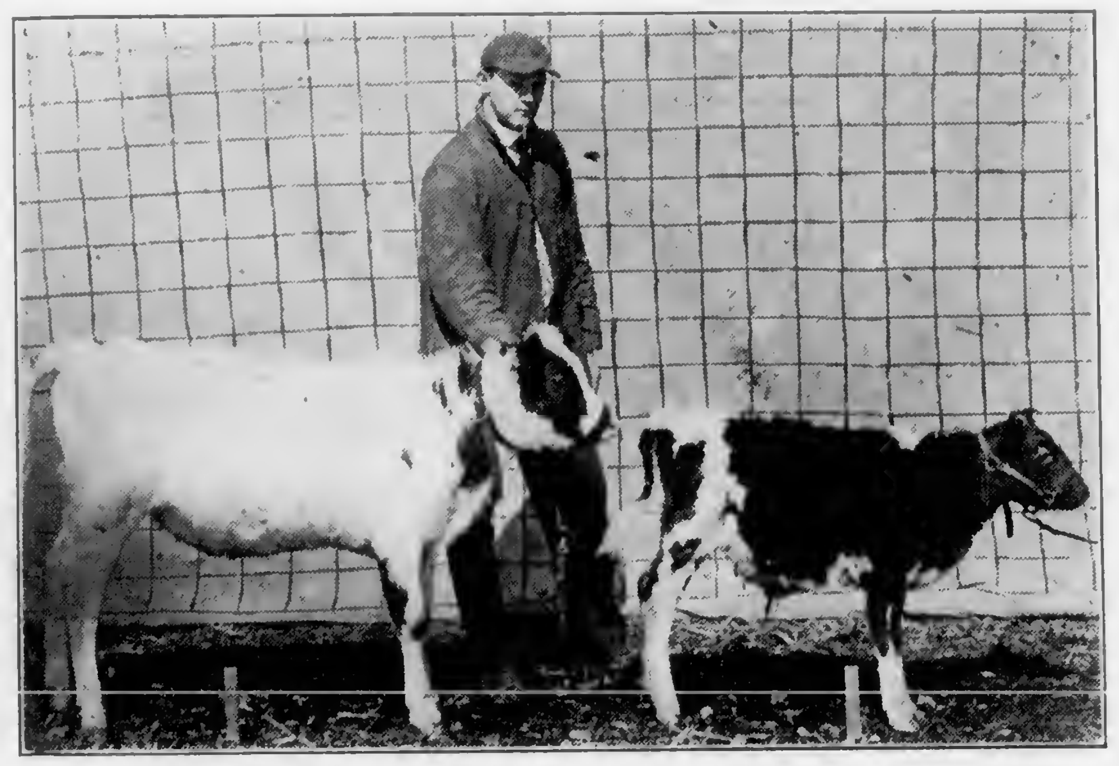
SAME TWIN CALVES ON APRIL 1, 1916.

From this table we can see how much more rapidly the heifer gained than the bull. From birth until March 20, 1916, the bull gained 70 pounds and the heifer gained 221 pounds.

The accompanying photographs show clearly the condition of the calves on April 1, this year. The bull had long, coarse hair, harsh skin, large overly-developed paunch, small bones and lacked flesh in the rear quarters and along the back bone. His eye was very good and he was developing the secondary male characteristics. The heifer is a fine specimen in every way. She has a wonderful constitution, good head and eyes and bids fair to develop into a very excellent animal.

On April 6 it was found necessary to kill the bull. Upon post mortem examination his thyroid glands were found to be undeveloped. In a healthy, two-months-old calf killed a short time before this post mortem, the thyroid glands weighed 96 grams. In this calf (over five months old) the thyroid gland as carefully as it could be dissected, weighed 14 grams. The calf was examined closely for any further defects or abnormal conditions, but none were found other than lack of bone, flesh and skeletal material.

Should the heifer prove to be a non-breeder she will be examined for overly developed thyroid glands, to ascertain whether she received part of the thyroid material belonging to the bull. The abnormal growth of this bull suggested the condition known as cretenism in human beings, a condition due to the improper functioning of the thyroid glands.



NOTE DIFFERENCE IN SIZE AT FIVE MONTHS OF AGE.

THE BUTTERFAT STANDARD

A Chester County Problem

Kimberton, Chester County, is the center of a milk producing district. Probably there are more than 200 farmers in it with dairies averaging thirty cows each, to whom the dairy is a chief source of income. Hundreds of thousands of dollars invested. Some sell to creameries, some in Phoenixville for family use, some ship to Philadelphia, some sell to condensaries. Until recently, milk was sold by the quart, or equivalent hundred pounds. Recently the butterfat basis has been substituted by the condensaries, and other buyers have followed the lead.

Now, one has a perfect right to buy butterfat if he wants it, and the scale of prices is proportionate for different grades of such milk; but butter-test dairying is something else than quart dairying. The changes demanded, and the necessary "scrapping" of a costly investment, together with other practical difficulties, has caused considerable heat among the dairymen. Under the old regime they installed Holstein cows, and the region is full of them.

But 100 pounds of 5 percent milk gets paid for five pounds of butterfat. It takes 200 pounds of 2½ percent milk to bring the same price. The dairyman who produces the latter has to milk and deliver and give away that extra 100 pounds of milk; and he feeds grain, as made along different lines by parties most good dairymen do, he has to buy grain for that 100 pounds of milk; 30 pounds of grain, say, at $1.50 per hundred. And that is not all, for the buyers say to him "The country is full of milk and we can get all we want and more. We can only pay you a reduced price;" using his extra milk that he gives them against the producer. Of course this does not directly affect those who ship; but one buyer will not long pay more than another, even if there be no collusion among them.

But even this is not all. For illustration: Our own dairy we knew yielded 4½ percent milk, at least. Our fat tests as reported steadily climbed down. We had two independent tests unknown to each other and not interested in any way. Results had to be figured into parallel lines, and then they tallied exactly, and proved that we were in fact delivering 4.9 percent milk. We changed buyers forthwith; starting in on a 4.9 percent basis; and again our tests ran down until we sent an expert to personally supervise the testing. That day the test was 4.5 percent, but after that it ran down again. Also we found that each day's delivery thereafter fell short by weight, according to our home scales, by from 4 to 6 pounds on the hundred. Then we happily found a way to get out of that game.

Changing from milk cows to butterfat cows over all this district is slow and costly. Much invested capital will have to be sacrificed. And then, when the change has been effected, the producer selling even on a remunerative schedule has no check on the buyer. Unscrupulous parties can make the test read what they will, as all practical men know; and short weight and low reading make the published schedule a joke and nothing more.

Farmers of the Kimberton district are trying to work out a practical method of co-operation, first, to do their own weighing and testing, and second, to get past the buyer who pays what he pleases, and into the open market. It is a big job, and many have tried it and failed. Some have won out; and that means that there are ways in which these can win out too. The road to success is narrow, but it is plainly marked by the wrecks on the right hand and on the left. Of that, perhaps more later. — Charles H. Darlington, Chester Co., Pa.

AT THE HEAD

"I have been reading your paper for nearly a year and I wish to say that in our judgment it is one of the best farm papers printed. We take two other good farm papers, one having been in the home for five years, but we put Pennsylvania Farmer at the head. I have enough faith in your paper that I want to try to have my neighbors take it."—P. H. Cooper, Audubon, Pa.

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A daughter of King of the Pontiacs, from a daughter of Christopher Columbo.
A daughter of King Segis Pontiac, from a daughter of King of the Pontiacs.
A daughter of Sir Sadie Cornucopia. This sale will also include granddaughters of such noted sires as: Aaggie Cornucopia Johanna Lad. Mercedes Julip's Pietertje's Paul. King Segis Pontiac. King of the Pontiacs. In the herd are a few extra good offerings in young bulls, especially attractive being a pair of twin sons of Tidy Abbekerk Prince, from a 23 lb. daughter of King of the Pontiacs.

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Live Stock

PROFIT IN EASTERN LIVESTOCK

There is an increasing amount of agitation among some farm publications for the keeping of more livestock in the East, especially from the standpoint of meat-production. In some quarters it is held that if beef cattle were kept on Eastern farms as formerly, the present high prices of meat would be lowered to a considerable extent. While this is true in a measure and while livestock farming is an excellent method of maintaining soil fertility, it is not generally practiced in the East as in the Middle West, and farmers are often right in stating that they can find no profit in livestock, altho they may not be altogether clear in their minds as to the reasons.

It is an economic fact that where an animal product can be shipped practicably over considerable distances, it can and will be produced most profitably in the region of cheapest feeds, all things being equal. Consequently, the middle west is the logical section for the general production of beef, pork, mutton, cheese, butter, and, to some extent, poultry; while such perishable products as market milk and eggs must be raised near the markets.

If hogs are taken as an example, a few figures will make the matter clear. It is assumed that an Iowa farmer and a Pennsylvania farmer set out to raise a 300-pound hog with corn as the principal feed. To do this would take about 30 bushels of corn. The 1910 census figures give the average price of corn in Iowa for the preceding 10-year period as 40 cents, while it was 61 cents in Pennsylvania.

The hog dressed would give about 225 pounds of pork. The difference in price might be a cent a pound in favor of the Pennsylvania pork, and it would cost about a dollar to ship the Iowa pork East. The results are in the following table.

	Penna.	Iowa
Corn	$18.10	$12.00
Freight		1.00
Difference in price ..		2.25
	$18.10	$15.25

This leaves a difference of $2.85 in favor of the Iowa farmer; while if the hogs are pastured, the difference will be greater still because hay is cheaper in Iowa than in Pennsylvania.

This does not mean, however, that pork cannot be produced in Pennsylvania at a profit, because it is being done all the time. It does mean that the Pennsylvania farmer is at a disadvantage, and that his chance of making out is much less than that of the Iowa farmer. In the one case, very careful management is necessary to success, while in the other, even unfavorable conditions may still leave the chance to make a profit. To compete successfully, the Eastern man must secure a better price for his pork, because of high-class product or in a special market; or, he must make use of cheap feeds, wastes, or by-products.

A notable example of such use of by-products is found in the Newark, N. J., meadows. There a number of rendering plants extract the grease from garbage collected in near-by cities. The by-product from this process is made into swill, which, with garbage and stale bread, constitutes the sole ration of the animals. Thousands of hogs are kept on a small area, under very unsanitary conditions, and the slop conveyed to them by an arrangement of troughs. The grease extracted more than pays the entire cost of the process, so what is made from the hogs is clear profit. It is also a common practice to collect garbage from hotels and boarding houses, and feed it to hogs. Garbage-fed hogs produce inferior pork, however, and the process is distasteful. Of course, it is understood that this applies to growing hogs on a large scale only. It is always possible for a farmer to keep pigs for his own use or for a limited sale, where hog raising on a commercial basis would be a failure.

With sheep, the same general conditions hold as with hogs. Because they are grazing animals, they can consume rougher wastes than can hogs, and may accordingly make a profitable disposal of coarse hay and roughage that would otherwise go to waste. Sheep also help clear the farm of weeds, and do well on land that is too rough for dairy cattle to pasture. Thus, a small flock of sheep on a farm may return a profit where a larger number could only be kept at a loss. The production of winter lambs, however, because they are shipped by express rather than by freight in carload lots, must take place near the market.

A great many persons and particularly our city newspapers claim that if beef cattle were kept in the East, especially in the New England states, beef would be a cheaper meat, instead of threatening to soar out of reach entirely. They point to England, where beef cattle are raised on land much more valuable than some of ours, and then blame the short-sightedness of our eastern farmers because they raise no beef on their cheap pasture-lands. The short-sightedness is not with the farmers, however, but with the would-be reformers. They fail to note that the English grazing season is much longer than ours, that labor is much cheaper there, and that there is no Iowa in England.

Prof. Warren, in his "Farm Management" gives some enlightening figures on the question.

He assumes that a farmer in Iowa and one in New York each set out to raise a 1,000 pound steer, half grown on pasture with pasture worth twice as much in Iowa as in New York. Below is a table for comparison:

	Iowa	New York
Pasture, 2 summers .	$20.00	$10.00
2½ tons hay	21.45	36.77
89 bu. corn	41.83	64.97
	$83.28	$111.74

This shows that the Iowa farmer is $27.46 ahead of the game, and that is too great a handicap for the New York farmer, with a small margin of profit possible anyway. Hay and feed, not pasture, are the important items. The reasons for the high price of beef are not in the refusal of the eastern farmer to raise beef cattle, nor yet altogether in the workings of the Beef Trust; they go deeper. As a country increases in population, less of its food materials are fed to animals, but are used directly by human beings. The least efficient animals tend to go first, and consequently, their meat will rise in price. In China this has taken place to so great an extent that practically the only domestic animals kept for meat are the various kinds of poultry. A steer will lose from a third to nearly a half in dressing, indicating an inefficient user of food, compared to the hog, for example, which loses but one-fourth.

Dairying has two phases—market-milk production and the manufacture of dairy products, such as butter and cheese. Because milk as a commodity is both bulky and perishable, it must be produced near the markets in which it is to be consumed; but butter and cheese can be easily shipped long distances, and the center of their production must lie in the region of cheapest feed—the Middle West. Butter is still largely made in the East, and altho it may bring a better price than does butter in the West, it is necessary to consider both cost and selling price before profit can be determined. Warren took census figures for 1910 and 1911, and found that while butter brought 16 percent more in New York than it did in Iowa, corn was 56 percent and hay 71 percent higher! It would take very exceptional conditions to return profits under such circumstances.

With the foregoing suggestions in mind, conditions relating to the keeping of livestock in the East are more clear. The judgment of a whole region as to an agricultural practice is generally fairly correct, no matter whether the reasons underlying it be understood altogether or not. Meat-production has declined in the East because it is not so profitable there as in other regions, and no amount of agitation for its revival will do any good so long as a matter of dollars and cents stands in the way. Livestock on Eastern farms has a certain place to fill; it should be kept in its place and not allowed to interfere with other lines of profitable endeavor.—R. L. Scharring-Hausen, Middlesex Co., N. J.

DIPPING SHEEP

It is estimated that 80 percent of sheep are affected with ticks. Dipping will remove these insects as well as lice and scabies. Dipping should take place in May. Ticks which hatch out after shearing time often pass later from the mature sheep to the lambs which have longer wool than the shorn ewes.

At the Pennsylvania Experiment Station a 2 to 5 percent solution of coal-tar disinfectant or tobacco solution is used for dipping. Other proprietary dips are made especially for the purpose. The temperature of the solution should be between 90 and 100 degrees F. to avoid chilling the animal. The animal is kept in this solution about two minutes, the head being submerged once or twice but not long enough to cause suffocation.

In case of a bad infestation by parasites, sheep should be re-dipped after 10 or 12 days to destroy a second crop of ticks. Two dippings should practically eliminate all ticks. The same dip may be used for both first and second treatments.

GIVE THE COLT A CHANCE

Give the colts a chance. No colt can develop into a large useful horse if he is stunted in his early growth. The result of good care and feeding is forcefully shown by the condition of the young work horses of the animal husbandry department of the Kansas State Agricultural College. These horses were purchased three years ago as weanlings. They were given care and proper feed their first winter and were in a good healthy growing condition when turned out to pasture in the spring. When 3 years old these colts were worth $250 to $300 each. Colts of the same age and from the same mares, but kept on the farm and given the usual farm treatment, were worth only $125 to $140 each. Thus a difference in value of $125 to $150 was due to no other reason than the care given the horses as colts.

"The horse is made the first 18 months of his life," says Dr. C. W. McCampbell. "If he is stunted he never reaches his maximum development. Too often colts are turned out to rustle for themselves the first winter and all such colts can do is to keep alive. Their growth is stunted and they make a small ordinary type of horse."

Poultry

MARKETING POULTRY IN SUMMER

In my poultry work, I market quite a number of broilers each year. I like them to weigh about two pounds each, but have found by experience that it pays to clean up pretty thoroly regardless of weight by July 1. After July 1, the market price of broilers declines rapidly, and a pound and a half chicken in June will often bring more than one that weighs over two pounds in July. Market your broilers closely before July. Holding them for additional weight, unless one wishes to sell them as roasters, is usually a losing proposition.

The prices offered for old stock are also better early in the summer than they are in August and the fall months. I always market my males as soon as the breeding season is over. At the same time, I go over my hens and carefully cull out those that I think will not pay a profit during the summer months. All hens that show an overfat condition are marketed. I handle each hen in the flock. In determining whether or not a hen is laying, I apply the pelvic-bone test. The pelvic bones are the two sharp pointed bones in the rear, between which the egg must pass. If the bones are spread apart sufficiently to permit the placing of three fingers between them I am pretty certain that the hen is laying. My idea is to market no hen that is laying. All hens that are selected for the shipping crate are placed in a separate house and fed a fattening ration for two weeks. In this house I keep several trap-nests. If my judgment of the hen's laying ability is faulty, the trap-nests will right the matter. Then hens that lay are immediately released and placed with the general flock. In this manner I can market quite a number of hens when prices are high, without materially diminishing the egg-yield.— T. Z. Richey.

VIEW OF VEGETABLE GARDEN, POULTRY RUN AND HOUSE.

A THREE-YEAR EGG LAYING CONTEST

The New Jersey Experiment Station proposes to start a 3 year egg laying contest, beginning November 1, 1916. It will be conducted under the supervision of Prof. Harry R. Lewis, at Vineland, N. J., and will be known as the Vineland Three-Year International Egg Laying and Breeding Contest.

As the name implies, entries will be open to poultrymen of all nations, and is to include the test of the second generation in order to learn more definitely to what extent the laying qualities are transmitted. Also to learn as to the profitableness of keeping birds thru a second year.

The contest will be limited to 100 pens of 10 birds each, all of which must be hatched between January 1, and July 1, 1916.

Bulletin and full information on the subject may be obtained by writing Prof. Harry R. Lewis, Egg Laying Contest, Agricultural Experiment Station, New Brunswick, N. J.

WEANING CHICKS

According to the poultry department of the New Jersey Agricultural Experiment Station, weaning chicks is an important step in brooding. Where the hen broods the chicks, she will usually wean them properly, but where the chicks are brooded artificially, especially in large broods, careful attention should be given to weaning.

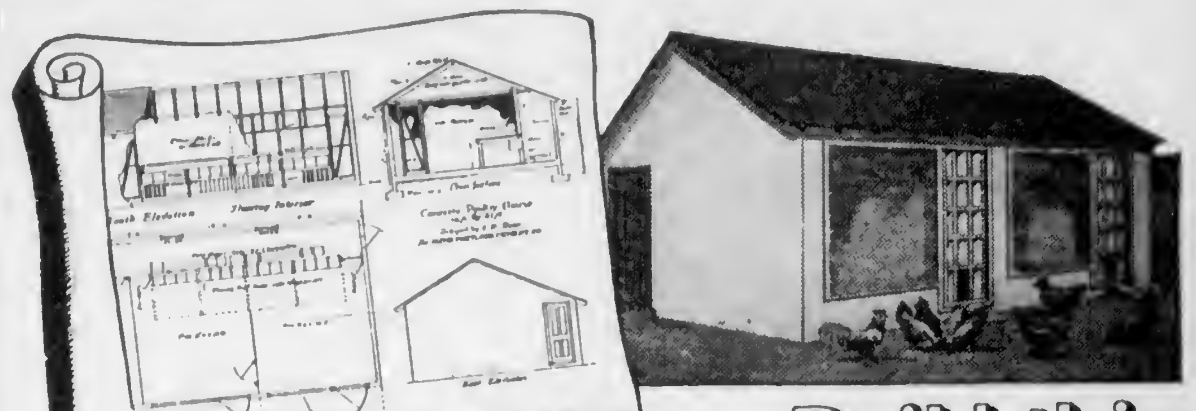
Chicks which have been improperly weaned will habitually crowd at night, even tho they are not cold. This results in retarded growth, disease, weakness and poor feathering. It is difficult to teach improperly weaned chicks to roost. In lying on the ground or the floor of the house, they are subject to infections of mites and lice. To induce them to roost, place the roosts near the floor when they are about two months old. Reduce the temperature gradually so that they shall have been without artificial heat for a week at least when they are removed from brooding quarters. After removal, avoid placing large numbers in one house; usually, not over 75 or 100 should be placed together. Watch the chicks carefully for the first two or three nights, as they are likely to crowd in new quarters, especially if the nights are cool. If crowding occurs, separate them into small groups.

Chicks properly weaned and taught to roost are not only healthier and less trouble than those improperly weaned, but also will reach maturity in a shorter period.

CORN HEATING IN THE BIN

At this season of the year the poultryman should watch all his corn products closely, as cracked corn, corn meal, etc., will heat, sweat and mold as soon as the spring planting season arrives. It is almost impossible to keep corn products from heating and spoiling at this season of the year, except where milling facilities are had for handling it so as to keep it aired and cool. Even quantities as small as 100 lbs, will heat and spoil.

The best way to overcome the trouble is to keep only small quantities on hand during this part of the year and mix the corn products with whatever other meal or grain it is to be combined with as soon as received. It is advisable to keep all mixtures containing over 25 percent corn spread out thinly so as to avoid the possibilities of heating. Kiln-dried corn cannot always be trusted at this season of the year, for unless it has been very thoroly dried it will do some heating.—J. R. K.



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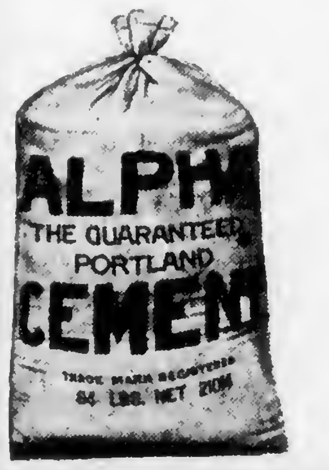

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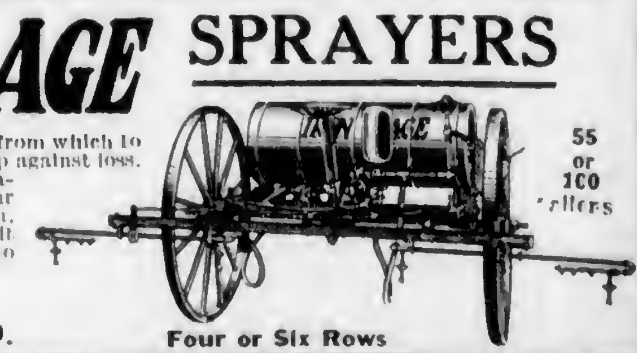
Include many sizes and styles of equipment from which to choose the one that will best insure your crop against loss. Good for tomatoes, cabage, pickles, cantaloupe and other row crops. Ask for our "Spray" book. Also, a guide telling "When, How and What to Spray With." Don't wait until Mr. Bug arrives or you may have to adopt poor, slow and costly methods.



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In the development of your HOME FARM PAPER to its present commanding position of the agricultural papers in the field in which it circulates, the subscriber has been the dominant factor. Neither effort nor money has been spared to make PENNSYLVANIA FARMER a practical, simon-pure, hard-hitting farm paper, suited to the needs and requirements of our thousands of subscribers and prospective subscribers.

We owe to our subscribers not only the best obtainable in agricultural literature but a consistent effort to increase our circulation among those of their neighbor farmers who are not already reading their HOME FARM PAPER. It is largely owing to constantly increasing patronage that we have been able to gradually improve the quality of PENNSYLVANIA FARMER and, at the same time, sell it at a lower price than that of most agricultural weeklies. Without the co-operation of our many subscriber friends this would not be possible.

For the convenience of those who wish to forward subscriptions to us, we are enclosing in this issue a subscription blank, **which does not necessarily indicate that your subscription has expired.**

To each sender of 2 or more subscriptions to Jan. 1, 1917, we will send by return mail a copy of "The Farmer's Handy Book of Facts"

a book of over 200 pages, chuck full of valuable information for farmers. Following are a few of the many subjects in this useful book: Tables of weights and measures, veterinary questions and answers, helpful household hints, legal questions, historical matter, building hints for farmers and answers to hundreds of perplexing questions that come up in every-day work.

Most farmers in your neighborhood read PENNSYLVANIA FARMER but there are undoubtedly a few who are in the same boat with our friend whose letter is quoted below:

East Brook, Pa., R. F. D. 4, May 22, 1916.

Pennsylvania Farmer,
Philadelphia,
Penna.

Gentlemen:

''Enclosed find money-order for one dollar ($1.00) for which enter my subscription for two years from date of expiration. I have been a subscriber for a ten week's trial subscription and I think the paper is fine. The special articles on the first page of each issue are both interesting and instructive, as are also the ''Harrisburg Notes''. The story of ''The Fur Bringers'' is hard to beat. Please don't miss sending me a single copy.

''As I didn't know about your paper until the past winter perhaps my neighbors are in the same state of ignorance, so for our mutual benefit, please send the following persons a sample copy of your paper.''

(Signed) John Robinson.

How about sending that friend's subscription to us, who doesn't, but should, read his HOME FARM PAPER? May we hear from you?

PENNSYLVANIA FARMER

261-63 South Third Street, Philadelphia, Pa.

FARMERS' ORGANIZATIONS

FARMERS' SOCIETY OF EQUITY CHANGE INTO GRANGES

There have been fifteen to eighteen Lodges of the Farmers' Society of Equity in Northumberland and bordering counties. Last month they invited Past State Grange Master, W. F. Hill, to come there and explain the advantages of membership in the Grange to them. As a result of his work Doyles Run Lodge and Fisher's Ferry Lodge have each come over into the Grange bodily. Brother Hill organized these two Granges May 1st and 2nd with a total charter membership of eighty. These are near Sunbury and it is thought that other Lodges will follow this lead and soon become Granges.

PAYMENT BY CHECK

With many persons, a checking bank account presupposes the possession of a large sum of money, for money lying in bank subject to check instead of being deposited to a savings account where it is drawing interest and working while the owner is sleeping, is deemed idle and therefore unwise unless one has money galore.

In asserting this doctrine to be fallacious, the writer is speaking from personal knowledge and experience, having tried both methods—checking and saving accounts—together and separately, and found that the carrying of a checking account is more conducive to the increase of one's savings than to deposit every cent that may be scraped together by strictest economy in the savings bank.

Of course, loss would attend the holding of a large sum subject to check, said sum simply lying idle, when it should be at interest, but money for current expenses deposited subject to check is in the most convenient form for disbursement; is safe from inroads for trivial uses and therefore goes much farther than when at hand if our hearts—or extravagant whims, as is more often the case—run away with our heads and prompt us to spend that which we will regret in cooler moments, and is a better protection against nocturnal visitors than the most ferocious watchdog or huskiest policeman, as the gum-shoe gentry are hardly wasting time and risking life and liberty by entering a house where money is conspicuous by its absence. None will deny that payment of obligations by check is the most convenient and most business-like method. No change or receipt is required and the stub of the check is a record for possible future reference if dispute should arise. No sum is too large or too small for payment by check. When remitting a sum of money by mail, registry is not safe and money order more expensive and inconvenient. The cancelled check is a receipt for money paid and precludes the annoyance—very great to a sensitive person—of being forced to ask for receipt. A certain financial standing is accorded to the person—man or woman—who is known to pay obligations by check.

Payment by check is a taking care of the pennies that would otherwise dribble away, no one knows just where or when or how. We break a dollar bill, use half of it in legitimate expenditure, drop the change in coin purse or maybe—as is the habit of so many of us country housekeepers—into a cup in the kitchen cupboard, and it vanishes before we can say Jack Robinson, not infrequently for mere trivialities because it lay ready to hand when temptation to squander a few cents assailed us. Should the bill be a five dollar one the probability is that the sum frittered away is proportionately large. But if the same amount lies in bank the check drawn against it is for necessary expenditure only and balance remains undisturbed.

Ignorance of the advantage accruing from a check account was the cause of heavy loss to a neighbor of the writer's, recently. Mr. Smith (the name is fictitious) had the misfortune to lose his house by fire; among the articles lost with the building was a bureau containing two pocketbooks whose contents aggregated eighty dollars. One was the wife's pin money, the result of dairy and poultry; the other purse contained money for the payment of taxes due on the farm. ''But what under the sun did he have cash in the house for, when taxes must be paid at county seat nearly twenty miles away?'' we asked when the men of our household returned from the fire and reported the loss. ''Why, he was going to send to the town by one of the neighbors who had business there,'' was the answer. Later we learned that a few days before the fire Mr. Smith had called at this neighbor's house to ask him to attend to the payment of tax-bill and finding the neighbor absent had returned money to bureau drawer, tending to repeat errand shortly. He and wife had savings accounts, but always kept cash on hand to meet current expenses. They could see no object in putting money in bank just to withdraw it again. Nor could they see wasted energy, annoyance to neighbor, unbusiness-like transaction, possible loss from fire or theft. Mr. Smith, an elderly, busy farmer, could have drawn and mailed check to county treasurer and have devoted to rest and reading the time wasted in running after his neighbor. The latter could be more pleasantly and profitably employed on a hot summer day than in awaiting his turn to be waited on in the county treasurer's office and he would not be traveling to the county seat, miles distant, unless he had personal business, requiring time and attention. The money would have been in treasurer's hands, and cancelled check for same in bank, instead of lying in ashes, and Mrs. Smith's pin money would have been available for use in replacing clothing, furniture, etc., at a time when everything had been swept away and insurance not available till the usual red tape incidental to adjustment of same had been complied with.

Shortly after the occurrence narrated above, a young man of the community missed a hundred dollars from a bureau drawer in his bedroom and a farm hand, of whom little was known, but that he hoped to go to the Pacific Coast when he had the means, was missing. We presume his hopes of transcontinental travel have been realized as our young friend saw nothing more of money or would-be-See-America-first tourist. The victim of the fellow is one of the most enterprising and energetic of our young men and had the money at hand to make the last payment on a comfortable home which he was building preparatory to becoming a benedict. He had money in savings bank, but had failed to see the happy medium between institution and cash in house for current expenses—a check book, and like his elderly fire-bereft neighbor had paid dearly for dimmed vision.—Julia Miller, Md.

Household

OUR MAKE-OVER DEPARTMENT

Blue Silk Narrow Skirt Dress

''I have a blue silk taffeta dress, of which I like the waist fine, but the skirt is narrow, 1½ yards around bottom. It has three ruffles at the top which taper. I enclose diagram of the skirt. Please inform me how I can make it wider and remove the ruffles from the top. Under the ruffles is just a sham.''—Mrs. E. D., Venango Co., Pa.

Rip off the ruffles and put them on again with the widest part at the back, the narrowest at the front. Attach the ruffled portion to your waist, letting the skirt fastening come in line with the waist opening. Use the silk in the lower part of your old skirt for remodeling the old sleeves, reserving a strip of it for a stitched-on strap to cover the joining of the skirt and waist. Then wear this pretty little over-dress with a flaring skirt of some appropriate material—blue and white striped taffeta would be extremely good style this season.

And make a big bow of this striped silk, with wired, upstanding loops, to trim a hat to wear with this dress.

If you do not wish to remodel your sleeves, a good effect may be obtained with ruffles, by covering the lower portion of the old sleeves from about six inches below the shoulder seam with them. I infer that the sleeves are short. Most of them were the season this style was in vogue.—''The Make Over Lady.''

A CLASS GRADUATION TRIP

Several years ago a small country high school senior class made up its mind to do something different from all the classes which had gone before. One of the girls proposed that they use the money that their parents, the school board and they would spend on an elaborate commencement to take the whole class, willy-nilly, to Washington, D. C. She told the teachers and board how much more good it would do them all than the elaborate commencement exercises; that it would be an experience which would stand out in their memory for long years to come, binding them closer as a class and teaching things which one never learns from books. For some time the board and even the teachers thought it was too great an undertaking, but the girl persisted, and in spite of the jealous objections from some old graduates who complained that they had never had such a trip, the class was permitted to go ahead with its plans.

Arrangements for board were canvassed so that they were able to fix upon an estimate of $35 apiece as the expense of a week's trip.

It was just before Christmas when the class made up its mind to go. At the very first they agreed to take the superintendent and his wife with them as chaperones, and, of course, they planned to pay their way, too.

After Christmas they began arranging for a two-night show, all of school talent. This was a great success, and brought in over $100 aside from all expenses. Encouraged by this, the class arranged a midwinter fair for two evenings and an afternoon. Almost everything was donated and the tables were prettily decorated and prices reasonable. Admission was free and a short play given both nights to draw the people. Everything was planned carefully so that no one could make trouble for the class. No chances were sold except those where the buyer received his money's worth and at the same time a chance on an article.

These two arrangements and several donations of money in lieu of graduating presents brought the desired sum, and the trip was taken during the spring vacation. Every member of that class now says it was the most wonderful thing that they had in the whole school course. The things they saw, about which they had read and studied, were so much more impressive when actually near. And the superintendent said that this class learned more in that one week than in two months of school, about the Capitol, the White House, the sights along the avenues, the embassies and the wonderful museums. A guide went with the party, and the schedule was planned so that no time was lost.

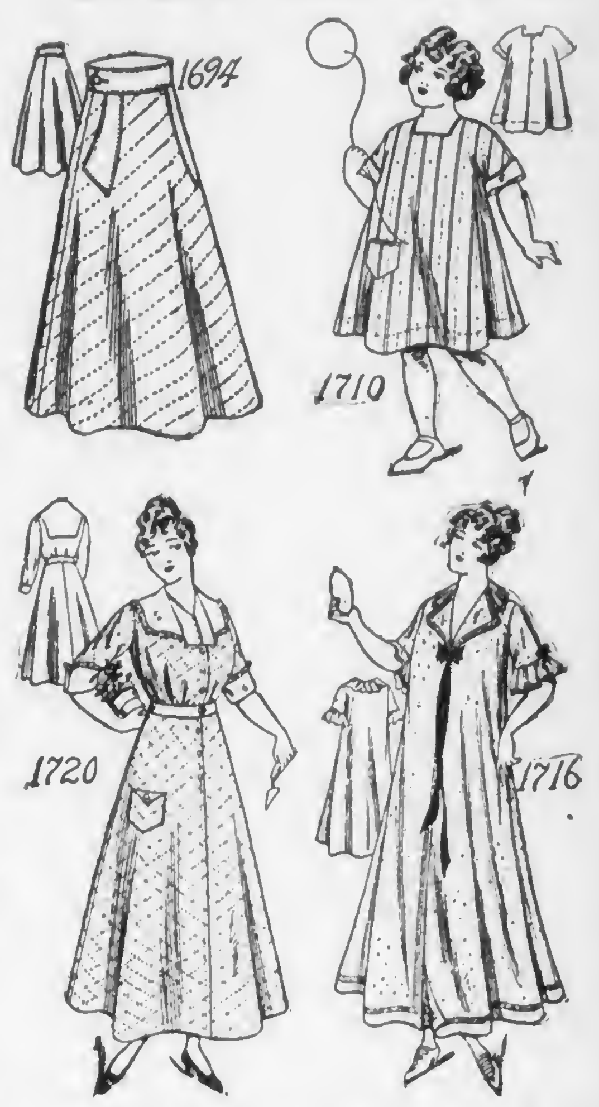
Some of us may live so very far away from Washington that such a trip would be impracticable, but none of us live where we cannot go somewhere and see new and interesting things. Many are so situated that a trip to Philadelphia, that dear old interesting city, would be advantageous, while others can make New York, Albany, Atlantic City, Baltimore and Annapolis really convenient.

Even if your friends oppose at first and say it isn't possible or necessary, make the effort and it will repay you. There will be some in the class who may never have such a chance again, and it will be lived over and over so long as memory lasts. The expensive gown and flowers and the words of the hired speaker at commencement could never be so lasting as a trip like this, so think about it, and soon after you go back to school next fall and become a senior, get the class together and make plans.

The members of this class used their experiences and what they saw as subjects for their essays and orations at the very simple and inexpensive commencement or ''last day'' in June, making a very interesting program and one entirely different from the usual one. No new dresses or suits were permitted for this event, and the children went without them and other commencement fuss and feathers because it would have been quite unpopular to have them.—Effie P. Loomis, Delaware Co., Pa.

PENNSYLVANIA FARMER PATTERNS

Be sure to give the figures and letters of each pattern exactly as printed at the begin- sponsible for correct filling of your orders ning of each description. We will not be re- unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-263 So. Third Street, Philadelphia, Pa.

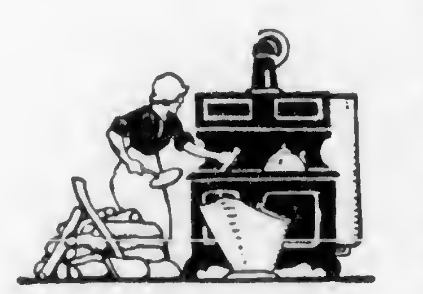


1694.—Ladies' Skirt.—Cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches, waist measure. It requires 3¼ yards of 44-inch material for a 24-inch size. The skirt measures 3 1-3 yards at the foot. Price of pattern, 10 cents.

1710.—Girls' Apron.—Cut in 5 sizes: 2, 4, 6, 8 and 10 years. It requires 2¼ yards of 36-inch material for a 6-year size. Price, 10 cents.

1720.—Ladies' Dress.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. Size 36 will require 6 yards of 44-inch material for a 36-inch size. The skirt measures about 3 1 3 yards at the foot. Price, 10 cents.

1716.—Ladies' Kimono. — Cut in 3 sizes: Small, medium and large. It requires 5⅞ yards of 36-inch material for a medium size. Price, 10 cents.



Housework NEED NOT be hard work

These days there is no need of a woman ruining her health and her temper standing over a range in a kitchen that's little short of an inferno.

No, indeed, when for a very few dollars, her dealer can sell her a **New Perfection Oil Cook Stove.** For with a **Perfection** cooking becomes interesting—a pleasure. All the monotony, the drudgery and the hardship disappear.

Where there's a **Perfection** there's no tiresome waiting for the oven to get right for cake-baking. For just before the batter is mixed, light the burner that heats the oven; in almost a jiffy the oven will be ready—ready to bake a cake that will do anyone proud.

In place of paper, wood and coal, a **Perfection** burns the cheapest of fuels—kerosene, and very little of that.

Because of a **Perfection** with its fireless cooker, its separate oven, its improved long-lasting wick, your work will be lighter, your cooking better.

Be careful of your kerosene. Get **Atlantic Rayolight Oil.** For there is as much difference between kerosenes as there is between milks. Just as one milk is rich in cream and another is watery, so some kerosenes will sputter, spurt and smoke, but **Rayolight** burns down to the last drop without smoke or smell, but with an intense and a cheap heat.

So ask for **Atlantic Rayolight Oil** by name. At all dealers who display this sign:

New PERFECTION Oil Stove

ATLANTIC RAYOLIGHT FOR SALE HERE

THE ATLANTIC REFINING CO.

ATLANTIC Rayolight OIL

Philadelphia
Pittsburgh

The Fur Bringers

By Hulbert Footner

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SYNOPSIS OF PRECEDING CHAPTERS

Ambrose Doane, junior partner of the fur trading firm of Minot and Doane, is in love with Colina Gaviller, the daughter of John Gaviller, manager of The Company which is Doane's most powerful business competitor. While on a visit at Colina's home Doane is urged by the Indians to open a rival trading post and take their furs. This he refused to do until forced into it by circumstances. Mr. Gaviller is shot by an Indian and confined to his bed, leaving Colina in charge of The Company's affairs. Ambrose buys the Indian's wheat at an advance over what Colina offers. Needing flour at once, he takes The Company mill by force and grinds flour which he has just delivered to Chief Watusk's tribe. Colina is indignant over the insult to her control, and takes council with Gordon Strange, the Indian bookkeeper.

CHAPTER XXI (Concluded)

Gorden Strang sought to give the impression of immediate danger.

"There is something else. Their minds work obliquely. They never come out straight with anything. I have received a kind of warning. It was an invitation to spend the night with Marcel Charlbois down the river. But it came from the other side."

"Why should they warn you," asked Colina.

"Some man among them probably has compunction," said Strange. "Watusk, the head man, is a decent sort. Perhaps this is his way of letting me know that he cannot keep his people in hand."

"What do you expect will happen?" she asked.

"I think there will be an attack tonight," he said quietly. "It is my duty to tell you. If it doesn't come, no harm done."

Strange's quiet air was terribly impressive. Colina sat pale and silent, letting the horror sink in. She was no weakling, but this was a prospect to appall the strongest man.

"We are so helpless!" she murmured at last.

A spark, one would have said of satisfaction, shot from beneath Strange's demurely lowered lids. "We cannot depend on our breeds," he went on soberly, "and Greer has gone over to the other side."

Colina winced.

"That leaves us four men and yourself and your father. If we had a stone building we could snap our fingers at them, but everything is of wood. And fire is their favorite weapon. There are two courses open to us. We can go before they come, or we can stay and defend ourselves."

Colina stared before her, wide-eyed. "Father would never let us take him away without an explanation," she murmured. "And if we told him what we feared, he would flatly refuse to go—"

Strange maintained a discreet silence.

Colina suddenly flung up her head. "We stay here!" she cried.

Strange's dark eyes burned—but with what kind of a feeling Colina was in no state to judge. "You're brave!" he cried. "That's what I wanted you to say!"

"What must we do to prepare?"

"There is little we can do. We must abandon the store. There is no way to defend it. Perhaps they will be satisfied with looting it. We will all take up our station in the house. At the worst, I do not fear any harm to any of us, except, perhaps—"

"Father?" murmured Colina.

"They have been wrought up to a high pitch against him," Strange said deprecatingly.

"Oh, why did that man have to come here!" murmured Colina.

They were silent for a while, Colina looking on the ground, and Strange watching Colina with his peculiar limpid, candid eyes, which, when one looked deep enough, were not candid at all.

He finally looked away from her.

"There is something I want to say," he began in low tones. "Your father—he shall be my special care tonight. They can strike at him—only thru me!"

"Ah, you're so good to me!" murmured Colina.

"Do not thank me," he said quickly. "Remember I owe him everything. All I am. All I have I would gladly—gladly—I sound melodramatic don't I? But I don't often inflict this on you. You know what I mean. If I could save him!"

Colina impulsively seized his hand. Tears of gratitude sprang to her eyes. "I will thank you!" she cried. "You're the best friend I have in the world!"

"And even if I owed him nothing," Strange went on, not looking at her, "he would still be your father!"

An hour before Colina would have crushed him. But it came at an emotional moment. She was blind to his color then.

"I will never, never forget this," she said.

He respectfully lifted her hands to his lips.

The under devil whose especial business it is to preside over fine actig must have rubbed his hands gleefully at the sight of his dark skinned protege's aptitude.

CHAPTER XXII

The "Tea Dance"

When Ambrose and Simon Grampierre arrived at the tea dance they found present as many of the Kakisas of both sexes as could be wedged within Jack Mackenzie's shack.

All around the room they were pressed in tiers, the first line squatting, the second kneeling, the third standing, and others behind, perched on chairs, beds and tables, that all might have a clear view of the floor.

The cook-stove occupied the center of the room, and around it a narrow space had been left for the dancers. The air was suffocating to white lungs, what with human emanations combined with the thick fumes of kinnikinic.

Watusk, still sporting the frock coat and the finger-rings, had improved his costume by the addition of a battered silk hat with a chaplet of red paper roses around the brim.

He squatted on the floor in the center of the back wall, and places had been left at his right and left for Ambrose and Simon. He was disposed to be gracious and jocular tonight.

For very slight cause, or for none at all, he laughed until he shook all over. This was his way of appearing at his ease.

As they took their places Ambrose was struck by the pretty, wistful face of a girl who knelt on the floor behind Watusk. It had a fine quality that distinguished it from the stolid, flat countenances of her sisters.

It was more than pretty; it was tragically beautiful, though she was little more than a child. What made it especially significant to Ambrose was the fact that the girl's sad eyes instantaneously singled him out when he entered.

As he sat in front of her he was aware that they were dwelling on him. When he caught her glance, the eyes naively suggested that she had a communication to make to him, if she dared!

The fun had not yet commenced. The two drummers sat idle in a corner, and all the company sat in stolid silence. Only Watusk chatted and laughed. The women stared at Ambrose, and the men looked down their noses. All were somewhat embarrassed by the presence of a white man. Ambrose, looking around, was struck by the incongruity of the women's neat print dresses and the men's store clothes taken with their savage, wailed faces. Such faces called for blankets, beads, war paint and eagles' feathers.

Ambrose, seeing the entire tribe gathered here as it seemed, thought a little anxiously of the flour he had been at such pains to grind.

Mackenzie's house was a good distance from the teepees, and the shack they were using for a storehouse almost as far on the other side.

"Is anybody watching your flour?" he asked Watusk

"I send four men to watch," was the reply.

"Good men? Men who will not sneak up to the dance?"

"Good men," said Watusk calmly.

Watusk presently gave a signal to the stick-kettle men, and they commenced to drum with their knuckles. The drums were wide wooden hoops with a skin drawn over one side.

The drummers had a lamp on the floor between them, and when the skin relaxed they dried it over the chimney. Like dances everywhere, this one was slow to get under way. No one liked to be the first one to take the floor.

Gradually the drummers warmed to their work. The stick-kettle had a voice of its own, a dull, throbbing complaint that caused even Ambrose's blood to stir vaguely.

Finally a handsome young man arose and commenced to hitch around the stove with stiff joints, like a mechanical figure. The company broke into a wild chant in a minor key, commencing on a high note and descending the whole gamut, with strange pauses, lilts and falls.

Half way down the woman came in with a shrill second part. It died away into a rumble, ever to be renewed on the same high, long-drawn note. Ambrose was reminded of the baying of hounds.

The dancer knotted his handkerchief as he circled the stove. Dancing up to another man, he offered him the end of it with some spoken word.

It was accepted and they danced together around the stove, joined by the handkerchief.

The hunching, spasmodic step never varied. Ambrose asked Watusk about it.

"This is the lame man's dance" his host explained.

"What lame man?" asked Ambrose. "How did it begin?"

Watusk shrugged. "It is very old," he said.

The first man dropped out, and the second chose a new partner. Sometimes there were two or three couples dancing at once. Partners were chosen indiscriminately from either sex.

In each case the knotted handkerchief was offered with the same spoken formula. Ambrose asked what it was they said.

"This is give-away dance," Watusk explained. "He is say: 'This' my knife, this my blanket, this my silk-worked moccasins.' What he want to give. After he got give it."

Ambrose observed that each dancer laid two matches on the cold stove as he took his place, and when he retired from the dance picked them up again. He asked what that signified.

Watusk shrugged again. 'How do I know? he said. "It is always done."

Ambrose learned later that this was the invariable answer of the Kukisas to any question concerning their customs.

Watusk was exerting himself to be hospitable, continually pressing cups of steaming bitter tea on Ambrose and Simon. Ambrose, watching him, made up his mind that the chief's unusual affability masked a deep disquiet.

The sharp, shifty eyes were continually turning with an expectant look to the door. Ambrose found himself watching the door, too.

To Ambrose the uncouth dance had neither head nor tail; nevertheless, it had a striking effect on the participators and spectators.

Minute by minute the excitement mounted. The stick-kettles throbbed faster and ever more disquietingly. It seemed as if the skin of the drums were the very hearts of the hearers, with the drummers' knuckles searching out their secrets.

Eyes burned like stars around the walls, and the chant was renewed with a passionate abandon. The figures hitched and sprang around the homely iron stove like lithe animals.

Suddenly the noise of running feet was heard outside, and a man burst in through the door with livid face and starting eyes. The drumming, the song, and the dance stopped simultaneously.

The man cried out a single sentence in the Kakisa tongue. Cried it over and over breathlessly, without any expression.

The effect on the crowd was electrical. Cries of surprise and alarm, both hoarse and shrill, answered him. A wave of rage swept over them all, distorting their faces. They jammed in the doorway, fighting to get out.

"What is it?" cried Ambrose of Watusk.

Watusk's face was working oddly with excitement. But it was not rage like the others. The difference between him and all his people was marked.

"The flour is burning!" the chief cried.

"This was what he expected," thought Ambrose.

As he struggled to get out, Ambrose's hand was seized and pressed by a small warm one.

He had a momentary impression of the wistful girl beside him. Then she was swept away

(To be continued.)

PASSES IT ON TO OTHERS

"Enclosed please find 50 cents for which send Pennsylvania Farmer to my neighbor, Mr. ———. I subscribed to your paper in 1914. I read the paper with interest and then mail it to my brother-in-law. I congratulate you on your splendid efforts to help the farmer."—Dr. J. F. Hancock, Baltimore Md.

RURAL DELIVERY CHANGES WRONG

"I am pleased with the stand you take in regard to the Rural Delivery system. The change is one of the greatest wrongs that has been perpetrated on the farmers in a long time, and the worst part of it is that the majority of the press is as silent as the dead in regard to it. Is it possible that the Administration has them all muzzled?"—S. P. Graham, Linesville, Pa.

Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., May 29, 1916.

On Tuesday, Memorial Day, the wholesale depot remains closed for the first time in a long number of years. It has been agreed by practically all of the receivers to close the wholesale markets on all of the legal holidays. Exceptions will be made, however, in the case of strawberries and on Tuesday the berry depot will remain open from four to five o'clock for the sale of all strawberries. Shippers thruout the country should keep this fact in mind for all future holidays.

The market on white potatoes is strong both for the old and the new stock. There is an average of from 15 to 20 cars of old potatoes on the track and during the latter part of the week prices made a strong advance. Pennsylvania stock sold as high as $1.45 per bushel for the fancy marks and those considered generally fair sold at $1.25 to $1.35. From 30 to 40 cars of Florida potatoes are on the tracks daily and are meeting with fair demand. The first grades are selling at $5.25 per barrel and $4 to $4.25 for second grade. These prices show a slight decline over the past week but a high price is being maintained thruout a long period compared with other years. Potatoes from the Charleston section are in heavier receipts and are selling at $4.50 to $4.65 for first grade and $3 to $3.25 for second grade.

Near-by Vegetables

The supply of asparagus has proven adequate to meet the demand but there has not been a heavy glut on the market. Fancy Jersey grass continues to sell at $1.75 to $2.25 per dozen bunches, only the more fancy marks bringing the highest quotations. Choice grass is selling at $1.25 to $1.50 per dozen bunches. Pennsylvania grass seems to receive a slight preference over the Jersey stock and will sell at a premium of 25 to 50 cents per dozen bunches. Spinach has been in heavy receipt both from Pennsylvania and New Jersey and is selling at figures which proves a loss to the grower. The price at the close of last week was 15 to 20 cents per basket for Jersey spinach and 20 to 25 cents a basket for Pennsylvania spinach. Rhubarb is in heavy supply and selling at 75c to $1 per 100 bunches. Hot-bed lettuce is found in increasing supply and selling at $1 to $1.75 per box, depending entirely on the quality. Radishes are in heavier supply and are selling at 75 cents to $1 per 100 bunches.

Southern Vegetables

There has been a decline in the prices of several of the southern vegetables and the market somwhat dull. Cabbage has taken another decided drop and the stock from Norfolk and the Eastern Shore is selling at $1 to $1.25 per barrel-crate. Receipts of tomatoes are comparatively light and a good market is being maintained. The fancy stock sells readily at $2.50 to $3.25 per crate and choice at $1.50 to $2.25 per crate depending on the quality. A large quantity of this stock arriving is spotted, consequently selling at lower quotations.

The onion business in Texas is practically closed for the season. The stock arriving at the present is selling from $2 to $2.10 per crate for number one stock; $1.50 to $2 for number two. Several marks of onions arriving here of number two grade are more desired by the trade than many shipments of the number one grade. Celery from Florida is in lighter receipts and selling at $1.75 to $2.25 per crate. Green and wax beans from North Carolina are selling at $2 to $2.25 per basket; peas from Norfolk and Eastern Shore of Virginia in half-barrel baskets are selling at $2 to $2.50 when large and the smaller grades are selling at $1.25 to $1.75; peppers from Florida sell at $1.75 to $2 per crate; eggplants, $1.50 to $2.25 per crate; squash, $1.75 to $2 per crate. Lettuce is now arriving from Virginia and selling at $1.50 to $2.25 per basket.

Fruits

A sharp decline in the berry market marked the close of the last week. With 40 cars on sale last Saturday morning prices dropped to 5 and 8 cents. On Wednesday morning there were 20 cars unloaded and sales were made at 5 to 9 cents per quart. Delaware berries are the most desirable stock arriving and they are generally in good condition, some selling as high as 10 cents. Norfolk berries are about the poorest on the market and the Eastern Shore stock is arriving in generally fair condition.

The apple business is about on the wind-up and the receipts are very light. The market continues as quoted last week, with premiums being paid for all first grade offerings. York State Baldwins are selling at $3.25 to $3.75; Ben Davis, $2.25 to $2.50; Greenings, free from scald, $2.75 to $3.50 and a few Winesaps, $3.50 to $4.

Poultry

The arrivals of poultry have been exceptionally light, both live and dressed. Good quality live fowl have been selling at 21 cents with strong demand. Spring chickens of fine quality and desirable sizes, other than Leghorns, have sold on arrival at 30 to 35 cents. Leghorns and poor quality found a rather slow demand at 24 to 28 cents. Old roosters were in fair request at 13 to 14 cents and a few ducks that were offered brought 14 to 16 cents.

The dressed poultry market also has maintained a strong and active tone with receipts appearing to show a tendency to decrease instead of becoming more liberal, as is expected at this season of the year. Fowls especially have been in light supply and a good many more springers could be used to good advantage than have been received. Fancy fowls sold at 22 cents per pound and medium sizes at 21 cents. Springers have sold generally from 35 to 45 cents, with some extra fancy Jerseys weighing from 1½ to 2 pounds each sold at 50 to 55 cents. Near-by spring ducks continue in good demand altho prices are easing off considerably. A few dressed turkeys are also meeting with prompt sales at 28 cents per pound.

Eggs

The receipts of eggs have been light during the past week and there has been an exceptional demand for what is termed under grade eggs. In fact the consumptive demand for all grades has been extra good for the past two weeks.

Eggs of fair quality weight 53 to 55 pounds to the case from the Southwest have been selling here at 21 to 21½ cents per dozen. Virginia and West Virginia current receipts are bringing 22 cents and best Pennsylvania current receipts at 22½ cents. Candled and graded eggs are bringing 26 to 28 cents. All arrivals have been kept closely cleaned up and firm market has been maintained daily.

Now that the hot weather is at hand there will probably be a wider range in values between strictly fancy near-by eggs and those that arrive showing the effects of the hot weather.

—Selmarad.

YORK PRODUCE

York, Pa., May 29, 1916.

The fine spring weather seems to have put new life into everything; not only vegetation, but humans have also taken on new life. Markets have been much more brisk this week. Old stock of potatoes are slow, yet in demand. Eggs are firm at 24@25c. Butter is dull. Lettuce, onions, and radishas are displayed in larger quantities than heretofore; they move nicely.

Eggs.—23@25c per dozen.

Butter.—Country, 30@34c lb; separator, 32@35c lb. Milk, 6 cents a quart.

Poultry.—Hens, 13@17c lb; dressed, 50@95c each. Springers, 35c lb.

Vegetables.—Potatoes, 10@18c ½-pk.; $1@1.15 per bushel; new, 30@35c ½-pk. Lettuce, 3@6c per head. Cabbage, 3@6c per head. Onions, 3@5c bunch; 10@12c ½-pk. Radishes, 3@5c bunch. Lima beans, 16@18c quart. Soup beans, 12@15c a quart. Lard, 14@15c lb. Spinach, 8@12c ½-pk.

Fruit. — Apples, 12@30c ½-pk. Strawberries, 20@25c box.

Retail Grain Market.—Wheat, $1.12; corn, 92c; oats, 65c; rye, 85c; bran, $1.40 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, $1.02; corn, 80c; oats, 56c; rye, 75c; bran, $27 per ton; middlings, $32 per ton.

NEW YORK PRODUCE

New York City, May 29, 1916.

Fine grades of butter are slightly firmer. Cheese market closes quiet and weak. Eggs are weak and unsettled. Fresh dressed fowls firm. Live fowls weaker. Apples steady. Prices in most fruits are firm. New potatoes and cabbage lower. Little improvement in vegetables.

Butter.—Creamery, extra, (92 score) per pound, 30¼c; higher score, 30½@31½c; thirds to firsts, 27@30c; state dairy, 26@30c; packing stock, 22½@24½c.

Cheese. — Whole milk specials, 17c; daisies, 17½c; skims, 10½@14½c.

Eggs. — Fresh gathered, extra, 24½@25½c; dirties, 19@20c; nearby whites, fine to fancy, 25@26c; ordinary to good, 24@25c; browns, 25c.

Dressed Poultry.—Philadelphia and Long Island, fancy 3 to 4 pounds to pair, 38@40c; Philadelphia fancy roasters, 26@30c. Fowls, 19@22c; old roosters, 15½@16c; squabs, $2.50@$4.50 dozen. Spring ducks, per lb. —Turkeys, dry picked, 30@32c.

Asparagus. — Jersey and Pennsylvania green colossal, dozen, $3@3.25; do., green, extra, $2.50@2.75; do., green prime, $1.75@2.25; do., green, culls, $1.50; do., white, colossal, $2.75; do., white, prime, $1.50@2; do., white, culls, $1@1.25.

Vegetables and Greens.—Lettuce, per bbl., $2@3; radishes, 100 bunches, 50@55c; spinach, per bbl., $1@1.50; water-cress, per 100 bunches, $1@1.50.

Apples.—Greening, bbl., $2@3; Northern Spy, $2@6; Baldwin, bbl., $2@4.25; Ben Davis, bbl., $1.50@2.87.

Country Dressed Calves:—

Choice, per lb.	16½@17
Prime, per lb.	15½@16
Fair to good, per lb.	14½@15
Coarse, heavy, per lb.	14½@15
Common, per lb.	12½@13½
Buttermilk, per lb.	12 @12½
Grassers, per lb.	11 @11½

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., May 29, 1916.

Receipts for the week ending Saturday evening, May 27:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,511	7,912	3,885
Previous week	3,435	6,250	6,922

Calves.—Total receipts of calves for this week were 1,948 against 1,539 last week.

Beef Cattle. — Lancaster County, Pa., and Chicago, Ill., cattle in sufficient number, dominated the market, with the better grades showing an advance. Demand was rather conservative. Cows, calves, as well as bulls that were choice brought steady values. Quotations: Best steers $10@10.20; choice at $9.50@9.75; good at $9@9.25; medium at $8.50@8.75; common at $8@8.25; bulls at $6@8.25; fat cows at $5@8; thin cows at $3.25@4.50.

Veal calves, exceptional lots, at $12@12.50; good to choice at $11@11.50; medium at $8.50@8.75; common at $7.75@8.25; southerns and barnyards at $6@7.50.

Sheep and Lambs.—Shorn stock was principally on sale, with increased offerings. Sheep closed easier, with lambs under a fractional decline. Inquiry was not specially active. Quotations: Sheep clipped, wethers, extra, at $8.50@8.75; choice at $7.75@8.25; good at $7@7.50; medium at $6.50@6.75; common at $4.25@6; ewes, heavy, fat at $7@7.50.

Lambs, clipped, extras, at $10.50@11; good to choice at $9.50@10; medium at $7.50@8.25; common at $7.25@7.50; early spring at 10½@12½c per lb.

Hogs.—The strike of the butchers had the effect of demoralizing this market, which closed largely nominal. Quotations: Westerns at $11.20 gross weight; at $14, net weight.

City Dressed Stock.—Every description of high-grade meats commanded firm prices, while trade was only moderate. Quotations: Steers at 11@15c; heifers at 10½@14c; cows at 8@12c; veal calves at 13@15c; extra calves at 17c; southerns and barnyards at 10@12c; country dressed at 12@14c; extras at 16c; sheep at 15c@16c; extra wethers at 17c; lambs at 17@19c, extra lambs at 21c; hogs at 14¼c.

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., May 29, 1916.

The supply on sale Monday was 45 loads compared with 75 loads the week before. With the light supply on sale and firmer prices at other points, our market ruled active and generally 15 to 40 cents per cwt. higher on all grades. The choice cattle of tidy and weighty grades sold at the most advance. Cows, heifers and bulls were in light supply and sold higher on all grades from bolognas to choice. Best fresh cows sold higher, while the medium grades were slow.

Receipts of veals during the week has been light and with a good demand the market closed 75 cents per cwt. above Monday's prices.

Good to choice	$10.00@10.30
Good, 1300 to 1400 lbs	9.60@10.00
Medium to good, 1200-1300 lbs.	9.25@ 9.50
Tidy, 1050 to 1150 lbs.	9.40@ 9.60
Fair to medium, 1000-1100 lbs.	9.00@ 9.40
Fair, 900 to 1000 lbs.	8.25@ 8.75
Common, 700 to 900 lbs.	7.00@ 8.00
Rough, half-fat, 1000-1300 lbs.	8.00@ 8.75
Common to good fat oxen	7.00@ 8.50
Common to good fat bulls	5.50@ 8.40
Common to good fat cows	5.00@ 8.00
Heifers, 700 to 1100 lbs.	5.00@ 9.00
Fresh cows and springers	$25@80

Hogs.—The supply on sale during the week has been liberal and with only a fair demand and easier prices at Western markets, our market ruled slow and draggy with prices closing generally 25 to 35 cents per cwt. below Monday's prices.

Prime heavy	$9.90@
Heavy mixed	9.85@9.90
Prime medium weights	9.80@9.85
Best heavy Yorkers	9.80@9.85
Light Yorkers	9.25@9.50
Good pigs	9.00@
Common to good roughs	8.60@8.90
Stags	6.50@7.00

Sheep.—Sheep and lambs have ruled in liberal supply all week. Not many choice grades on sale, the bulk being on the medium class. Prices have ruled very slow and low since Monday; yearlings, unless choice, selling at less than sheep prices. Spring lambs were in liberal supply and had the larger decline of the year.

Prime wethers, (95-100 lbs.)	$8.00@ 8.20
Good mixed,	7.25@ 7.75
Fair mixed ewes and wethers	6.25@ 6.75
Culls and common	3.00@ 5.00
Culls to choice lambs	5.00@10.00
Spring lambs	8.00@12.00
Veal calves	9.00@12.00
Heavy and thin calves	5.00@ 8.50

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., May 29, 1916.

Hay and Straw.—There is a fair demand for hay of No. 1 quality and the market rules firm under light offerings. Lower grades are dull and irregular in value. Straw is quiet and unchanged.

Grains.—Wheat is again on the decline as a result of speculative decline and light trading. Demand is only moderate. Corn is quiet but steady under moderate offerings. There is little trading in oats and the market is unchanged.

Hay.—No. 1 timothy, medium bales, $24@25.50; No. 2 do., $22@23; no grade, $11@14. Light mixed clover, $23@23.50; No. 1 do., $21.50@22.50. No. 2 do., $17@18.

Straw.—No. 1 straight rye, $15@15.50; No. 2 do., $14@14.50; No. 1 tangled rye, $12.50@13; do., No. 2 $11.50@12. No. 1 wheat straw, $10.50@11; No. 2 do., $9.50@10; No. 1 oat straw, $10.50@11. No. 2 do., $9@9.50.

Wheat.—No. 2 red $1.04@1.06; No. 3 red, $1.04@1.06; rejected A, $1.01½@1.03½; rejected B, $1.01@1.02.

Corn.—No. 2 yellow, 81½@82c; steamer yellow, 80@81c; No. 3 yellow, 77½@78½c; No. 4 yellow, 74½@75½c; ear corn, 80½@81½c per 70 pounds.

Oats.—No. 2 white, 49@49½c; No. 3 do., 46½@47½c; No. 4 do., 45@46c; standard white, 48½@49c; sample oats, 41@42c.

Feed.—Winter bran, 100-lb. sacks, $26.00@26.50; spring bran, do., $24@24.50.

Flour.—Car lots, winter clear, $4.90@5.15; straight, $5.25@5.50; patent, 5.60@5.85; do., regular grades, $4.90@5.15. Rye flour, $5@5.50 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., May 29, 1916.

Hay.—Receipts of hay have fallen off considerably within the last week, as likewise have billings in transit. The yards are cleaned up, no surplus lying at the different terminals. No. 3 timothy and No. 2 mixed are ruling a little lower but there is still a good demand for same. No. 1 timothy, $23.25@23.50; No. 2 timothy, $20.50@22; No. 3 timothy, $16.50@17.50; No. 1 light mixed, $20@20.50; No. 1 clover mixed, $16.50@17.50; No. 2 clover mixed, $13.50@15; No. 1 clover, $14@14.50; No. 2 clover, $9@11; No. 3 prairie, $13@13.50; No. 4 $9.50@10.

Straw.—Receipts of straw have been very light which keeps market steady; any heavy receipts we fear would have a depressing effect. No. 1 oats, $9.25@9.50; No. 2 wheat $8.50@8.75; No. 1 rye, $10@10.50; No. 2 rye, $8.50@9.

Ear Corn.—The advent of warm weather has retarded sales of ear corn; not much arriving and not much wanted. New stock. No. 2 yellow, 78@79c; No. 3 yellow, 73@75c; No. 2 high mixed, 76@77c; No. 2 mixed, 74@75c.

Oats.—Demand very light; receipts while not heavy are more than equal to same; market lower. No. 2 white, 46½@47c; standard, 45½@46c; No. 3 white, 44½@44¾c; No. 4 white, 42½@43½c; Rejected, 39@42c.

NEW YORK HAY AND GRAIN

New York City, May 29, 1916.

Hay and Straw.—The tone of the hay market is generally firm on all the better grades of timothy and prices are well sustained, altho the comparatively few cars show quality to command top figures. Poor, irregular qualities are dragging.

Grains.—Reports of some improvement in condition of growing wheat caused a decline on that grain. Spring wheat conditions continue favorable. Speculative interest is timid, more particularly because of peace talk. There is little activity in the export trade. Corn is weak and lower. Oats are quiet with a tendency to lower levels.

Hay.—Large bales.—No. 1 timothy, $29@30. No. 2 $26@28; No. 3 $21@24; fancy No. 1 clover, clear, $26@27; lower grade, clover, light mixed, $14@20; No. 1, $19@20; lower grades $11@17.

Straw.—Per ton, No. 1 rye, $16@16.50; do., No. 2, $14@15.

Wheat.—No. 1 Northern, $1.28; No. 2, $1.26½; No. 2 hard winter, $1.22.

Corn.—No. 2 yellow, 79⅜c; No. 3 yellow, 78⅜c.

Oats.—No. 3 white, 47@47½c; No. 4, 46@46½c; ordinary to fancy, 46½@47½c.

Rye.—$1.07½.

Mill Feed.—Coarse Western spring one hundred-pound sacks to arrive, $23.35 @ 23.60. Standard middlings, $25.60; flour, do., $29.20 to arrive. Red dog, to arrive, 140-pound sacks, $23.50. Oil meal, $31@32.00. City feed bulk bran, $23. Heavy feed in bulk, $24. Red dog, $33. Flour middlings, $32.50.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., May 27, 1916.

There was little wholesale trading as usual on Saturday, but supplies of solid packed creamery butter, as well as of prints, were moderate and values ruled steady at a decline of from one-half to a full cent from the quotations of last week. Cheese is steady to firm.

Butter.—Solid packed creamery, fancy specials, 32½c, extras, 30½@31½c; extra firsts, 29½@30c; seconds, 28½@29c; ladle packed, 26@27c; nearby prints, fancy, 34c; average extras, 33c; do., firsts, 31@32c; do., seconds, 28@30c; special fancy brands of prints, 37@40c.

Cheese.—New York full cream, fancy, new, 17½@17¾c; fair to good, new, 16½@17¼c; do., part skims, 11@15½c.

THE WOOL MARKET

The "Commercial Bulletin" of May 27 says:

A fair volume of wool was sold again this week. Domestics have been in light supply and sales consequently limited. Prices have been very firm here and in the country where the level established a week ago has been fully maintained. Buying in the territories has continued steadily but it is still backward in the bright wool sections. Everywhere growers are realizing prices above the parity of graded wool values in the East. The goods market is without any material change.

Ohio and Pennsylvania fleeces.—Delaine washed, 37@38c; ½-blood combing, 36@37c; ⅜-blood combing, 39@40c. Michigan and New York fleeces.—Fine unwashed, 27@28c; delaine unwashed, 30c; ½-blood unwashed, 34@35c; ⅜-blood unwashed, 39c. Wisconsin, Missouri and average New England—¼-blood, 38c; ⅜-blood, 39c; ½-blood, 32@33c. Kentucky and similar—½-blood unwashed, 37c; ⅜-blood unwashed, 40@41c.

NEW YORK MILK MARKET

New York City, May 27, 1916.

The market began today to feel the effects of the warmer weather of the last two or three days. The demand for May has been slow owing to the cool weather. Despite this fact the supply was in excess of the demand by only a moderate margin. This would have been wiped out in a short period of warm weather. It is expected that the market value for June will be above the Borden contract rate, and some dealers think the Borden company will pay a higher price just as they did for April and May milk.

Railroad	Milk	Cream
Erie	46,295	2,960
Susquehanna	7,190	563
West Shore	17,620	1,745
Lackawanna	63,755	2,799
N. Y. Central (long haul)	95,491	3,112
N. Y. Central (short haul)	23,375	50
Ontario	41,803	6,721
Lehigh Valley	42,929	2,705
Homer Ramsdell Line	3,990	45
New Haven	6,260	28
Pennsylvania	7,535	330

ELGIN BUTTER MARKET

Elgin, Ill., May 27, 1916.

Butter today sold at 29 cents per pound. 65 tubs sold at that figure.

TOBACCO MARKET

In the general market for cigar leaf tobacco there was a slight abatement in the previous activity but it did not assume such proportions as to reduce values or faith in the future. This tendency toward inactivity is ascribed to the great scarcity of suitable stock which at present consists largely of discarded and neglected parts of several crops. The fact should not be overlooked that the general outlook to the planter continues good and that while long range prospects are always more or less uncertain, good prices seem evident for the 1916 product.

Plants have grown rapidly the past few days and while transplanting will be a little late upon the average, it may yet be in time to make maximum results possible. On account of the generally encouraging outlook, growers have taken unusual care of their beds which of course will contribute to favorable transplanting. Another contributing feature in tobacco production is the better conservation of the fertilizing elements to be seen among farmers. Tobacco stalks which were formerly wasted to a great extent are now saved and used for the benefit of another crop and weed fields which in former years were burned before plowing are now turned under for the benefit of soil. We have yet much to learn in regard to the preservation of fertility and one excellent way to learn is by studying the methods now employed in many foreign countries. In places there the same areas have been planted for centuries and full degree of fertility maintained.—H. E. Tweed, May 29, 1916.

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Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Diabetes.—I have a horse, coming 8 years old, that makes his water eight or ten times in half a day. The urine is usually clear, but occasionally is of a straw color. This horse has a good appetite and does not appear to be sick or diseased. J. N. L., Ronks, Pa.—Give him ½ dram potassium iodide, ½ dram ground nux vomica and ½ oz. ground gentian at a dose, 3 times a day.

Punctured Foot.—I have a 7-year-old horse that met with an accident a few weeks ago when his foot was punctured in right side of frog. Our local veterinarian has been treating him, but the horse remains about the same. I put on two oil-meal poultices which drew matter, but this does not help. I have employed other veterinarians, but their treatment fails to help him. I soak him in warm water, adding coal-tar disinfectant. A great deal of pus comes from wound. P. G., Frenchtown, N. J.—Dissolve 1 dram permanganate of potash in one-half pint of water and inject some into wound twice a day for a few days. Then apply iodoform every day or two. It is perhaps needless for me to say that it will never get well if you continue poulticing. The foot should be kept dry and clean.

Catarrh.—I have two gilts that I want to use for brood sows. About a month ago I noticed they sniffled when I fed them, and now they have a discharge from the nose. I am inclined to believe that they have a slight attack of catarrh, but do not act as if very sick. E. D. S., Lebanon, N. J.—Give each of them 10 grains powdered sulphate iron and 15 grains bicarbonate of soda at a dose in feed, 2 or 3 times a day.

Eczema.—I have two calves that are losing their hair; one of them is almost hairless. They are fed ground oats and separator milk. Both of them have good appetites and they are thriving fairly well. G. B. T., Greensburg, Pa.—Apply 1 part coal-tar disinfectant and 50 parts water to body of calves, once a day.

Stocking.—I have a horse, 8 years old, that I have owned for 60 days. So far as I can tell he is in a fairly good state of health, but whenever he stands in stable over night [illegible] hind legs stock. I feed him corn [illegible] bran and alfalfa hay and he al[illegible] grass. Exercise seems to [illegible] legs down to almost their n[illegible] W. B. H., Canastola, N. Y.[illegible] 1 part powdered sulphate iron, [illegible] part of powdered nitrate of potash, 1 part powdered fenugreek and 4 parts ground gentian. Give a tablespoonful in feed, 2 or 3 times a day.

Scours in Calves.—I [illegible] to know a remedy for calves that sicken soon after they are born. During the past two months we have had [illegible] cows freshen and every one of the calves seems to suffer from stomach trouble, followed by scours. B. S., Trooper, Pa.—First of all, dairymen should understand the importance of having cows calve in a clean and thoroly disinfected stall well supplied with clean bedding from which dust has been shaken out. It is still better to dampen the bedding with a disinfectant. The cow's udder should be cleaned and disinfected before the calf is allowed to suck. It is also equally important to treat the navel of every new-born calf with a solution of a germ-killing nature, such as a 2-percent solution of coal-tar disinfectant, tying the cord with a silk or linen string that has been dipped in tincture of iodine. Also, paint the end of cord with tincture of iodine. Then if you have nothing better, apply some air-slacked lime to end of cord daily until it heals. Scours can easily be prevented by giving bacterin treatment, but this is work for a veterinarian. Sterilize their milk and be sure that they are fed out of clean feeding utensils.

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Vol. 39—No. 24. PHILADELPHIA, PA., SATURDAY, JUNE 10, 1916. 2 Years for $1.00

THE STRITTMATTER BEE FARMS.

Eighteen years ago the father of F. J. Strittmatter, of Cambria County, Pennsylvania, attended a public sale at a neighboring farm and purchased two colonies of bees in the old style, box hives. He hauled them to the farm and a few days later the son became vitally interested in bee culture. He set about getting all the literature possible on the subject including bulletins, books and journals. He wanted to become a bee expert.

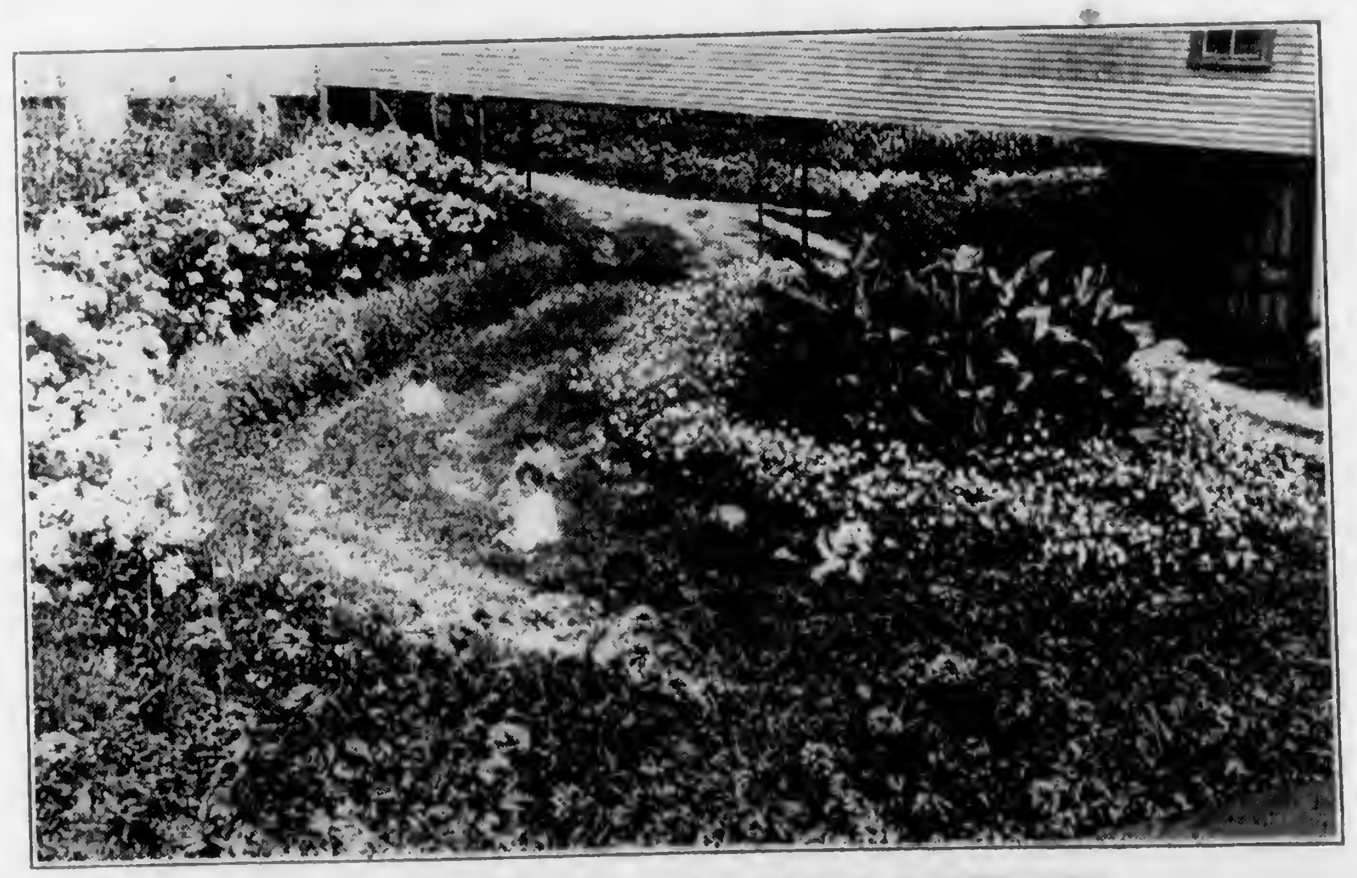
To-day that son, with his wife, are among Pennsylvania's largest producers of honey. Mr. Strittmatter found his life partner on a neighboring farm in 1905, and finding that she immediately shared his enthusiasm for the keeping of bees, they agreed not only to be life partners so far as matrimonial promises were concerned, but become life partners in business. Today, when you see the Strittmatter automobiles or trucks go into Ebensburg, the county seat of Cambria County, you find in bold letters "F. J. Strittmatter & Wife." That's the firm. It is their trade name used in selling the honey from over 200 hives of bees, produce from one of the most productive truck farms in the county, flowers from one of the largest flower gardens in the Keystone State and eggs and poultry from a well-conducted poultry yard. All these things work hand in hand.

When the Strittmatters started their business life, after the usual honeymoon, they had their bees in ten double-walled hives, located in their farm-yard. They soon realized that control of the temperature of the honeybee cluster in winter is one of the most perplexing problems a successful bee-keeper has to carefully consider. They lost considerable money every winter from the actual death of colonies or from others that were reduced in numbers or had lost their vitality as workers. Thus, they abandoned the out-door hive scheme and in 1910 they erected the first central apiary house.

This building was something new for the Strittmatters as well as for Cambria County folks. But it proved a success from the start and a few years later they erected two more such houses, one of them three stories high. These three bee-homes are fourteen miles apart. The farm with the three-story apiary is located in the center of the fourteen mile radius, and the other two are at either end, in opposite directions from the central one. This system has proved very successful, for the bees of each colony-house can pasture on the flowers of a respective field, allowing them to fly four miles in either direction without competing in honey gathering with the bees of the other apiaries. This allows them a real field of work for a radius of 22 miles. It is known that bees will fly from two to four miles while gathering honey, altho heavily laden.

TWO-STORY BEE HOUSE SEVEN MILES FROM CENTRAL PLANT.

THE THREE-STORY BEE AND HONEY HOUSE AT THE CENTRAL PLANT.



THE STRITTMATTER YARD IS A MASS OF FLOWER BEDS.

The three apiaries being so far apart is no hindrance to the owners, for they use automobiles to keep in touch with the work at all of the homes and they have an auto truck to do the hauling and to market the products of the truck farm. Two of the apiaries are so constructed that garage apartments are available. The one on the central or home farm consists of three-stories. The lower floor is used as a garage and for packing purposes and storage. The two upper stories shelter 85 hives of bees. It keeps these life partners busy, but they love the country and the bees. The chief work is done by them, but they have two men who devote their time to the truck patches and help to market the products in summer and prepare the honey for market as well as prepare the bee supplies. They assist in getting the parcel post packages in readiness, as Mr. and Mrs. Strittmatter have found that Uncle Sam's rural free delivery scheme has been a great boom to their business, particularly so with customers in the first and second mail zones.

Many people think that "honey is honey," no matter where or how made, and that all honey has the same flavor. The Strittmatters are great lovers of flowers, and while their bees make most of the honey from clover, apple and locust blossoms and some basswood blossoms in the spring and buckwheat and golden rod and other autumn blossoms in the fall, they have access to a score or more of flower beds on each of the three farms. Here are grown verbenas, straw flowers, marigolds, calliopasis, bachelor buttons, petunias, larkspur, candy tufts, phlox, daisies, golden glows, hollyhock, all kinds of roses, gladiolus, asters, pansies, dahlias and many others. As the flowers come into season, the honey takes on a little different flavor all the time, but has enough of the chief clover, apple and locust flavor to give it uniformity. The fall-gathered honey is of course darker in color owing to the influence of the buckwheat and golden rod.

All of the honey in these three apiaries is produced in large combs, which when filled, are removed from the hives to the extracting room at the central plant, where the cappings are sliced off, and the combs are placed in an eight-frame honey extractor. By whirling the combs rapidly the honey is thrown out to the last drop. The empty combs are then used again. This extractor is operated by the aid of a small gasoline engine.

The honey season depends largely upon weather conditions and the effect these conditions have upon plant life. Prolonged rains or protracted drouth mean a considerable loss of honey. Such conditions the Strittmatters have partly overcome by providing the proper natural food for their bees with their many flowers. Mr. Strittmatter says that during the active summer season the length of life of the working bees is determined by their activities, rather than by a certain period of time. The greater their activity the shorter their life. Strittmatter also believes that this applies to the winter, and that the work done by bees in the winter should be reduced to a minimum, so that in spring they can come out of their winter quarters with greater vitality.

The workers are dwarf female bees who do all the work of gathering the honey, building the combs and feeding the young; while the queen lays the eggs, from 2,000 to 4,000 a day. Most of the eggs are laid early in summer. The drones or male bees are the lazy fellows and do not work. The eggs that produce the females or working bees hatch in 21 days, while it takes three days longer for the eggs producing drones to hatch. The incubation of the queen egg is but fifteen days. When the female bees are two weeks old, they become honey carriers, but do little work in the hives before that time.

The Strittmatters seldom permit their bees to swarm early in the season; because then, there will be very little surplus honey. By experience they have learned to prevent swarming to such an extent that less than 2 percent of their colonies swarm. This swarming is prevented by extracting the honey from the comb, returning the drained combs to the hive in sufficient numbers for each colony before the flow of honey has far advanced, and affording plenty of ventilation and protection from the excessive rays of the sun. The wings of the queen are clipped, so when they do swarm they will not leave. Bees will not abide where there is no queen and the queen being unable to fly the others must stay. Many a swarm has been held on the bare arms of Mr. Stirttmatter, while he held the queen so the others would cluster around her. Mr. Strittmatter finds that the life of a female bee is about six weeks when they are very busy, and about six months during the dull or winter season. The life of the queen under normal circumstances is from two to four years.

The American bee farmer has bright prospects. The United States never produced enough honey to supply home consumption. In five years 520,000 gallons were imported from Mexico, Cuba and Haiti. On account of the European war Mexico can not now export across the Atlantic so freely and greater amount comes to the United States. The United States exports, during normal conditions, over $100,-000 worth of honey from the coast states on the eastern and western shores, chiefly to Germany, Canada and Great Britain. Since the war these exports suffered to a great extent. These conditions have not affected the Strittmatters, owing to the fact that their local market takes their entire output.

From their flower gardens they derive a handsome income, thru sale of flowers at opportune seasons, as well as selling flower plants. They also make a specialty of raising cabbage, tomato, celery, pepper and other plants which they sell to the vegetable growers of Cambria county; while they need thousands for their own truck patches. Almost daily, their automobile truck goes to Ebensburg, well loaded with garden products and flowers. Two hundred fowls also increase their annual revenue account, so that "Strittmatter & Wife" are about the busiest business partners in the county.

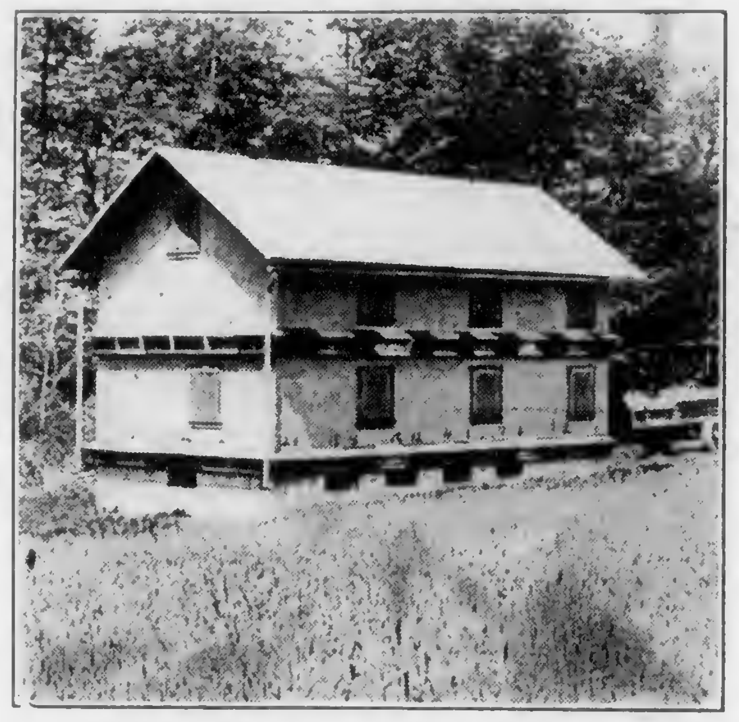
Alfalfa on Eastern Farms

My experience in growing alfalfa dates back to 1880—thirty five years ago. That year my father, who was operating a dairy farm in the Southern New York hill country, sowed a small quantity of alfalfa seed in one corner of the garden. The soil was a deep, warm, gravelly loam, well drained, and the alfalfa grew like pigweed.

That fall, however, father rented his farm to a tenant and moved to a distant state. After three or four years of hard work, the tenant, who looked upon the strange plant as a noxious weed, succeeded in eradicating it from the garden; but alfalfa plants were found growing here and there in the fence corners for a long time.

On this farm there are more than thirty acres of good alfalfa soil, and yet the present owner continues to grow timothy, oblivious of the fact that with alfalfa he could more than treble the hay production of the land. On many other farms thruout the hill country are tracts of a few acres each that would produce luxuriant crops of alfalfa, when limed and inoculated. If they were seeded to alfalfa, the stock keeping capacity of the farms would be largely increased.

My second experience with alfalfa began on a Monroe county farm ten years ago, when fourteen acres were seeded to this crop. The land, a sandy loam, was deeply plowed early in spring. It was limed at the rate of 1000 pounds to the acre, and harrowed several times with a cutaway harrow. It was then inoculated with soil from an old alfalfa field, and seeded the last of April, twenty-five pounds of seed being sown to the acre. The catch was fairly good, but the young plants had a hard struggle in their contest with the weeds. The next year three cuttings were made, but the weeds and foul grass were rapidly crowding out the alfalfa.



THE FIRST BEE AND HONEY HOUSE. ONE STORY.

I was advised to plow up the alfalfa and reseed. Instead, a heavy dressing of barnyard manure was given the field late in the fall, and as a result three heavy cuttings of alfalfa were made the following season. An annual early winter dressing of stable manure saved this alfalfa for five years, the field yielding three good cuttings each year. The alfalfa sod was then turned under, and the field heavily manured and sown to oats and peas. This crop was cut for hay and the land disked and limed; but owing to weather conditions it was not seeded until the middle of September. The young plants covered the ground with a green mat; but by the middle of March there was scarcely a plant to be found. It had winterkilled. A dressing of manure in the early winter might have saved it; but I do not advise seeding alfalfa as late as September in Western New York.

MR. AND MRS STRITTMATTER.

This field was again heavily manure, plowed and seeded to oats and peas. After the crop was removed for hay, the ground was limed, disked and seeded to alfalfa the fifteenth of August. A good catch was secured and three heavy cuttings have been made every year since.

Another field of sixteen acres was seeded late in August five years ago, after heavy manuring and liming. The soil is a sandy loam, rolling and well drained. Twenty-five pounds of seed to the acre were sown, and the field was not inoculated. Owing to careless seeding, the alfalfa came up uneven. An attempt was made to seed the bare places, but with little success. Native grasses came in, however, and fair yields secured, but not equal to the first mentioned field. Last spring the ground was broken and seeded to oats. After harvest it was reseeded to alfalfa late in August. The catch was excellent and the alfalfa has made a fine growth. In harvesting the oats, the grain shelled badly and sprouted, covering the young alfalfa with a mulch which I think will prove beneficial. Thirty pounds of seed to the acre were used in this field.

In my ten years' experience with these and other fields of alfalfa, I have reached the conclusion that early in August is the best time to seed alfalfa in New York and other states having a similar climate. It pays to lime heavily before seeding, and I have used basic slag at the rate of 600 pounds to the acre on fields seeded two or three years, with good results. Where there is danger of winter-killing I would give the field a heavy dressing of barnyard manure early in winter. In my last seeding thirty pounds of seed were sown to the acre as an experiment; but I would advise using twenty-five pounds of the best seed obtainable.

The finer the seed bed the better the catch. We rolled the ground after seeding.

My experience with alfalfa has been on farms outside the limestone region, or so-called alfalfa belts. The success that attended my own efforts, together with investigations of soils and crop conditions in New York state and northern Pennsylvania, lead me to believe that it will pay the man on the hill farm as well as the farmer on the river bottom, to experiment with alfalfa. If he finds even a few acres on which this legume thrives, he has discovered a real gold mine.—E. E. Reynolds, New York.

Uncle Amos' Philosophy

It began to rain while we were eating breakfast the day we had planned to plant corn. Uncle Amos had prophesied the evening before that it would because he felt it in his bones, and again as we came in from the barn that morning he said, "There'll be no corn planted today. See how red it is in the east?"

But Uncle Amos is a philosopher. He never wastes time and energy in fuming and fretting. Altho it was late and the ground was ready, Uncle silently shifted his mental scenery and set the stage for different action. As he drained his cup and pushed back from the table he said: "Ben, I think this will be a good time to mend and oil the harness."

I was glad to hear this because I enjoyed every opportunity to work in the shop with Uncle Amos. First because I liked to hear him talk, and second, it is a change from the harder work of the field. Uncle claims that a well equipped work shop is as much a necessity on a farm as is any other building, and he endeavors to keep every tool in good shape and in its place.

While we waited for the water to warm he looked over the tools and discovered that Bill Slow had not returned a hand saw which he had borrowed several days before, altho he had promised to return it the same afternoon. This riled Uncle Amos, for when it comes to questions involving carelessness and shiftlessness Uncle hasn't the patience of Job, consequently doesn't have Job's tribulations.

Just then we saw Bill Slow trudging along in the rain going in the direction of town. Uncle opened the door and called: "Bill, I thought you said you'd bring that saw back the day you got it. Where is it?"

"Well, I swan," said Bill, "I clean forgot it. But I took good care of it. I hung it in an apple tree where the pigs couldn't get at it."

"Well, see that you bring it back today."

Bill walked on and Uncle Amos turned to me and said, "Takin' good care of it. My best saw hangin' in an apple tree for a week. If that don't beat the dogs. That's the last time Bill Slow will borrow anything from me." But I knew better than that. So did Bill Slow. Uncle is known among his neighbors as one who never refuses an accommodation if he can render it but most of them have learned by experience that it saves them from having a burning sensation in the face to return things promptly.

As we began washing and mending the harness Uncle said: "I s'pose Bill is goin' to town to loaf, bein' a wet day. I'll bet there's a hundred things that needs doin' over at his place. I noticed his harness were tied and patched up and they ha'n't seen oil in three years I know. Half the glass in

s barn windows is broke, and some in the house. The hinges are off most of the gates an' barn doors, yet Bill finds plenty of time to talk war an' politics down at the blacksmith shop. One such farmer as him gives the whole community a bad reputation and when up-lifters want a subject or the city papers want a picture, they take him. A feller that's too lazy or careless to keep his place trigged up and himself lookin' decent ought to be drummed out of the neighborhood. Bill ain't no representative farmer. He's a slacker. Yes, sir, just a common slacker. That's what they call able bodied single men over in England when they don't join the army."

Uncle Amos delivered the above as he worked at the harness, quite long pauses occurring between sentences.

He had not mentioned the farm expert who came into the field the other day while he was plowing and I had been curious to know what his real opinion was, seeing that he treated the expert that day with such scant appreciation, so after a few minutes' silence I said: "Uncle, don't you believe in agricultural education?"

"Of course I do, when its the right kind. Who says I don't? Don't I get all the bulletins and study 'em? Don't I take the best farm papers and read 'em? Don't I attend the institutes and Farmers' Weeks? I believe in tryin' to learn all the time and use what is bein' found out when it is practical. Maybe you are thinkin' of the way I talked to the farm expert the other day. I didn't want to be mean, but I had no time or inclination that day to talk on his subjects and he knew nothing about my greatest troubles. I felt it my duty to let him know I had some horse sense and that he didn't know it all. I want to have a talk with him some day because there are some questions I am not clear on and I have no doubt he can tell me, but my idea is that him and me can make an even swap in farmin' knowledge. I haven't farmed these 40 years to begin in the infant class now and I allow he'll find there is some things about farmin' that he didn't get in four years."

"What do you think of the idea of forming a Farm Bureau in this county," I asked him.

"Well, that's all right if its managed right," he answered. "My idea is that the bureau should be composed of good farmers mainly. Oh, there's no objection to havin' a few town business men in it but they shouldn't have full control. Good, successful farmers know better what's needed in agriculture than anybody else, so if they'll take hold of it and can get a good, intelligent county agent—one that will do what the bureau directs, I can see where a lot of good can be done. The trouble is, some of our best farmers spend their spare time kickin'. But I look at it this way: We've got the institutions, the law is passed and the money is appropriated, and it will be spent anyways, says I, so my idea is that the farmers should take hold of it, and direct it in the right lines. That's why I told them I'd be a member of the bureau, altho I've got enough to do here, goodness knows.

"There's such a thing as bein' too suspicious. Farmers need to learn how to co-operate, not only among themselves but with other people, and it seems to me the Farm Bureau is a good thing for that. Then it gives us a chance to get at the valuable things the chemists and other scientific men have found out. Course a whole lot of it is chaff—pure chaff, but there's a lot of good wheat in them experiments that we need. Then, too, there's a lot of business we can do, working together, and I'll see to it that that ain't overlooked. Where the Bureau is all town business men they might fergit about the buyin' an' sellin' end o' the business."

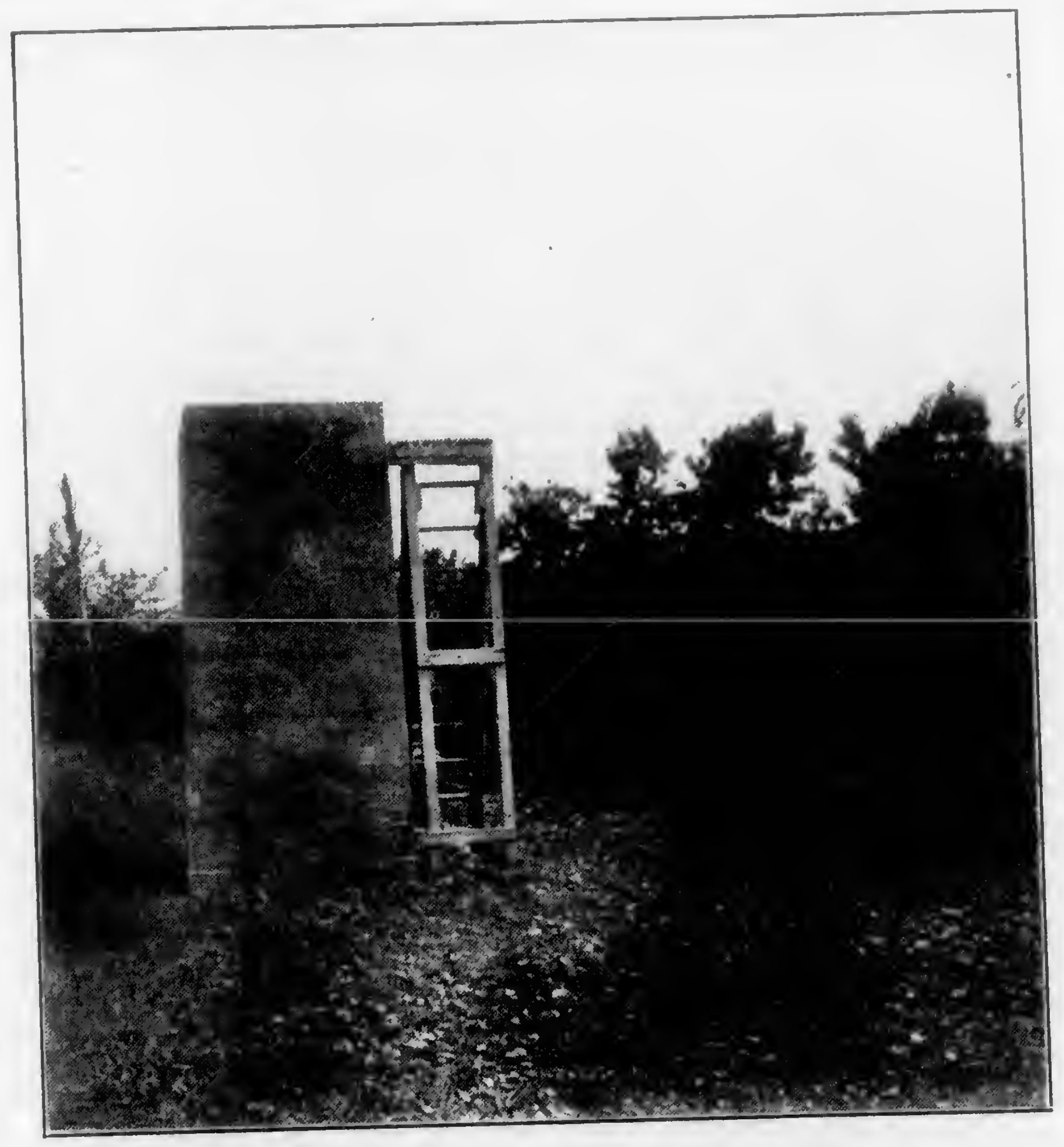
We finished the harness just as Aunt Betty called "dinner," and we went to the house. The sky was clearing and Uncle Amos prophesied that tomorrow would be a corn day.

Value of Advertising

Advertising is finding greater favor among farmers now than ever before. They have come to realize that it affords an opportunity for the economical disposal of much produce. The parcel post as well as other shipping facilities have encouraged it. The man who has raised some especially good stock, seed, or plants finds a ready market in the columns of both the local and farm press. The quantity makes little difference. It may be no more than a well bred calf, twenty thorobred chickens or the same number of bushels of prime seed. There are sure to be other farmers who are looking for these very things. An advertisement reaches a great many people and many are in the habit of referring to the advertising columns for certain things they desire.

If you have something to sell state as near as possible its true description. If it is merely good use the word or words that best describe it. When it is select state that fact. The reader weighs every word carefully. If you haven't a first class product and it is described truthfully in the advertisement there will be a host of people who will want just the grade you describe. Honest wording in the advertisement is usually repaid by square dealing from the buyer.

Advertise in a medium that guarantees its advertisers. This will be a protection to you as well as to the man who buys from you, providing the honest facts are given in all correspondence. There is no more honorable medium to sell thru than the farm press that guarantees the reliability of its advertisers. Also remember that the cheapest is not the best. Some experiences have proven these things to my satisfaction.



CONCRETE TANK FOR STORING SPRAY MATERIAL
LEEDS FARM, BURLINGTON COUNTY, N. J.

As to the advertisement itself, I think all those farmers who have had experience in one way or another will agree with me that more satisfaction is gained from the descriptive advertisement. A brief, one-line ad. will bring many responses and may be almost as effective as a ten-line ad., but here is the point I wish to emphasize: A longer advertisement, giving a brief description in a few well chosen words stating the different grades or qualities and the prices will save a lot of correspondence on the advertiser's part. Many people will then order right from the advertisement which will result in a saving of postage in answering questions. The saving of postage alone will more than offset the extra investment in advertising. However, there are some things about which people wish to be more fully informed and the best thing to do is to get out a neat little leaflet that will supply the information. I am speaking solely from the standpoint of the farmer who advertises.

A farmer seldom needs to resort to the "Want Ad", but he will surely find what he wants if he does. Twice when we had occasion to use one we were greatly surprised by the large number of replies they brought forth. If one is a bit skeptical about whether people read advertisements let him try a Want Ad.

Advertising pays the farmer both in the business methods it teaches him to employ and the satisfaction of having marketed the produce of his business to a good advantage. — J. L. Justice, Indiana.

Wheat Smut Control

Wheat growers in this country not infrequently experience serious losses caused by preventable diseases. Wheat is preyed upon by a number of parasitic fungi, three of which are classed as smuts. Two of these smuts are common pests in the wheat fields of North America, the other, commonly known as flag smut, is thus far unknown to this continent, tho it is fairly common in Australia and certain other parts of the world where wheat culture has been in progress for centuries, says the Department of Agriculture.

Of the two smuts Bunt or covered smut of wheat, sometimes referred to as stinking smut, is found wherever wheat is grown, sometimes resulting in losses to the farmers of the United States of $20,-000,000 or more annually. Not infrequently fields planted to untreated seed and giving promise of yielding 30 to 40 bushels per acre of good wheat, will produce a crop of covered smut amounting in some cases, to as much as 40 to 60 percent of the crop.

This smut disease is caused by a parasitic fungus which attacks the growing wheat plant before the first leaf appears above ground. Once inside the attacked seedling it continues its growth and by the time the wheat begins to head the diseased plants produce a crop of smut. If we examine the heads of such a plant we find instead of normal wheat grains only a lot of smut balls. In other words, the materials produced by the living plant for the purpose of building up sound wheat grains have been consumed by the parasite in forming its masses of smut spores which finally occupy the exact position in the wheat heads that would have been filled by the kernels had they been allowed to develop. These smut balls consist of nothing but millions of spores enclosed in each case by a thin developing membrane. When the smut balls are crushed the spores give off an ordor not unlike that of herring brine. The liberated spores become attached to the seed, which, if planted without previous treatment, may produce another crop of smutted wheat.

Treat Seed With Formalin

Bunt or covered smut of wheat is one of the most easily prevented of any of the cereal diseases.

The following procedure is recommended: Run all seed wheat thru a fanning mill in order to blow out the unbroken smut balls. This being done, the grain should be soaked 10 minutes in a solution consisting of 1 pound of commercial formalin (obtainable at nearly all drug stores) added to 40 gallons of water and piled on the floor and stirred frequently until sufficiently dry to sow. If during this process, the kernels have swollen very much, the drill should be set to sow a little thicker, else the quantity sown per acre will be less than was intended.

Rotation in Severe Cases

Recent experiments have shown that in certain sections of the country the soil of a field producing a crop of smutted wheat this year may harbor enough smut spores to cause the appearance of smut in next year's crop if the field be reseeded to wheat. This sometimes occurs, where smut is very bad, in spite of the planting of treated seed, and shows that in such localities crop rotation should be practiced in addition to seed treatment. Bunt or covered smut of wheat attacks no other cereal crop, but other cereals have their own smut diseases.—U. S. Dept. Circular.

Chester county farmers report that alfalfa sown in August has done exceptionally well.

. . .

Indications from all sections of Pennsylvania point to an increased acreage in potatoes over the 273,360 acres of 1915.

. . .

The lack of farm help has brought the farmers' attention to the labor saving machinery and many are specializing in order to get along with less outside help.

Paint Now! Don't Patch Later

Expensive repairs follow neglect to paint just as surely as sunshine follows rain. Protect your buildings against the wear of time and weather with a coat of

TRADE MARK **NICE** REG U.S.A.
PAINT

There's a "NICE" Paint, Stain or Varnish product for your every requirement. They are made of the best raw materials, over time tested formulas and cover better and wear longer than most other paint products. Judge your cost "per year of service" and you will use "NICE".

Booklet "Paint Pointers"
Free. Contains practical and instructive information. Write or call for your copy to-day.

EUGENE E. NICE, Philadelphia

WHITE MARSH PULVERIZED LIMESTONE

HIGHEST QUALITY
Is Not Caustic — Cannot Burn
IMMEDIATELY AVAILABLE
The best and most economical form of Lime for agricultural use, lawns and grass.
Full information as to the most economical way to purchase.
E. J. LAVINO & CO.
478 Bullitt Bldg. Philadelphia.

Tomato Plants, $1 per 1000

All varieties, now ready. Also

CABBAGE PLANTS,	75c	per 1000
PEPPER	$1.50	" "
CELERY	2.00	" "

OROL LEDDEN, Sewell, N. J.
Bell Phone, Wenona 9J-2
Largest Grower of Plants in New Jersey

Vegetable Plants By Mail or Express Prepaid
Leading Varieties **Cabbage, Tomato, Cauliflower, Celery, Sweet Potato, Asparagus, Beet, Lettuce, Pepper, Egg Plants.** Also **Asters, Coleus, Salvia.** Large or small lots at reasonable prices. First class plants and safe delivery guaranteed.
Strawberry Plants For Aug. and Fall planting Runner & Pot-grown plants that will bear fruit next summer. Also **Raspberry, Blackberry Plants: Fruit Trees.** Catalog Free.
HARRY A. SQUIRES, Remsenburg, N. Y.

TAPES
Fast Colors - - Red and Blue
FOR BUNCHING ASPARAGUS, CELERY, VEGETABLES, ETC.
Attractively prepared products command top prices and create a demand for your output.
Send for Free Samples and prices.
WICKNARROW FABRIC CO., 933 Market St., Phila.

Binder Twine: Best Standard twine guaranteed to give absolute satisfaction or money back. 500 ft. to pound. 80 lbs. tensile strength, insect proof. $9.75 per cwt. for prompt orders. With a threatened shortage of twine, and much higher values in sight the wise man will order early. A. H. FOSTER, Allegan, Mich.

Plants, Strawberries & Vegetables
All vegetables and strawberries including everbearing. Get my catalog, read why I sell choice plants sent prepaid at half price of others. C. E. FIELD, Sewell N. J.

COVERS Waterproofed horse, wagon, auto truck and machinery. Tents to hire, all sizes, any number.
W. H. VANDERHERCHEN, 221 N. Front St., Philadelphia, Pa.

SWEET CLOVER Builds Worn Out Soil Has higher protein content than alfalfa. Write for prices and information. E. BARTON Box 8, Falmouth, Ky.

Lightning Rods 6 3-4c a ft. Best quality. Copper cable. Buy direct. Frt. prepaid. Satisfaction guar. Complete installing directions. Valuable cat. & sample free. Robinson & Seidel, Box 54, Washingtonville, Pa

Horticulture

DO CUCURBITS MIX IN THE FIELD?

There is a popular belief that it is not advisable to plant cucumbers, melons, squashes or pumpkins near each other because of the danger of mixing, due to cross-fertilization, thereby making the quality of the fruit secondary or probably inedible. The belief is quite widespread, and its more or less acceptance has caused persons, who have only a limited area for their plantings, to forego the growing of more than one of these crops during a season.

On the other hand instances have been cited where growers of melons in the southern states have made good use of these features. Previous to the invention of refrigerator cars the growers had difficulty in securing a type of watermelon that would hold up well in shipping. It is said that they in part solved the problem by planting pumpkins with their watermelons so that crossing would result and eventually a variety of ''melon'' was secured which possessed a thick tough rind, and which could be safely shipped in box cars to the northern markets.

Probably other instances of a similar nature might be cited, but in most cases it is very difficult to prove them to be authentic. As a matter of fact there is very little definite evidence to show that in many instances phenomena of this kind ever take place, while there is considerable evidence to show that it does not.

In 1890 Professor L. H. Bailey of the Cornell Agricultural Experiment Station conducted some experiments on the crossing of squashes and pumpkins. He states that he ''made fully one thousand careful hand pollinations and obtained no less than one thousand types of squashes and pumpkins.'' However, he found no immediate effect of the pollen in the first generation such as is found when white and yellow corn are grown in the same field. The new types did not appear until later generations. In another experiment he tried to cross summer and fall squashes, like the scallops, crookneck and cocoanut, which belong to the same species as the field pumpkin (Cucurbita pepo), and found that they cross quite readily. He then tried to cross varieties of this group on the varieties of another group which includes the Hubbard, Marblehead, turban and mammoth Chili, which belong to the species Cucurbita maxima, and altho many careful hand pollinations were made in no case was he able to secure seed. An attempt was also made to cross melons and cucumbers but without success. He concluded that the varieties of one species when crossed with another do not mix.

At about the time the work was being conducted at Cornell a similar experiment was being conducted at the Iowa Agricultural Experiment Station. In order to make the test quite comprehensive and to insure intermingling of the various cucurbits, different varieties of melons, cucumbers, pumpkins and squashes were planted as follows: Several varieties of watermelons in one row; in a second row musk melons were planted together with sugar pumpkins; these were followed in the next row by turban, bush scalloped, and Italian striped squashes and improved long green cucumbers; the next row contained several varieties of cucumbers, perfect, gem and new Mediterranean squashes; the fifth row was planted with common pumpkins, watermelons and citrons; and the sixth row with musk melons, dipper gourds and Hubbard squash; these were followed by marrow, new prolific marrow, and vegetable marrow squash and dipper gourd in the seventh row while the eighth row was planted with common field pumpkins. Careful observation showed that there was no immediate effect of the pollination. The following year plants were grown from seed procured the preceeding year. A study of the progeny led to the following conclusions:

1. That pumpkins (Cucurbita pepo) and squashes (Cucurbita maxima) will not hybridize.
2. That pumpkins and watermelons (Citrullus vulgaris) will not mix, nor will squashes and melons mix.
3. Cucumbers (Cucumus sativus), sugar melons and musk melons will not hybridize nor will they mix with pumpkins.
4. The different forms of Cucurbita maxima will readily cross with each other.
5. The various forms of Cucurbita pepo will readily cross with each other.

At the Nebraska Agricultural Experiment Station experiments were conducted for eight years in the attempt to hybridize cucurbits, but without positive results. In attempting to hybridize different varieties of watermelon with the pollen of pumpkin or squash no immediate effect of the pollen was discernible on the form, color or flavor of the fruit or on the size, shape or color of the seed.—C. E. Myers, State College, Penna.

A SLAP AT THE PRODUCER

The editor of a local paper in central Pennsylvania, who is evidently a consumer, and whose journal circulates largely among the farmers, early this May issued the following caution to the townsmen:

''The peach crop is now said to be safe. We mention this ahead of the usual trumped-up stoy of the failure of the peach crop, which is the clap trap to boost prices away up.''

We should like to know where this lone editor gets his local crop report as 9 out of 10 estimates of the crop in this section are below 25 pct. and down to 2 pct. And again, we ask who are the producers who are getting too much money for their peaches, or any other farm product for that matter? There is no doubt in my mind that on the last two seasons' crops, there were more growers in Pennsylvania who did not have a clear profit on the peach crop than there were who had clear money. How many of our consumers in the cities and towns know that peaches of a fine, luscious quality no longer grow in the bramble of the fence corners on bushes, where years ago they were picked on the ''sheres'' and were sold and valued at 25 cents per bushel and sometimes were worth it? But today those big golden red cheeked peaches are the result of a round of toil and expense realized only by the grower.

First, he has the expense of starting his orchard on land of standing value, and then comes the annual routine of pruning, worming, thinning, spraying, cultivating, picking, grading, packing and hauling to the market. The tillage or cultivation, which begins early in the spring, is constant until laid by in July by which time this operation alone has equalled the stirring of the soil in the growing of three or four crops of corn as they are usually grown. Does the watchful consumer know, too, that a lot of the above labor is not even half so pleasant as that performed by the printers ''Devils''? For instance, a week's or several weeks' work with the spray outfit, handling lime and sulphur to make nice fruit for our good city cousins! The bracing fragrance of lime and sulphur! A nest of rotten s is not in it with lime and sulphur ay, and then the caustic effect on hands, face, harness, team and erything. Would not some of these mplaining people like to try a hand spray line to get a better and last- appreciation of how 1916 fruits made?

Within a stone's throw of that print- office there are likely enough vends of drugs, harness, hardware, notions, c., who ask and receive two or three mes the cost of their wares, and our od consumers never whine or whim- r. Suppose the farmer, who grows heat at a cost of $1 per bushel, were to ake his price mark $2 and so on thru e long line of products. Then again, e dealer in shop wares does not have stand for the multitude of uncer- inties that the farmer and fruit grow- must face; such as frost, storm, outh, insect depredations, etc.

Let us be sensible and see the other llow's trials and tribulations from his int of view as well as from our own, d as producers and consumers work in arity to lessen the cost of production d delivery; lower the cost of living by iendly and direct co-operation, which ndition cannot exist with ignorance d mistrust dominating.—D. H. Watts, earfield Co., Pa.

European Success W
Nitrate

European farmers use pounds to the acre of a fert containing 4½ per cent of ava Nitrogen.

American farmers, on the a age, use 200 pounds to the ac a fertilizer containing 2 per ce mostly unavailable Nitrogen.

The average **European yiel** **Wheat, Oats, Potatoes, and Cott** **Egypt, is double the Ameri** yield.

The difference is due to am of available Nitrogen applied acre.

Write for My Free Book, "What Nitrate Has Done"

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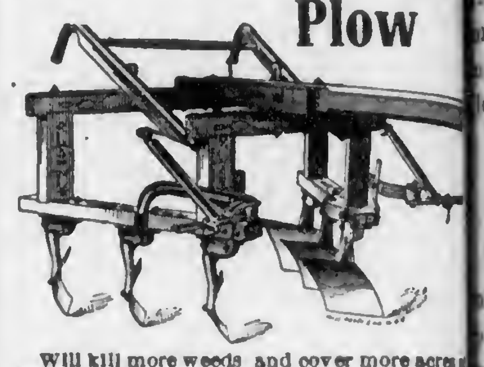
The Improved Riggs Plow



Will kill more weeds and cover more acres of ground in a day than any Riding Cultivator ever made. Low in price but up head in Quality. Will give many years of satisfactory service, at less than half the cost of a good Riding Cultivator We also manufacture
The Perfection Sprayer, and The Improved Riggs 2, 3 and 4 Row Markers. If you cannot buy our goods of your regular Dealer, write us for Catalogue and Prices.
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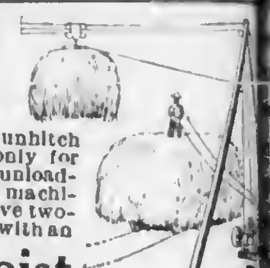

Quicker than a man can unhitch and hitch a team. Not only for hay but for loading and unloading grain, coal, fertilizer, machinery, etc. You can save two-thirds of work and time with an

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Cost 1c a load.
Operates easily, quickly and safely.

Special pulley for your engines. Guaranteed. Free circulars.
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29 State St., Norwich, N.
Also mfgrs. drag saws, saw and shingle mills.

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Alfalfa--Winter Vetch
Choicest recleaned seeds. Write for prices on a farm seeds needed and if interested ask for f leaflet on Crimson Clover, Alfalfa and Winte Vetch, mentioning Pennsylvania Farmer.
HENRY A. DREER, Philadelphia, P

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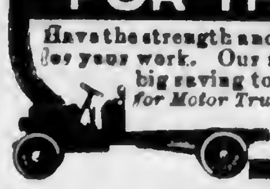

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Placed anywhere, Daisy Fly Killer attracts and kil flies. Neat, clean, ornamental, convenient, and ch

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Attractive Fruit Package
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Sweet Potato Sprouts 25000 Kelly (yel free from dis $1.50 per 1000; 5000 or more $1.25. Will ship on P. or P. R. R. A. G. MADARA, R. D. 2, Sewell, Rural or Keystone phone, 17 S., Mullica Hill.

Plants Sweet Potato, Tomato and cabb 100-50c; 300-$1, postpaid. $1.50 1000. Send for illustrated catalog. DAVID RODWAY Hartly,

Binder Twine Farmer Agents Wa Get our samples and Theo. Burt & Sons,

THE CANNING TOMATO CROP

There seems to be unusual activity the part of the tomato canners this ring in Southern New Jersey. They e all anxious to have the farmers ow them as many acres of tomatoes is coming summer as possible.

During the last season thousands of res of tomatoes produced but small ields due to the late blight which was vored perhaps in its development by e wet weather. During the last part July or during August the vines all ent down. The farmers said it was used by several days of wet, muggy eather followed by sunshine. However, the State Plant Pathologist ex- lains these observations by saying that spell of warm, muggy weather is not he direct but, indirect cause of the ines going down. The direct cause of he vines falling was due to the late light which develops most rapidly dur- ng wet weather.

It is a conservative estimate when ne says that twenty thousand acres f cannery tomatoes are grown in New ersey every year. During the last few ears the yields have been decreased larmingly because of the ravages of his late blight which destroys the foli- ge then attacks the fruit itslf, causing t to spot badly.

Last summer some very interesting work was done in small sections of arge cannery tomato fields in Cape May County, N. J., right along the ublic roads. At each corner of the lot a red stake was driven and near he road a large sign had been placed nd on it the words ''Tomato Spray- ng Demonstration—Cape May County Farm Demonstrator.'' When I saw these plots in late August, they were just as green and vigorous as could be hoped for while the vines in the rest of the field outside of the sprayed section were practically destroyed by the blight, leaving a half developed crop of fruit to ripen as well as it could. This work must have given very satisfactory returns for it is to be developed on a very large commercial scale n that county this summer.

The stock of all the tomato canners nd wholesale grocers will be complete- y cleaned out before packing season this summer. Canners anticipate unusually good demands for the canned product this coming fall and so are not hesitating to offer a dollar or two more ton that last year.

This is only one of the large vegetable industries which gives promise of being more profitable than usual the coming season, thus the farmer is to enjoy his share of the general prosperity of the nation.—R. W. DeBaun, N. J.

CULTIVATING CABBAGE

The cultivation of cabbage is so important that every farmer raising this crop should see to it that a constant surface mulch is maintained. An example of why this is so important will emphasize the matter.

In Cortland County, N. Y., hundreds of acres are devoted to cabbage raising. Three years ago, during the dry season, one man in a large cabbage section cultivated his crop 21 times. The average cultivation of his neighbors was from three to five times. All the neighbors there about laughed at the man who cultivated so many times and cast many slurring remarks on his behalf. What were the results? The man who cultivated twenty-one times, in the fall of the year, averaged better than twelve tons per acre, receiving $16 per ton. His cabbage was of fair size, solid heads and particularly valuable for the first-class market.

The other men, in the same locality, received anywhere from three to five tons per acre, the heads were small, of inferior quality and did not bring more than $12 or $14 per ton.

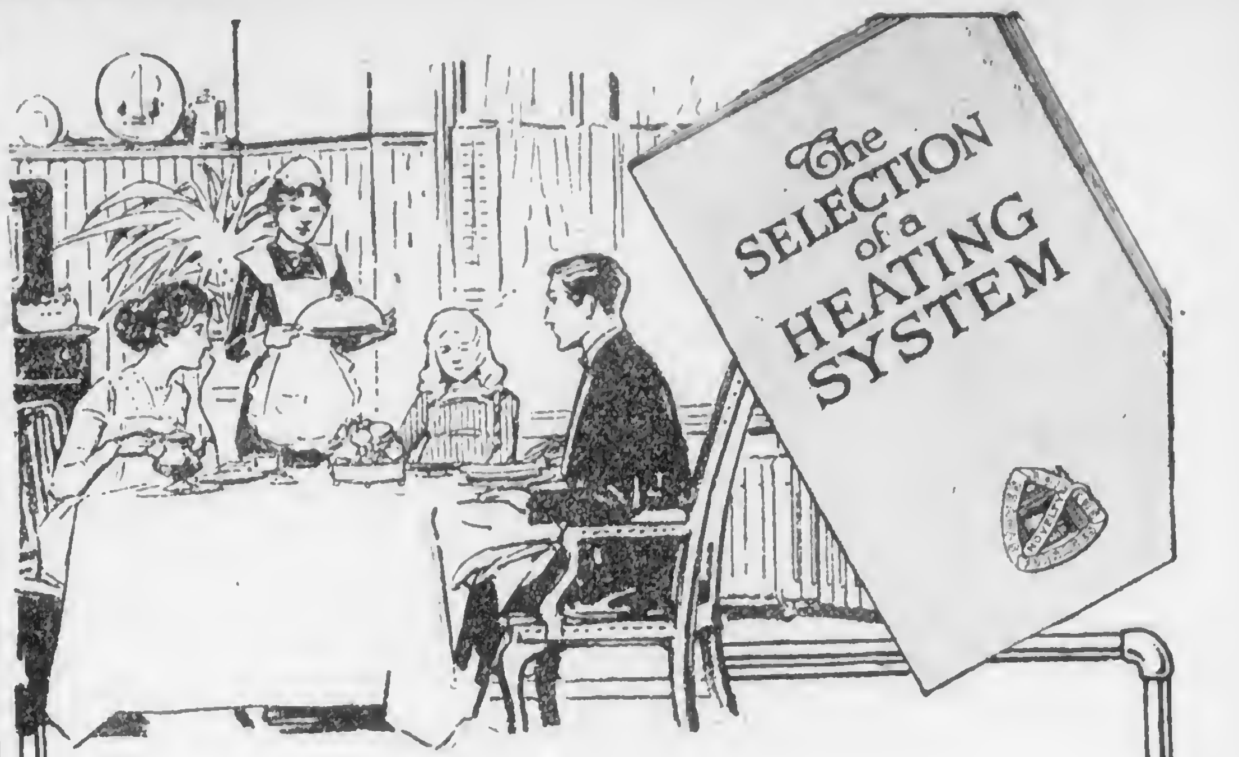
Figured on another basis, the cost of cultivating 21 times at 75 cents is $15.75; the cost of cultivating 4 times at 75 cents is $3, making a difference of $12.75 in cost of greater cultivation. The yield in price received amounted as follows: 4 tons average at $12 per ton, $48, return from the average amount of cultivating; 12 tons at $16 per ton, $192, returns to the man who cultivated thoroly, difference $144. In other words an investment of $12.75 in thoro cultivation returned $131.25 above cost of cultivation, a thousands percent on the money invested.—A. E. Wilkinson.

WATCH FOR CANKER WORMS

The associate entomologist of the Ohio Experiment Station says that the parent moths of the canker worm have been observed in considerable numbers in some sections of the state during the last two weeks and it seems that this well known insect may do considerable harm this season. It will be remembered that the male canker worm moth is a dusky miller measuring about an inch across its spread wings and that the female is wingless, appearing somewhat like a spider. The females emerge from the ground and crawl up the tree trunks to the small twigs, where the eggs are deposited. With the expanding of the leaves, the eggs hatch and the striped measuring worms or caterpillars begin eating the foliage. If the worms are abundant and no attempt is made to control them, the trees may be entirely defoliated. When the branches are jarred the caterpillars let themselves down by a silken thread.

The caterpillars are most easily killed when they are young, therefore it is important that the infested trees be sprayed as soon as the tiny, newly hatched larvae begin feeding, and at this time it is necessary to observe quite closely in order to find them. For control purposes use arsenate of lead paste four pounds, or arsenate of lead powder two pounds, to each fifty gallons of water. Special precautions should be taken to thoroly spray the tops of the trees, since it is there that the most severe injury is done.

Not only are apples attacked, but many of the shade trees as well. Of the latter, linden, elm, maple, hawthorn and others suffer severely.



The SELECTION of a HEATING SYSTEM

How to Heat "That Cold Room"

Get the right Novelty Heater, either Hot Water, Steam or Warm Air, and you can heat the cold rooms and colder corners without straining the coal bin. Get our new FREE book, *"The Selection of a Heating System."* It describes

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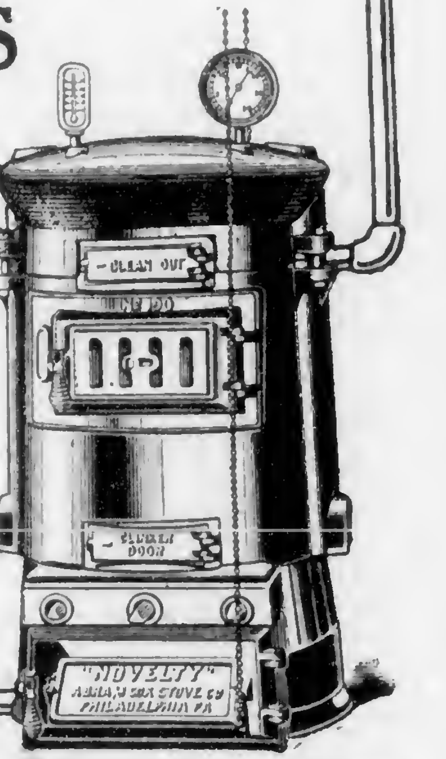

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"NOVELTY" ABRAM COX STOVE CO PHILADELPHIA PA

This book gives an honest comparison of the three systems. We make them all and can afford to tell you the truth. Tells how to save coal and labor and add comfort; how to determine which heater is right for your present home or the home you intend to build. Write for it. It will save you money.
Sent FREE.

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Auto-Oiled Windmill
ALL WORKING PARTS INCLOSED
and **flooded with oil** from the supply in the gear case, which **needs replenishing only once a year.**

Put your old Aermotor wheel and vane on this self-oiled motor, and have an up-to-date outfit at small cost.

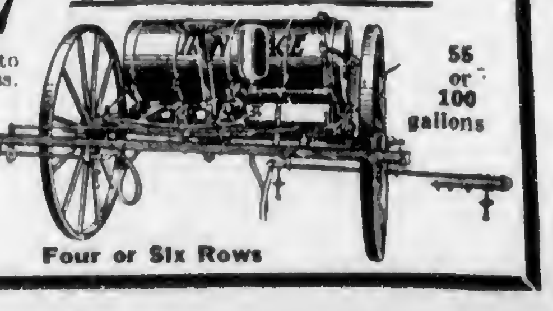
DUPLICATE GEARS RUNNING IN OIL
Oil Annually
EVERY BEARING FLOODED WITH OIL
This helmet keeps out rain keeps out dust keeps in oil

Don't waste your time climbing to oil an old mill. Replace it, on your old tower, with an Auto-Oiled Aermotor which will last you a lifetime and furnish you an abundance of water.
IT NEEDS ATTENTION ONLY ONCE A YEAR.
Write for Folder-Hanger. It tells all about Auto-Oiled Aermotors and Easy-To-Build-Up Towers.
AERMOTOR CO., 1122 S. Campbell Ave., CHICAGO

Be Prepared For Him
Or, Mr. Bug will counteract the effect of all your time and money spent on high-grade fertilizer, high-priced seed, careful preparation of soil, planting and cultivating. Meet him more than half-way with an up-to-date Sprayer and protect against blight in the same operation—it's as likely to get your potatoes as lightning is to strike your barn and it is more sure in its destruction. Don't you believe in insurance?

IRON AGE SPRAYERS

Include many sizes and styles of equipment from which to choose the one that will best insure your crop against loss. Good for tomatoes, cabbage, pickles, cantaloupe and other row crops. Ask for our "Spray" book. Also, a guide telling "When, How and What to Spray With." Don't wait until Mr. Bug arrives or you may have to adopt poor, slow and costly methods.



55 or 100 gallons
Four or Six Rows

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Member Standard Farm Paper Association and Audit Bureau of Circulations

Philadelphia, Pa., June 10, 1916.

NEW PAPER STOCKS

It has required fifty years to bring about any radical change in the manufacture of ground-wood, paper pulp, and now improvement is only suggested. Spurred on by the scarcity of paper stock and the threatened famine in that commodity, the government has just demonstrated that at least eleven new kinds of wood give promise of being suitable for the production of news print paper. Spruce has been the one variety contributing to the paper supply since 1867 when the process of grinding pulp was first introduced. In spite of our boasted progress, necessity is slow in mothering invention in some lines.

MINGLING OF TOWN AND FARM FOLKS

One of the encouraging signs of the times is the noticeable improvement in cordiality between town and farm folks. It was always a mystery why there ever should have been any class feeling between the two since their interests are indentical and there never was any intellectual or social superiority created by the borough or town lines. Farm folks are probably as much to blame for this attitude as were the town residents because they mentally granted, while resenting, the distinction. The writer remembers, when a boy, of being called a "country Jake" by a little, dirty ragamuffin in a one-horse town, and he remembers also how he would have denied it if he could because, for some reason or other, he felt inferior to the town boy because of a then granted superiority of town over farm life. The writer also remembers how the farm women were shy of the town women, and there was probably good reason for this, especially if difference in dress be sufficient grounds for envy or shame; or, if it be granted that the difference between a market wagon and hired carriage as a means of conveyance establishes cast. But whatever material, financial, or social distinctions may have existed, either real or imaginary, in the past, they are disappearing and there is no longer any excuse for feelings of envy or superiority. That they should mingle and co-operate is a social and economic necessity, but let it be done with full and free good will. There must be no evidence of patronizing on one side, or ill-founded suspicion on the other. Picnics in the country, and town fete days should be welcomed and attended by both so that the common acquaintance may ripen into mutual esteem and respect. Under the changed conditions of civilization each is necessary to the other, and the one can prosper best only as it recognizes the importance and equality of the other.

AN 8-HOUR DAY ON THE FARM

The following is quoted from a recent issue of the Outlook, a weekly magazine having a large circulation among farmers as well as city people: "The American farmer, a correspondent writes, apropos of the hired man problem, too often seems to believe that the eight-hour day means eight hours in the forenoon and eight in the afternoon. But, he asserts, there is no need for the hired man to accept this definition; at present he can demand employment on his own terms. If he puts up with poor accommodations and long hours, it is his own fault. Let him demand a real eight-hour day and he will get it; the farmer needs labor so badly that he will give his hired man anything in reason." In the absence of editorial comment we may assume that it voices the sentiment of the editors, and we hope the readers of that journal will let its editor know their sentiments in no uncertain sound. The universal demand for an eight-hour day for workers in other industries has been steadily gaining recognition, and with this we have no quarrel, because the additional cost has in every instance been added to the price to consumers. But the intelligent, unprejudiced mind will readily see that a similar recourse is not at present possible in the production and sale of farm products. We are sorry for the necessity of long hours on the farm, not for the ten hours which the average farm hand puts in, but for the farmer and his family—the sturdy class of men and women who, because of necessity, have given more than the daylight hours of their lives to the work of developing the country and feeding the people and for this service have received a less money return than any other class of workers. This was not because they are less intelligent and efficient than others, but because of conditions over which they had no control. We cannot restrain a feeling of heat under the collar when we hear recommendations of a hold-up game at a time when more help is the crying need on the majority of farms. It is but a few months since we saw long lines of men and women daily receiving the bread of charity, and men tramped the roads asking for work on farms.

PATRIOTISM AND POLITICS

The stage is all set for the presidential campaign. Within two weeks both leading parties will have their standard-bearers, and the race will be on. Already the party platforms are so nearly perfected that the reading public has a rather clear idea of the issues at stake. We are not politicians and so perhaps do not fully appreciate the political value of muddying the stream and befogging the issues. But not having the political instinct, we do feel that both parties are falling far short of grasping the primary issues of the critical period before this country. We admit that the question of military preparedness is vital at a time when half of the world is at war. We admit that our position among the powers of the world is dependent to a greater or less extent upon our ability to assert our rights and our ideals. But we believe that preparedness is but an incident to the bigger issues of adjustment of industrial conditions at home and abroad when the war is over, of the policy of this country when one or the other forces now contesting shall have exhausted its resources and is ready to sue for peace, of the extension of new trade relations, of the development of greater independence of industry emphasized by the disturbed conditions of the past two years, of reasonable protection of interests, new and old, when international trade is resumed, and, finally, of preparation for assuming a place in the readjustment of international relations consistent with time-honored American ideals. We have every reason to believe that the European war will close at some time during the next four years and these questions will be presented for solution when the war is over. The party that wins in the next election will face the gravest problems in business and industrial reconstruction since our own Civil War. At present those issues are overshadowed by the great wave of preparedness, but they will remain when the preparedness frenzy is forgotten. Both leading parties are simply playing politics when they adopt the popular issue as the keynote of the campaign and ignore the larger issues. The sober, serious minded citizen will ask for something more substantial upon which to base his vote.

THE FARM STUDENTS

During this month several thousand young men will be graduated from the agricultural schools and colleges of this country. Each man will be confronted with the problem of shaping his future. Theoretically these men should go back to the farms and give to agriculture the results of their scientific training, both as producers and as trained missionaries in their various communities. As a matter of fact, but a small proportion of them can go at once to the farms. The great majority are without the means or the opportunity to engage in active farming, and must seek salaried positions with the hope of earning money enough to buy a farm. We have heard hard-headed, practical farmers criticise these men for seeking "white-collar" jobs. The colleges are even criticised for not returning more men directly to the farms. There is a fault in our economic conditions, but this fault is neither in the student nor the college that graduates him. As we have known these men, there is almost a universal desire to get out onto a farm and put into immediate practice the results of their training. They are restrained by financial circumstances over which they have no control; and the salaried position is the shortest means to the desired end. But comparatively few of those who take such positions, and make good in them, ever reach the farm. If they make good, it is not long before they have attained positions where a change to the farm would mean a financial sacrifice which they cannot afford to make. We know scores of such students who have taken positions for a few years, expecting to go back to the farm as soon as they had accumulated the necessary capital. When that capital was in hand they found that their services were worth more in the positions they occupied than they could hope to make them worth on a farm under the best of management. Fixed habits of living and consideration of the financial return make a change difficult at that time and yet most of these men still nursed the ambition to "some day" get back to the farm. It may be logical to conclude that farming is not paying a proportionate return upon training or energy. It is more logical to the man who has passed thru this experience that the best returns of the farm are not in the form of money but in the fuller life, the bigger and broader home and the opportunity for a broader citizenship.

DISHONEST GRAIN GRADING

Our readers will no doubt recall the difficulties this country had some time ago with certain foreign countries concerning the quality of exported meats. Some will remember the scandals growing out of the investigations into the quality of meat furnished to the government during the Spanish-American war. Now comes serious complaint from foreign countries concerning the grading and certification of grain exported from the United States during the past year. For many years our government has been receiving serious complaints of this nature, but owing to the larger foreign demand and the great amount of musty wheat last year due to wet harvest weather, the complaints are more insistent. We give below excerpts from such complaints. One from Italy, dated March 8, 1916 reads:

"The Italian embassy begs to inform the State Department that in the last few months there have arrived in Italy from the United States quite a number of shipments of wheat which were found to be in very poor condition, largely unfit for consumption, notwithstanding the fact that they were accompanied by regular inspection certificates issued by competent State authorities. . . . These occurrences have created a most unfavorable impression in Italian commercial circles, where it is felt that some American exporters of wheat have not been dealing with that degree of correctness customary in commercial transactions.'"

From another under date of September 1915 we have:

"My directors are of the opinion that a serious mistake has been made; that the wheat has been given a wrong description, the same being entirely soft; furthermore, the condition being warm, stiff, and mildewed shows that it was not merchantable before shipment, even under the most superficial examination. The grading certificates are consequently useless, and I am instructed to ask if your department could bring its influence to bear with a view of protecting buyers on this side, as if such shipments are allowed to be made buyers may be ultimately compelled to decline to accept . . . . inspection."

That these complaints have been well founded has been verified by representatives of the Department of Agriculture. Much of the export grain has been below the quality required for a similar grade at home. One large exporter testified before the House Committee that corn was bought as No. 3 in the West and graded out as No. 2, and that occasionally No. 3 and No. 4 would be mixed and graded out as No. 2. European buyers will not bid as high for grain when they have learned they can not rely upon the honesty of the grading. It is readily seen that this lack of confidence is of highest importance to grain producers. It is bad enough to cheat farmers on this side of the ocean by undergrading at the elevators, but it is a double crime to jeopardize the foreign market by overgrading that shipped abroad. All this goes to prove the necessity for a federal grain grading law, one that would standardize grades and take the work out of the hands of grain speculators, both in buying and selling.

HARRISBURG NOTES

Fertilizer Suits.—Over 50 arrests have been ordered by the Department of Agriculture for the sale of fertilizers which either did not measure up to the requirements of the state law in regard to guaranteed analyses or else were not properly registered. Numerous arrests for the sale of feeding stuffs which are under the state requirements in regard to food value have also been made.

Over 2,000,000 at Fairs.—The statistics of the Department of Agriculture show that over 2,000,000 persons attended the fairs and exhibitions reporting to the department last year. There were 85 fairs with 2,004,326 attendance in 1915, a gain of 173,000. York fair led with 210,000; Allentown being next with 200,000; Grangers' Picnic, Williams Grove, 150,000; Bloomsburg fair, 75,000; Reading fair, 65,000; Lancaster fair, 60,000; Lebanon fair, 60,000; Hanover, 60,000. The premiums paid, exclusive of speed premiums, aggregated $140,824.39 and the offerings for 1916 amount to $179,671.42. State aid amounting to $57,355.18 was paid to 54 fairs. Lehigh led with most premiums, the total being $25,485.90.

Better Bridges.—Men connected with stream service say that in the last few years there has been a tendency on the part of counties and townships to build better bridges of a substantial type. The state now passes on every bridge and in some instances the plans were not approved because not of a character to insure permanence.

The Township Code.—The codification of the laws of Pennsylvania relating to townships, which has been under preparation for several months, has appeared with something like 670 countions, each containing an act of assembly which may be said to be "alive". The township code is an assemblage of laws which has puzzled people for years and is planned on the same lines as the borough code and the school code. Laws scattered thru law books since 1732 have been brought together and placed under appropriate headings. The work showed the number of times the legislature duplicates its work and when some difficulties due to decisions of the higher courts are straightened out the code will be ready for the legislature to pass upon. If there is one subject which has given trouble in this state it is township law and state authorities have performed a notable service in straightening out the tangle. It is a common saying that one has to take a law book along when going fishing or hunting, but when one wanted to read up on township law it meant spending a week in a law library.

Thousands Killed.—While no figures are obtainable upon the number of roosters meeting the axe during "Rooster Week" it is believed from what has been learned about the Capitol that from 50,000 to 100,000 were killed. Many of these cockerels were killed on farms and sent to market, the farmers realizing the importance of non-fertile eggs in summer time. It is probable that this week, like Good Roads day, will become a permanent feature in the calendar of the state. In one county reports were that every farmer in two districts had chicken during "Rooster Week."

Cut Down the Webs.—Attention is being called to the danger of allowing webs of caterpillars and other moths to remain on trees. In many sections of the state inspectors have reported destroying webs found in patches of woodland and along roads. It may be too late to accomplish much good, but the state authorities urge that destruction of webs should be as much the duty of every man as the cutting down of Canadian thistle before it gets into flower.

The Milk Situation.—Men officially connected with the supervision of the milk supply in the state and in the cities are commencing to put their heads together in an effort to check the watering of milk and other forms of law violation which have been observed this year. Literally scores of arrests have been ordered because of disregard of provisions of the law which are well known to everyone and while no cases of use of formaldehyde and other preservatives have been reported, the number of violations has caused some careful thinking.

Arrests for Brush Fires.—The rigid manner in which the State Forestry authorities have commenced to enforce the law against fires in the woods due to carelessness has resulted in surprises for a good many people. Under the law persons who may be the cause of woods fires thru neglect are just as liable as those who intentionally start a fire. It happens that among some recent prosecutions were those of persons who had started fires to burn brush, but did not put them out and were to blame for fire attacking tracts of woods. Brush burning on windy days got several persons in trouble in the central counties. In other instances railroads and lumber companies have been fined and made to pay damages and costs because of sparks causing fires.

Cutting Down Junk.—Steps are under way to cut off the state printing list something like 100,000 state publications, reports and other printing which practical experience has shown has little call. It is estimated that $50,000 a year can be saved in this way. Perhaps some of the money saved could be used to print the agricultural bulletins, whose supply is generally exhausted when there is a call for them.

Labor Scarcity.—The situation in regard to farm labor must be the worst in years on the farms of Pennsylvania if the reports coming here are anything to go by. Farmers are confronted with a very late season and no hands, the industrial situation having taken almost everyone to the manufacturing plants or to the railroads. Some of the reports note increased requests for information on labor-saving machinery.

Big Jump in Corn Acreage.—Not only will there be a considerably larger area devoted to potatoes and oats this year, but all reports coming here are that the acreage devoted to corn this year will come near breaking a record. —Hamilton, Harrisburg, June 5.

NEW JERSEY FARM NOTES

To Inspect Farms.—Former Senator Joseph S. Frelinghuysen, president of the State Board of Agriculture, has accepted an invitation to accompany members of the Mercer County Farm Bureau on the first automobile tour inspection of the season, which is scheduled for June 21. Much interest is being taken in this series of trips. Men interested in agriculture from all over the state, as well as residents of Mercer County, will be present.

Favor Road Bill.—At a meeting of motorists at the clubhouse of the New Jersey Automobile and Motor Club, held during the past week at Newark, the members decided to lend financial and moral support to the Egan Road Bill, which provides for a $7,000,000 bond issue for the construction of new roads thruout the state. A general impression had prevailed that the bill failed to clearly specify either the method for or source of the maintenance of the new roads, should they be voted at the November referendum election. One of the leaders of the club, however, held that the certain annual increase in motor vehicle registration automatically solved the maintenance problem. Figures from Commissioners William L. Dill and Edwin A. Stevens, of the motor vehicle and roads departments, were produced to show that the revenue would materially increase annually. Sufficient funds would accrue three years hence, it was said, to provide a maintenance fund of last year's size. Maintenance would be directed thru the same channel as now—the state roads department. Augustus V. Hamburg, president of the Associated Automobile Clubs, urged a thoro publicity campaign in behalf of the measure. He suggested a representative to the annual meeting of the State Chamber of Commerce at Beach Haven, June 15, 16, and 17. The last day has been set aside as "Good Roads Day."

Stop Shad Fishing.—With the shad season virtually at an end, many fishing crews from the villages along the lower Delaware River and bay are offering their boats and nets for sale and have renewed their threats made in previous seasons that they were done with shad fishing, unless some miracle should bring a big run of these rapidly disappearing fish in the Delaware next spring. Prices were never higher nor remained high so long as they did this year, and not all of the shad fishermen were losers by any means. It was counted a poor season, however, by some few of the captains of large fishing crews, who had a lot of money tied up in boats and equipment, and who have to figure on many and large catches to make a margin of profit.

"Spoilsmen Govern Roads".—That state officials, including the Governor, have been parties to a plan to keep the road system of New Jersey within the grasp of the spoilsmen is the charge made by Senator George W. F. Gaunt, of Gloucester County. The senator outlines four divisions into which the problems may be divided; namely, social, engineering, business or financial, and the political. Speaking of the latter phase his statement was: "From the Governor down, apparently only one thought has actuated their conduct. That has been to keep the various road departments where the spoilsmen can easily reach them, and I have no hesitancy in saying that no one so well understands this fact as those officials who have had to do with the administration of the road affairs of the state." —L.

NEW YORK LETTER

Dairymen's League Meets.—A concerted campaign by dairymen supplying New York City with milk to increase the price was begun at a meeting of the directors of the Dairymen's League in Albany this week. This League, it will be remembered, is composed of dairymen in New York, New Jersey and Pennsylvania. The situation from the League standpoint is hardly sufficient to cover the cost of production. What steps the League will take to accomplish the purpose sought will be left entirely to the executive committee. It will go into the problem thoroly and outline a plan of action. It is said that the League has now 13,000 members. An effort will also be made to increase the scope of the league and increase its membership.

A Good Stock County.—Figures compiled by the Farm Bureau of Jefferson County indicate the live stock business. very much in the live stock business. During the past year over 450 carloads of cattle, 137 of calves and 10 of swine have been shipped out of the county, or a total of over 600 carloads.

Money for Town Roads.—A new law enacted by the last legislature apportions the amount of fees paid by automobile owners and chauffeurs to the state, the state retaining one half and the counties have the other half. The average amount to each county will be about $9,000, with 16 counties running above the average. In only two counties will the amount fall below $3,000 and in 37 it will run above $5,000. On or before the tenth of each month the secretary of state is required to pay to the county treasurer of each county 50 percent of the registration fees collected from the residents of that county during the preceding month. The board of supervisors of each town will allot the money thus received to one or more towns and the town board and town superintendent of highways, subject to the approval of the state commission of highways, will designate the places and the manner in which the money shall be expended.

Special Cattle Prizes at State Fair.—For the best county exhibits of cattle made by Farm Bureaus or other county organizations the state fair commission have offered prizes amounting to $1,000. The first prize is $400 and they are graded down by $100 to the fourth which is $100. At least 25 head of stock must be included in the exhibit. Several fine prizes, both cash and cups, are to be awarded by the cattle associations, and also the sheep and swine associations. Likewise the commission offers $775 for county and town collections of fruit. The first prize is $250. Subordinate granges are included in this class. The four grange or town prizes aggregate $375.

Fruit Prospects.—A three-day tour of Monroe County by Cornell professors and members of the Farm Bureau was made recently. They report that the peach crop will suffer from leaf curl because the heavy spring rains prevented the growers from getting into their orchards to spray. The pear crop is likely to be light but apples are setting well. Cherries and plums were damaged by the early rains and the crop will be only an average one. Dr. Reddick, of Cornell, is pleased with experiments made in spraying for peach leaf curl last fall. Seven orchards were chosen for the experiments and in these some of the trees were sprayed and some were not. The spraying was done in November. It turns out that those trees that were sprayed show no indications of the leaf curl while the others are badly affected. Dr. Reddick also says that growers should spray at once for apple scab because after about this time the fungus will have developed so that spraying will be unsuccessful.

State Grange Meeting.—Oneonta, N. Y., will have the honor of entertaining the state grange session in February, 1917. The executive committee of the state last week selected that city as place of meeting.—D.

COUNTY NOTES

Adams Co., O., (S.) June 3.—An abundance of moisture. Reasonably warm. Pasture is plentiful and all stock doing well. A large percentage of the tobacco is set out. Corn all planted and is coming up fairly well. Squirrels are very numerous. The wheat is fully headed. The wheat crop will be much below the average. The oats fields are more full of weeds than usual. White Top is very plentiful in the meadows. No work done on public roads yet this year.—W. E. Roberts.

McKean Co., Pa., (N.) June 1.—Weather very wet; some heavy rains; ground too wet to work most of the time so that many pieces of oats have not been sown. Pastures and meadows are booming. Cows are doing fine. Farm bureau has been organized and cow-testing association is being formed. No corn planted yet and it continues to rain, but we are hoping for better weather soon. Hard frost June 1.—R. C. Fuller.

Chester Co., Pa., (S.E.) May 30.—Weather alternately sultry and cool; showery and sunshiny. Cows high; draft horses very high. Hay, $20; eggs, 20c; potatoes, $1.25; milk, $1.60 per cwt. for April; oats, 68c. Farmers are still planting corn. Oats up and look well. Corn is sprouting. Potatoes are pestered already with potato bug.—Hayes C. Taylor.

Lebanon Co., Pa., (S.E.) May 13.—Weather has been windy and cool. Cows higher. Beef high. Eggs, 20c; live chickens, 16c; wheat is selling at $1.15; corn, 80c; potatoes, $1 bu. Some hay is being sold at $20 per ton. Oats are all planted. Farmers are busy planting corn and potatoes. Wheat, grass and rye are looking and doing well.—Leonard F. Strickler.

MARYLAND COLLEGE GRADUATES LARGEST CLASS

The Maryland State College of Agriculture graduates a class of 45 this year, this being the largest class in the history of the institution. This is the first class to be graduated from the recently reorganized Maryland Agricultural College which has been in existence since 1856.

MARYLAND POTASH PLANT

The Baltimore Sun publishes news of early opening of a potash plant in Maryland. According to this report a plant is nearly completed to extract potash from cement dust which is shown to contain a liberal percentage of this element of plant food.

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IN THE MILK MARKET

Timely Notes Among Producers

The actual cost of keeping a milk cow for a year will propably never be known until the dairy authorities come to have a clearer conception of what "keeping" really means; until they have a standard of comparisons, including rations and an agreement on the prices of feeding stuffs. If we take published figures as to the cost of cow keep, fully half of the cow owners are well over the line into bankruptcy, altho they may be riding in autos and their wives operating washing machines and vacuum cleaners.

Here is a case in point. Up in Northwestern New York state, a cow census showed that the dairymen there place the cost of keeping a cow at about $48 per year. In New Hampshire, an agricultural college professor puts the keep of a cow at $147, and often far above. An examination of the market quotations does not show any great difference in the price of hay and grain in these two sections, nor is there much difference in the prices of dairy products. It cannot be that the New Hampshire cow eats three times as much food as the New York cow. There is a lot of leaway between $48 and $147, and a man needs a "stableizer" to tell him whether he is going to the bank or the poor house. The cow herself is no better informed as to her value, for the quality that one man puts a high estimate upon, another man scouts, and does not believe in, thus making the whole matter of dairy economics a group of question marks.

DAIRY BUILDINGS ON G. H. KNOX FARMS, TIOGA COUNTY, PA.

Setting a Milk Price

The annual scrap between the dairymen and city milk concerns is over, and with so little in favor of the dairymen that one is tempted to soliloquize, "What shall it profit a dairyman, if he works 52 weeks in the year and loseth the balance of what he already had?" It was something for the dairymen of the Chicago and Cleveland districts to have enough of their members stay by each other to make a "dent" in the dish of the milk trust. Less than a fourth of them stood by their resolutions but it gives warning that if half of them will stand together they will control—not unjustly—the milk prices. Of course there will be threats of indictment of farmers for "making prices", as if the farmers had not as good a right to say what they will or will not take as have the milk buyers to say that they will "give so much and no more". What is "restraint of trade", and for whom was the restraining law passed?

I believe they call it "unfair competition." With the prices of feed and labor practically uniform between the Mississippi River and New York, it would seem that the prices of milk should be pretty nearly uniform at all points, especially as butter fat is 8 cents higher than a year ago. The strange thing is that while the Chicago dairymen were battling for 22 cents per gallon for milk, the Cleveland producers were asking for 15 cents in place of the 13½ they were offered. They got a fraction over 14 cents for 8½ lbs., as a compromise. All of this goes to show that the dairymen have got to get together and pool their interests. They must stay firmly by each other, have selling agents and stay with them, have their own clearing house and do business in a modern business-like way.

I am not saying what may result, but my observation is that dairies are being abandoned by the score because of the little or no profit in making city milk. In many of the great districts, market milk appears to be the only outlet, for wisely or unwisely, the dairymen have given over the older cheese factories and creameries, and few are now in existence, and in the hands of the farmers, constitutes the only real menace the farmers can put up to defend their interests in maintaining equitable prices. Who has a logical and feasible solution of this question of milk prices?

Encouraging Production

I notice that in some of the western states the business men are interesting themselves in giving substantial encouragement to those who wish to enter or are already dairying. The purpose is to insure more dairymen, better cows, better conditions and "assistance" in securing better markets. Bankers and financiers are to advance money to buy cows and get started. One particular restriction is made: They must buy dairy cows, and not "unknowns" with the money. In some sections experts (?) buy for these promoters carloads of dairy cows and farm them out among the dairymen, and then an inspector goes about and takes note of the care and environments, and boosts with much good advice.

Now what about the market end of this plan? Will these same interested bankers see that the city papers, city officials and milk concerns stop their knocking the farmers about the "awful health conditions" of their herds and unsanitary methods practiced? Will they insist that these papers give a fair discussion of the price of milk and dairy products? If the farmers dare intimate that they must have a profitable return for their products, will the swift hand of the law throttle them, and the city chamber of commerce join in the prosecution? Will this chamber of commerce actually investigate and see if the farmer is producing milk with sufficient margin to compensate him and make public the findings?

The farmer may be helped financially (with security) but unless he can be assisted to get a fair deal in the disposal of his dairy products, it matters little how well he may be helped at the beginning. Land credits help only those who can put up the security, and such need little help. The same applies to this "first aid in dairying" idea. The aid the farmer dairyman needs most is help at the market end of his business. This cared for, the financial need will take care of itself. Will these banker-business men help at this end of the prosperity campaign? — Chas. Mathew Morgan.

A SUCCESSFUL CO-OPERATIVE CREAMERY

Kent County, Delaware, is usually thought of as a fruit growing section. And so it is. But in the last three or four years a new line of farming is being taken up, either to supplement fruit growing or to go hand in hand with it. This is dairy farming. Where within a few years even the family cow was not always to be found on the farms, now herds of a dozen cows are not uncommon. Especially is this true in the section around Milford.

The reason for this is due to the fact that a market for their product in the form of butterfat has been made thru the organization of a co-operative creamery, three years ago. From a small beginning when organized this creamery has grown into what is probably the most successful co-operative creamery in Delaware. The following is a short account of its history and progress:

The first, and to my mind, the only unfortunate feature in connection with this creamery, and one which all the stockholders now realize, was in its organization. Instead of a group of the leading farmers themselves getting together and doing the organizing, they allowed a creamery-promoting company from Chicago to come into the community, do the promoting, build the creamery, equip it and start it in operation. The result was that it was capitalized for much more than its building and equipment were worth. Other communities contemplating starting a co-operative creamery should take warning from the lesson learned by the men around Milford and profit thereby.

MILFORD CO-OPERATIVE CREAMERY, KENT COUNTY, DEL.

However, in spite of this fact, the creamery has been a success from the beginning. It started operations July 24, 1913, capitalized at $5,700. Dividends were paid right from the start. For the first eighteen months, 6 percent was paid. During 1915, 10 percent was paid the stockholders and it is quite likely that this will be repeated in 1916. In addition to this, several hundred dollars have been deposited in the bank from the profits for a sinking fund.

At the beginning there were only six patrons. When I visited the creamery in February of this year there were 86. This has been about the number that have patronized it during the past year. To show how the dairymen are awakening to dairying and increasing and improving their stock note the amount of cream received. During February 1915, 600 pounds of butterfat were received a week. For the same time 1916, the weekly receipts were 1,050 pounds. The price paid for butterfat has ranged from 25 to 31½ cents a pound for butterfat. The overrun averages 22 percent. All the patrons deliver cream, retaining the skim-milk at home to feed to calves, hogs and chickens. Buttermilk for pigs is sold for three cents a gallon. That used for cooking is sold for 10 cents a gallon.

Included in the equipment of the creamery is a cream ripener, or wizard agitator, which the buttermaker uses as a pasteurizer. This is the only co-operative creamery in the state in which the cream is pasteurized before churning. It is also the only creamery in which artificial starter is used to ripen the cream. Both the pasteurizer and ripener insure a better grade of butter.

A good share of the success of the creamery can be attributed to the buttermaker, R. M. Beadle, who gained his experience as a buttermaker in Michigan creameries before coming to Delaware. He was responsible for the introduction of the pasteurizing and the artificial ripener. Everything around the creamery is kept almost spotlessly clean. On the outside of the building are posted signs giving hints as to how to produce a good product, and in the spring and early summer, when garlic infests the pastures, a sign which attracted my attention read: "If your pasture is infested with garlic, turn your cows into it in the morning or evening after milking, then give them other roughage to kill the garlic taint." This one sign alone has done much to improve the quality of the cream delivered. Nothing has yet been done toward grading the cream but at one of the recent meetings of the directors this question was brought up, and from the sentiment expressed it is likely that a system of grading will soon be adopted.

The patrons have done much in these few years to improve their dairies and to lessen the cost of production. Many of them have silos, many are starting alfalfa and a few are using pure-bred sires and are having their herds tested for production in order to weed out the poor cows and raise better ones. Balanced rations are also being adopted. Among the new barns being built or remodeled, concrete floors and stanchions are found.—Hugh Fergus.

SILAGE SATISFACTOIN

The cut on preceding page shows our dairy buildings and part of our herd. The metal silo shown was purchased three years ago and has given good satisfaction in every way. Our third lot of ensilage is quite well out now, and there has never been any spoiled yet. The silo is air tight and if the corn is properly put in we know it will come out in fine condition. When we are ready to fill we do not have to tighten hoops or calk the cracks. The silo is always tight, and stands straight where it was built. It does not need props to keep it from sagging over. We paint this silo once a year. Two gallons of paint will cover it in good shape and it is easily put on.—G. H. Knox, Tioga Co., Pa.

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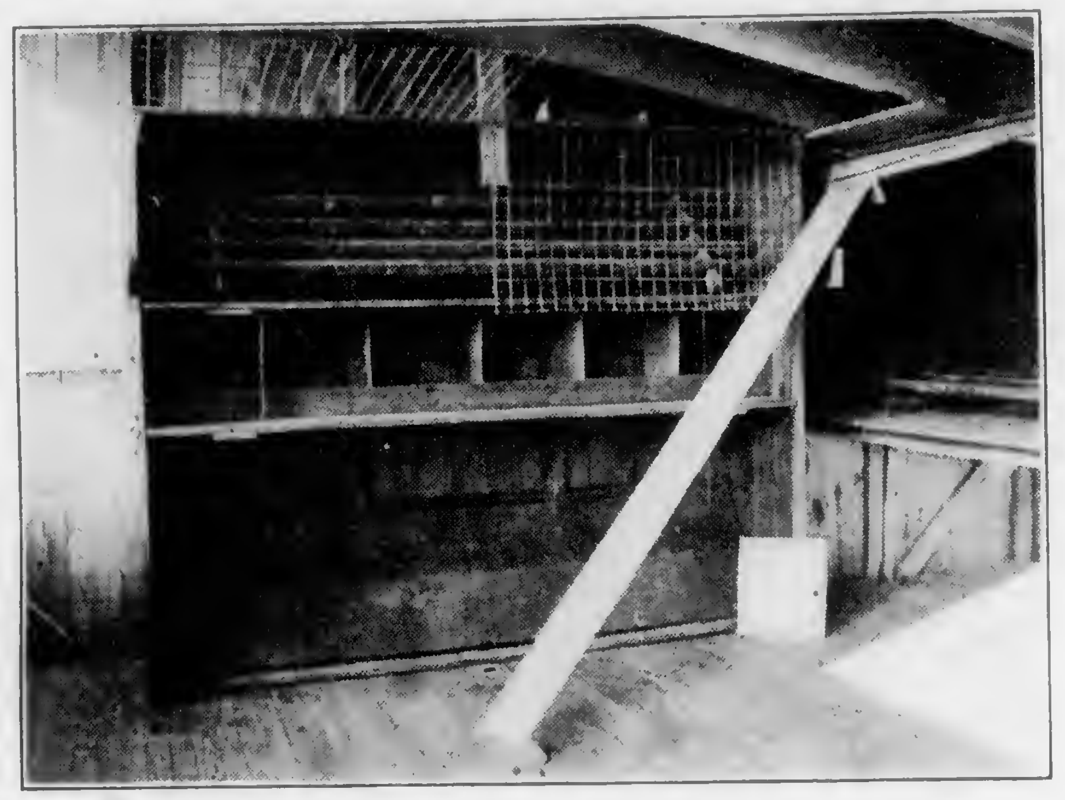
Poultry

THE BROODY HEN PROBLEM

Broodiness in hens is, I believe, one of the most persistent and enduring instincts of fowls, as no matter how the hens are housed and cared for, broodiness will make its appearance in due season.

We sometimes hear it claimed that in flocks artificially incubated and brooded for generations the brooding instinct gradually grows less with each succeeding generation, but there is abundant proof to the contrary. I have personally cared for large flocks for a number of years whose ancestors have for ten years and perhaps longer been hatched and reared artificially, and in these flocks broodiness makes its appearance each year with about the same persistence.



COOPS FOR BROODY HENS. SLAT RACK RAISED FOR VIEW.

Broodiness will make its appearance in the flock a few weeks earlier than usual when the spring season opens early and it is also a fact that hens in confinement, as large poultry farms have them, become broody about a month in advance of those on range, as farm flocks, at least we have always found this to be the case in comparing our flocks with those of the farmers. Perhaps the explanation of this is that the poultry farm flock has been laying heavily thruout the winter and is ready to rest, while the farm flock is just beginning to lay and thus not likely to brood until that clutch of eggs is laid.

In seeking to break up broodiness it must be remembered that this instinct is not only a sign that the hen desires to hatch and rear chicks, as nature intended, but it is also a sign that the hen is thru laying for a time and resting while the next clutch of eggs is developed. Therefore, where the broody hen is not desired it should be the endeavor to discourage setting as soon as possible and while doing so to feed the broody ones a ration rich in protein so as to develop the new clutch of eggs as soon as possible. Fat producing foods should be fed sparingly to broody hens, as they are usually very fat.

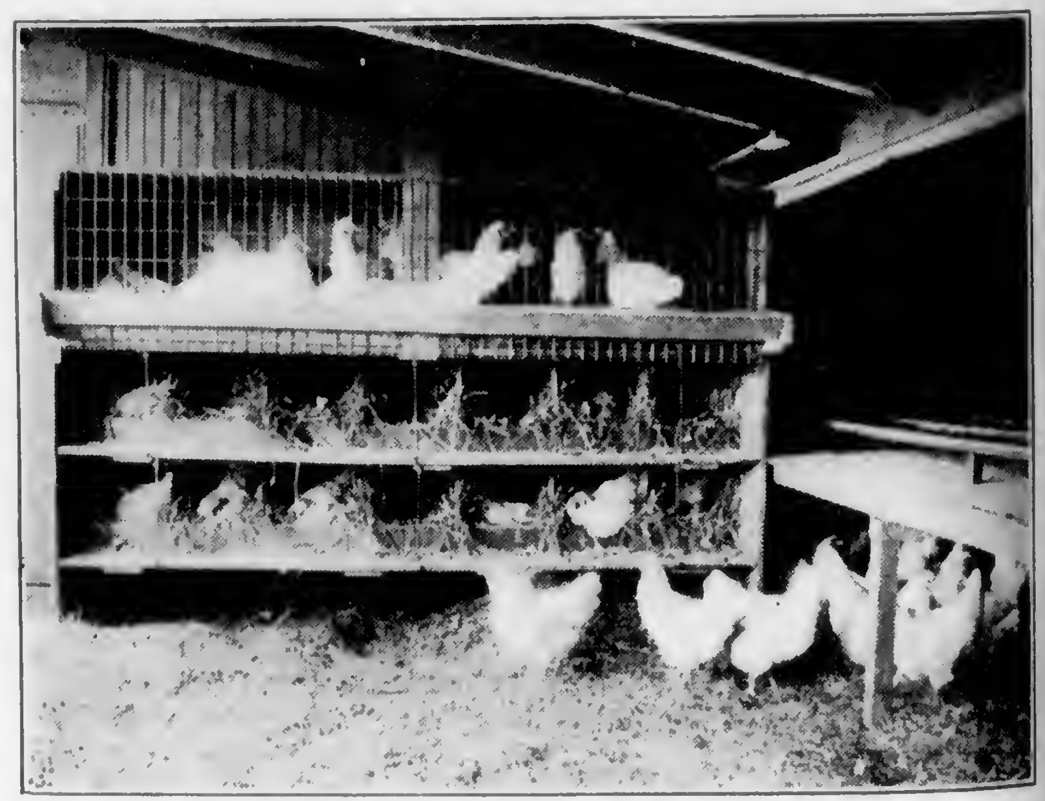
Where only a few hens are kept the breaking up of broodiness is a very small matter, but where large flocks are kept it becomes quite a problem. If left alone they will persist in setting thruout the greater part of the summer, and their numbers will increase until in some breeds of fowls practically the entire flock will be in a broody condition. Broody hens left alone will fill up the nests and keep the layers out, spoil the eggs by setting on them, cause fights with consequent broken eggs and foul nests, and generally disturb the peace of the flock.

As to methods of breaking it might be said that there is no quick and sure method of so called breaking them. Dipping in tubs of cold water, placing broody hens in a pen with a flock of males and other methods too numerous to mention will accomplish nothing except perhaps make the hens wild and flighty. Changing from one flock to a strange one will not accomplish the desire results.

The only effective method we have found of dealing with broodiness in large flocks is to have a large broody coop in each pen as shown in the accompanying photograph. With this arrangement it is possible to keep the broody hens off of the nests where they make trouble and to keep the number down to a minimum.

This nest and broody coop device is exceedingly convenient and has proven to be very practical in actual use. The cabinet is 86 inches long, 24 inches wide and 67 inches high. This allows for two tiers of six nests each 14 inches high and a broody coop 22 inches high. The floor of the first nest is 14 inches above the floor.

As can be seen by the photograph the floors of both the nests and broody coops are hinged at the back and held up in front by long hooks fastened on the edge of the floors of the tiers. With this arrangement one floor is hooked up to the roof of the coop. These floors are 24 inches wide and the nests are 14 inches square, thus leaving a 10-inch wide platform along the front of the nests.



SHOWING BROODY HEN COOPS IN USE.

The nest partitions are of sheet iron slid between screw eyes. The front board of the nests is 4 inches high and is hooked in against the sheet iron partitions by two small hooks placed one at each end with a small screw eye in the floor of the end nests to hook into. In cleaning, all that is necessary is to unhook the front board, remove the sheet iron slides, drop the floor and there is nothing but a plain board to be cleaned.

The broody coop has a removable rack that is laid on the floor of the coop to keep the hens from setting. The slats are made of three inch wide tongued and grooved floor boards set three inches apart with the tongue up. The slats are held by three, 3-inch cross pieces placed one at each end and one in the center. Both the slats and the cross pieces are notched in ½ inch so they will hold their position. This makes the top of the slats about 5 inches above the floor of the broody coop.

The front of the coop is made of heavy 2x4 inch oblong weave wire. It is hinged to swing upward and outward by simply driving staples in loosely along the top edge of the broody coop.

Two wooden arms extend out ten inches on each side of the coop. These arms are notched in six inches so as to hold a six-inch feed trough. This trough when placed in the notches binds the wire front shut. The hens can readily reach thru the wire front for their feed which is placed in the trough. A galvanized water pan shaped so it can be set in the trough is used to furnish water.

A small sliding door (10 inches by 22 inches) is placed in one end of the coop to be used in placing hens in the coop, as to open the front would allow those inside to escape.

The usual method followed is to pen up all broody hens as found each night when closing the house. They are confined for one week and then let go. The coop is then cleaned and any broody hens found in the nests that night are placed in the coop again. Feed is given the same as to the layers in the pen. Chaff is used under the slats to absorb the droppings.

The arrangement may, of course, be built in any size, but the size shown is about right for a flock of 100 hens. The broody coop will accommodate 20 hens without crowding. It may be built portable instead of against the wall in which case the only change necessary would be to nail three six-inch boards across the back where the three floors are placed so as to have a place to hinge the floors to and to brace the cabinet somewhat.—J. Raymond Kessler, Chester Co., Pa.

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Renter Wanted Up-to-date Farmer to rent improved farm on Eastern Shore of Maryland. Reference required. Write "FARMER" 619 Penna. Bldg., 15th & Chestnut Sts., Phila., Pa.

Live Stock

LIVESTOCK MARKETING

Report of Proceedings of Chicago Conference Now Available

A report of the proceedings of the conference upon the marketing of live stock, which was held last fall in Chicago, has been published as a congressional document, known as House of Representatives Document No. 855. This conference, which lasted two days, represents the first important effort to bring together in consultation all of the many interests concerned in the marketing of live stock and distribution of meats. A large number of the most prominent producers and feeders of cattle and sheep, railroad men, and stockyard men were present, and retailers and packers were also represented at the meeting, which was called by direction of the Secretary and presided over by the Chief of the Office of Markets and Rural Organization of the department.

The conference was designed to bring about a frank discussion from every point of view of a large number of important problems connected with the country's meat supply. In particular, considerable attention was devoted to possible means of remedying the existing practice under which the active live-stock market is usually confined in the great centers to two days a week. This, it is said, results in serious overcrowding on those days and in comparative idleness for the rest of the week. All of the interests participating in the conference expressed willingness to cooperate in any practical way which might be devised to secure a more even distribution of the supply thruout the week.

Other matters discussed at some length included country buying by packers, the question of competition among buyers, the absence of any apparent relation between the cost of producing animals and their market value, problems of transportation, stockyards service, and market reports.

INTESTINAL WORMS IN PIGS

Insufficiently Fed and Neglected Pigs Soon Become Infested

Intestinal worms are common in hogs and are particularly injurious to growing pigs. Insufficiently fed, neglected pigs living in dirty pens and yards, fed from filthy troughs, drinking contaminated water, bathing in old hog wallows, and rooting and sleeping in manure piles and stack bottoms soon become infested with worms; consequently they do not thrive, but develop into pot-bellied, rickety, profitless runts. Pens should be kept clean and dry and the manure frequently removed.

It has been asserted by various experienced feeders of hogs that a mixture of charcoal, ashes, lime, salt, sulphur, and copperas kept where the hogs can eat it will tend to prevent worm infestation. There is not as yet positive experimental evidence in support of the idea that such a mixture will prevent worm infestation, but the mixture does appear to satisfy the hog's desire for mineral substances and probably is of value as a tonic and appetizer. It may be made up in the following proportions:

Charcoal Mixture.—Charcoal, 1 bushel; hardwood ashes, 1 bushel; salt, 8 pounds; air-slaked lime, 4 pounds; sulphur, 4 pounds; pulverized copperas, 2 pounds. Mix the lime, salt, and sulphur thoroly and then mix with the charcoal and ashes. Dissolve the copperas in two parts of hot water and sprinkle over the whole mass, mixing it thoroly. Keep some of this mixture in a box before the hogs at all times, or place in a self-feeder.

Santonin, which was formerly widely used as a remedy for worms in hogs, is practically unobtainable at the present time, owing to foreign trade conditions.

The following treatment has been found to be very effective against intestinal worms in experiments conducted by the Zoological Division of the Bureau of Animal Industry; Withhold all feed and water for 24 hours, then give each pig from 1 to 4 ounces of castor oil to which has been added oil of American wormseed as follows: Small pigs, 2 to 3 months old, 35 drops; pigs weighing 50 to 100 pounds, 50 to 100 drops; larger pigs, 1 teaspoonful. Each pig should be dosed separately if the best results are to be obtained.

Dangerous to Drench Hogs.—Drenching hogs is dangerous, as they are liable to get the remedy into the lungs. With sufficient assistance pigs may be held, the mouth kept open by means of a couple of loops of wire or rope, and the medicine given directly in a tablespoon. By this method, tho it is troublesome, one may be certain that each pig gets his proper dose. After dosing, the pigs may be fed and watered. Repeat the treatment in 10 days.—Department News Letter.

FEED FOR YOUNG PIGS

Before weaning young pigs it is well to accustom them to a grain mixture or a slop of sweet milk combined with grain. The Pennsylvania Experiment Station has obtained excellent results with a grain mixture of corn meal 4 parts, wheat middlings three parts, and tankage 1 part. The addition of skim-milk increases the rate of gain. If skim-milk is fed with this grain mixture the amount of corn meal may be increased to 6 parts. Other mixtures recommended are corn meal 8 parts and tankage 1 part, or skimmilk 3 parts and corn meal 1 part.

If possible pasture crops should be used for growing pigs. For quick growth of pigs, 2 to 4 pounds of grain per hundred pounds live weight daily in addition to pasture crops is required. The amount of grain fed should be governed largely by the appetite of the pigs. They should be fed all they will consume without waste twice daily.

STOMACH WORMS IN LAMBS

Lambs troubled with stomach worms lose weight, are very unthrifty, cough, and in the last stages have diarrhea. Unthriftiness in lambs of two to five months of age is usually due to the presence of stomach worms in large numbers.

For treatment of lambs thus troubled, the Pennsylvania Experiment Station recommends a dose of gasoline in the proportion of a tablespoonful for every eighty pounds live weight. In order to form a perfect emulsion it is necessary to mix the gasoline with five ounces of sweet milk to which one tablespoonful of raw linseed oil has been added. The dose should be administered on three consecutive mornings, feed being withheld the night before.

Medicine may best be administered to lambs thru a rubber hose with funnel attachment. The hose should be placed in the back of the mouth and the medicine poured in thru the funnel, which may be elevated so that the dose will run down properly. It is better to have the lamb stand on all fours than on hindquarters when dosing.

Changing pastures will reduce the chance of infection to a minimum. It is always well to have two or more pasture lots or rotate the pasturage to avoid infection.

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LAKESIDE BERKSHIRES Service boars, fall gilts and young pigs for sale. Satisfaction or money refunded. Send for catalog. Prices very reasonable. H. GRIMSHAW, North East, Pa.

Chester Whites & O. I. C's. Either sex, any age. Reg. free. Satisfaction and safe delivery guaranteed. ENTERPRISE DAIRY FARM, John L. VanHorn, Prop. Troy, Pa.

Mulefoot Hogs Oldest breeder in the state. Pedigreed stock for sale. SAMUEL JOHNS, Wilmington, Ohio, Sec. D.

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Large Berkshire Swine Registered High Grade. Prices reasonable; write HOME FARM, Center Valley, Pa.

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Reg. Berkshires Prize winning herd. Bred sows, boars and pigs at bargain prices. George F. Adams, R.R.1, Powhatan Point, Ohio

Household

CURE FOR CANKER

Canker, from which so many children suffer, is an ulceration of the mucous membrane of the mouth. It may come from indigestion, tho physicians do not agree on that subject. But there is a simple remedy that mothers can apply which will readily cure these sores, which, while not dangerous, are exceedingly painful. Borax kills the germ which causes cankers quicker than most other remedies. Take one teaspoonful of powdered borax, two teaspoonfuls of gylcerine and mix thoroly. Then make a tiny swab by wrapping a bit of cotton on the end of a matchstick. Dip this swab in the mixture of borax and glycerine and apply to the canker, then throw swab away. Make a new swab every time you wish to apply the remedy. If taken in the early stages, one or two applications will be sufficient. And there will not be a prompt recurrence of the canker in a short time, as so often happens after the use of the liquid boric acid solution or alum.—Mrs. Nevada D. Hitchcock, Philadelphia Co., Pa.

A GOOD ROAST FROM A TOUGH CUT

An excellent roast or "Swiss steak" may be made from a very tough cut of beef by the following method: Select a thick cut of the lower round or any other portion that is without bone (this should be 3 or 4 inches thick). Pound flour into the meat on both sides (about 1½ cupfuls of flour can be pounded into a 3 or 4-pound piece). The pounding breaks up the fibre and the flour retains the juice. Sear the meat all over and place in a roaster. Pour the contents of a can of tomatoes over the meat. Onions and other seasonings may be added, according to taste. Cook slowly. This makes a tender roast and excellent gravy. It also is very good when sliced cold.—May C. McDonald, N. D. Exp. Sta.

MONEY IN SALADS

One resourceful woman who found it necessary to supplement her income reviewed the kind of work that she could do best. She decided that she excelled in the making of salads and pies with soft fillings. She experimented a little to discover what she could afford to make the various kinds for, then had neat cards printed setting forth the service she was prepared to give.

As she became famous for these delicacies and many of her friends did their own work, she soon had all she could do to fill the orders that came to her. She kept the materials on hand, and made the salad dressing in bulk, so that there was no waste in materials. Her profits were eminently satisfactory.—Emma G. Wallace, Cayuga Co., N. Y.

CURTAINING WINDOWS ALIKE

A young bookkeeper moved into a new home in the suburbs. The bank account was too far depleted to consider buying new curtains all the way around, and yet the new mistress of the home wished her windows curtained uniformly.

Her supply consisted of plain muslin and hemstitched scrim. Four inches back from the front edge of each curtain, she stitched a two-inch band of yellow "sunfast" cotton drapery material, a single length making bands enough for a number of curtains. It gave the curtains a decidedly chic appearance from the inside, and made them most attractive from the outside.—Emma G. Wallace, Cayuga Co., N. Y.

OLD BREAD RECIPES

Bread Croquettes.—To 2 well beaten eggs, add ¾ cup of water, 2 tablespoons of sugar, ½ teaspoon of cinnamon, a pinch of salt and enough fine stale bread crumbs to make a stiff mixture. Allow it to stand ½ hour, then form into croquettes, and fry until nicely browned in plenty of fat. Serve hot with sugar and cinnamon or lemon sauce.

Fried Salmon.—Soak over night the desired number of slices of smoked salmon in enough water to cover. When ready to use, pour off the water, dip the salmon in fine bread crumbs, beaten egg and again in bread crumbs. Fry in plenty of lard or oil until nicely browned, and serve with creamed potatoes.

Baked French Toast.—Beat 1 egg well, add a pinch of salt and ½ cup milk. Spread 2 slices of bread thickly with butter, place in a buttered baking pan and pour over them the custard. Bake in a hot oven until the bread is lightly browned and the egg is firm. Sprinkle with sugar and cinnamon and serve.

THE COST OF A HOME SCIENCE COURSE

The girl of limited resources who desires a college education is confronted by the problem of how to get the best out of the means at hand. The total cost of a college education varies, of course, according to the style of living. At the Pennsylvania State College, the sum of $300 for one year is considered economical; $350, liberal; $400, very liberal. The girl students are required to keep a tabulated account of their expenditures as a part their training in household management. Statistics for the first three years appear as follows:

Freshman: Lowest expenditure, $275; highest, $400.

Sophomore: Lowest expenditure, $325; highest, $475.

Junior: Lowest expenditure, $350; highest, $400.—Julia C. Gray, Penna. State College.

PENNSYLVANIA FARMER PATTERNS

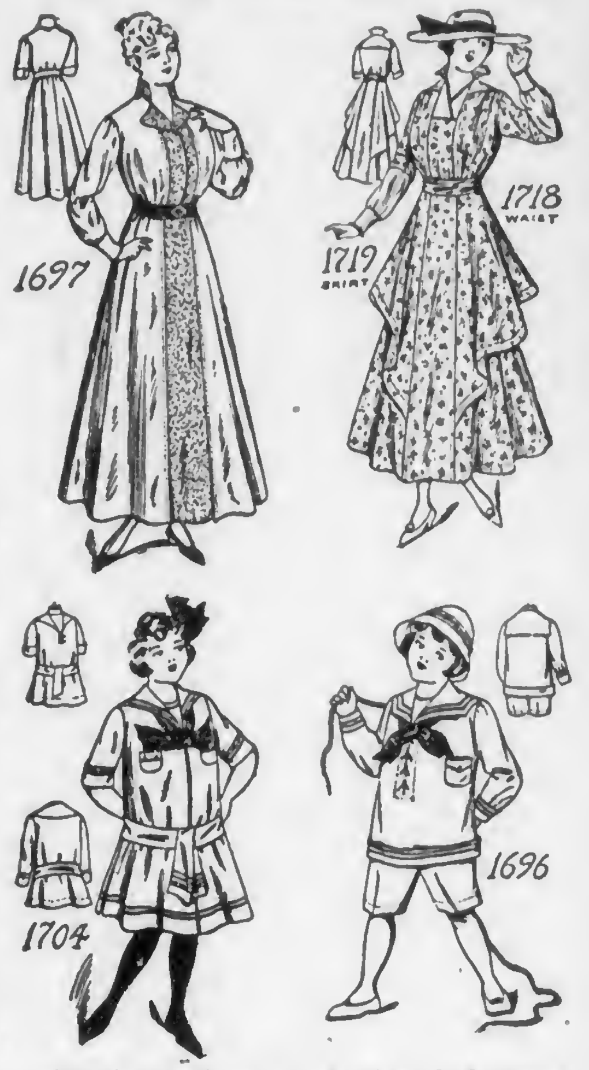
Be sure to give the figures and letters of each pattern exactly as printed at the beginsponsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-263 So. Third Street, Philadelphia, Pa.

1697.—Ladies' Dress.—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches, bust measure. It requires 6⅛ yards of 44-inch material for a 36-inch size. The skirt measures 3 1-3 yards at the foot. Price of pattern, 10 cents.

1718-1719.—Ladies' Costume.—Waist 1718, cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches, bust measure. Skirt 1719, cut in 6 sizes: 22, 24, 26, 28, 30 and 32 inches, waist measure. The entire dress requires 8⅜ yards of 44-inch material for a 36-inch size. The skirt measures about 3 yards at the foot. Two separate patterns, 10 cents for each pattern.

1704.—Girls' Dress. (To be closed in Front or Slipped over the Head.) Cut in 4 sizes: 4, 6, 8, and 10 years. It requires 3½ yards of 36-inch material for an 8-year size. Price, 10 cents.

1696.—Boys' Blouse Suit With Shield. —Cut in 4 sizes: 3, 4, 5 and 6 years. It requires 3 yards of 44-inch material for a 4-year size. Price, 10 cents.



ENJOY your MEALS

Can't, if you're too done up to eat. And you're bound to tire, after a morning in the kitchen, over a coal range. For it's wearing, beyond a woman's strength, to carry wood and haul coal from bin to kitchen.

And you can't control the heat of a coal range. Most times you've far more heat than you need—a waste of fuel—that turns the kitchen into a nerve-racking furnace.

A **New Perfection Oil Cook Stove** offers you a way to end kitchen drudgery and at the same time to economize, for the **Perfection** burns kerosene, the cheapest fuel. Think—no coal, no wood, no shaking, no ashes, no fear of the fire going cold. Instead, heat when you want it and exactly as much as you want.

A New Perfection is inexpensive. Ask your dealer to show you its fireless cooker, its separate oven, its combustion chimney, its long-lasting wick.

Be sure, though, you use **Atlantic Rayolight Oil** in your **Perfection.** That's essential. For it is just as necessary to discriminate in buying kerosene as it is in selecting flour. It takes use to prove either. You don't have to buy a flour on trust; neither need you take a chance on kerosene.

For you can ask for **Rayolight** with the positive assurance that every gallon will be like every other gallon. A kerosene that will burn without smoke or smell, but that will yield a great and a cheap heat.

With all its advantages **Rayolight** costs no more than ordinary, unreliable kerosene. Buy it by name, where you see this sign:

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ATLANTIC Rayolight OIL

THE ATLANTIC REFINING CO.

Philadelphia
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Grange

Among the Granges

Upper Bucks Co., Pa.—Pomona No. 50 met in Richland Grange Hall on Saturday, May 20th. The morning session was called to order by the master, Henry M. Landis, some business was transacted and the literary program taken up. Warren Sames gave a German reading. The Lecturer gave a number of auto conundrums, some of which the members guessed. Mrs. Sheip read, "Hannah Trypo in Court." The meeting was then closed by song and a recess was taken when dinner was served in the lower room, and was a very enjoyable part of the day's program.

The afternoon session was opened by singing and the literary program again taken up. Mrs. Snyder reading a Pennsylvania German letter; Mrs. Ackerman read an article on "The Farm Movement at Home"; Harry Johnson read a paper on "The Grange and The Man"; Mrs. Martin, of Chalfont Grange, had a very well prepared paper "Why Should the Farmer's Wife Belong to the Grange?" She brought out many good reasons in a very pleasing way. Mrs. Elmer Haring and James Clark sang a very pretty duet. Mrs. Swartly read "The Model Husband"; Asa Cressman, "The Wonderful Cow"; Jacob W. Landis of Richland Grange had a good paper on "What Points of Law the Farmer Should Know" making it clear that the farmer should be very well posted on many things and cannot be too well educated. James Clark read a good article about the value of the Babcock milk tester that Mr. Babcock has given to the world. Mrs. Kern read "The Old-Fashioned Wife"; and Mrs. Baum read an article written by Dr. Hannah McK Lyons on "Efficiency in Home Making." The meeting then closed with song; to meet at Springtown, September 15, 1916.—M. J.

York Co., Pa.—Pomona Grange met at Cross Roads in Hopewell Township, May 13, at 2 o'clock. The attendance was probably the largest we ever had. There were large delegations there from Lewisberry Grange, Manchester Grange, and Gideon Grange of Hanover sent thirty members. The address of welcome was delivered by Rev. Mr. Arcoh and was replied to by Mr. Ettors.

Mr. Shuey made an address on Potato Culture. Mr. Shuey has the reputation of being the "Potato King" of his section and as his success is great his ideas are always deserving of attention. His most singular deviation from the ordinary rule is, that he advises the delay of planting until June. He prefers a clover sod plowed in the fall, and does not like fresh barn-yard manure.

There was a comic Masonic ritual gone thru with by a party of ladies which was much enjoyed and a negro minstrel performance by a number of young men which was the equal of many high priced concerts. Mr. Henry Haas made a short address in place of D. P. Forney, who was to deliver the regular address but was prevented by death in his family.

The whole program was interspersed with singing, recitations and tableaus, generally of a humorous nature, all of which made up what was generally acknowledge to be the champion Pomona entertainment of the county.

In the evening there was a closed meeting presided over by Mr. Sense, the Master of Pomona, assisted by Mr. Grote, the regular Secretary. All the regular officers were present. A class of sixteen candidates were initiated in fifth degree. A committee was appointed to arrange railroad rates if possible for the National Grange meeting in Washington in November.—D. P. F.

Cape May Co., N. J.—Pomona Grange No. 14 met with the Stone Harbor Grange on the afternoon and evening of April 26th. Owing to the illness of Worthy Master Hildreth, Past Master F. E. Bate was in charge. It was said to be one of the best sessions this grange has held for some time, some two hundred patrons being present. Forty autos were in line while crossing the beautiful boulevard which extends from Cape May Court House to the beach proper.

This resort has the advantage over its sister cities by having such a beautiful entrance with its natural lakes, and canal and its handsome dwellings, making a picture that will have its appeal to every lover of the beautiful.

The session convened at 2 o'clock and the usual routine of business was gone thru with; a resolution favoring the buildings of a bridge across the Delaware river connecting Camden and Philadelphia was presented and unanimously adopted. It was also decided to hold the summer outing or picnic at Avalon in July. The afternoon session closed with singing "The River of Time". State Master Gaunt arriving at this time the members proceeded to the high school building where covers were laid for two hundred and fifty guests. The bill of fare consisted of roast turkey, friend oysters, salads, cream, cakes and all the dainties of the season.

It is said a thousand men can make a camp, but it takes the ladies of the Pomona Grange to make these grand suppers.—(Mrs.) F. E. B.

OCCUPATION TAX

"Must a farmer pay an occupation tax when he owns real estate and pays taxes on the same? Is this tax the law of the state or does each county make their own tax laws, and do we have to pay the same? Is a man subject to an occupation tax when he works for himself, or must he have an employer or receive a salary for his work?"—H. B., Clearfield Co., Pa.

Under the act of the legislature establishing a public school system in Pennsylvania, it is provided that each city, incorporated town, borough, or township, shall constitute a separate school district, and these school districts are divided into four classes according to population. The board of school directors in each district have power to assess and levy the necessary school taxes required by such district each year. In each school district of the second, third and fourth class (which classes include all districts having a population of less than 500,000 inhabitatnts), it is made the duty of the board of school directors to assess, levy and collect an occupation tax of not less than one dollar on each male resident or inhabitant of the district, and the act provides that each male resident or inhabitant must pay an occupation tax of at least one dollar for school purposes, in addition to any other taxes he may pay on any real estate or other property. It will thus be seen that this occupation tax must be paid by a farmer altho he works for himself, and in spite of the fact that he owns real estate and pays taxes on the same. The authority for imposing the tax is derived from the state, but the amount of the tax assessed each year is determined by the act, as above mentioned,—that the board of school directors of each school district, subject to the provision of the amount of the tax shall not be less than one dollar each year.—G. G. & H.

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No matter whether it's Dad, who plays havoc with socks—mother and the girls who want good-looking hosiery—or the children who require sturdy, wear-proof stockings, Durable Durham Hosiery will give everybody better wear. Durable Durham Hosiery is **made strongest where the wear is hardest.** The heels, soles and toes are heavily reinforced and the tops are knit on securely. The children's hose has *triple* reinforced knees that make them wear and tear-proof.

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FOR MEN, WOMEN AND CHILDREN

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Wheels, 32 or 28 inch. Elevator, 22 or 20 inches wide. Thorough separation without injury to the crop. Best two wheel fore truck. Right adjustment of plow, shifts in gear from the seat. Can be backed, turns short into next row.

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THE FUR BRINGERS

By Hulbert Footner

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CHAPTER XXIII

Fire and Rapine

Ambrose fought his way outside the building and found that the flour was burning. It was beyond saving.

The Kakisas ran down the trail like a heap of dry leaves propelled by a squall of wind. To Ambrose it all seemed as senseless and unreal as a nightmare.

The alarm had been given at a moment of extreme emotional excitement, and restraint was thrown to the winds. It was like a rout after battle.

The men shouted; the women wailed and forgot their children. The throng was full of lost children; they fell by the road and lay shrieking.

Ambrose never forgot the picture as he ran, of an old crone, crazed by excitement, whirling like a dervish, rocking her skinny arms and twisting her neck into attitudes as grotesque as gargoyles.

The trail they covered was a rough wagon-road winding among patches of poplar scrub and willow. Issuing out upon the wide clearing which contained their village they saw afar the little storehouse burning like a torch, and redoubled their cries.

They swept past the teepees without stopping, the biggest ones in the van, the little ones tailing off and falling down and getting up again with piteous cries.

Reaching the spot, all could see there was nothing to be done. The shack was completely enveloped in flames. There were not half a dozen practicable water-pails in the tribe, and anyhow the fire was a good furlong from the river.

Ambrose, seeing what a start it had got, guessed that it was no accident. It had been set, and set in such a way as to insure the shack's total destruction. He considered the sight grimly.

The mystery he had first scented that morning was assuming truly formidable proportions. He believed that Watusk was a party to it; but he could not conceive of any reason why Watusk should burn up his people's bread.

There was nothing to be done, and the people ceased their cries. They stood gazing at the ruby and vermilion flames with wide, charmed eyes.

Among the pictures that this terrible night etched with acid on Ambrose's subconsciousness, the sight of them standing motionless, all the dark faces lighted by the glare, was not the least impressive.

With sickening anxiety he perceived the signs of a rising savage rage. The men scowled and muttered. More than once he heard the words: "John Gaviller!" Men slipped away to the teepees and returned with their guns.

Ambrose looked anxiously for Watusk. He could not reach the people except thru the man he distrusted.

He found him by himself in a kind of retreat among some poplars a little way off, where he could see without being seen. Ambrose dragged him back willy-nilly, adjuring him by the way.

"The people are working themselves into a rage. They speak of Gaviller. You and I have got to prevent trouble. You must tell them Gaviller is a hard man, but he keeps the law. He did not do this thing. This is the act of another enemy."

"What good tell them?" said Watusk sullenly. "They not believe."

"You are their leader!" cried Ambrose. "It's up to you to keep them out of trouble. If you do not speak, whatever happens will be on your head! And I will testify against you. Tell the people to wait until tomorrow and I pledge myself to find out who did this."

"You know who did it?" asked Watusk sharply.

"I will not speak until I have proof," Ambrose said warily. "What happened to the men you left on guard?"

"They say they play jack-pot with lantern near the door," said Watusk. "See not'ing. Hear not'ing. Poof! she is all burn!"

"H-m!" said Ambrose.

They were now among the people.

"Speak to them!" he cried. "Tell them if they keep quiet Ambrose Doane will pay for the flour that is burned up, and will grind them some more. Tell them to wait, and I promise to make things right. Tell them if they make trouble to-night the police will come and take them away, and their children will starve!"

Watusk did, indeed, move among the men speaking to them, but with a half-hearted air. He cut a pitiful figure. It was not clear whether he was unwilling to oppose them or afraid.

Ambrose did not even know what Watusk was saying to them. At any rate the men ignored their leader. Ambrose was wild at the necessity which made him dependent on such a poor creature.

He followed Watusk, imploring them in English to keep their heads. Some of the sense of what he said must have reached them thru his tones and gestures, but they only turned sullen, suspicious shoulders upon him.

That Ambrose should take the part of his known enemy, John Gaviller, seemed to their simple minds to smack of double-dealing.

The roof of the burning shack fell in, sending a lovely eruption of sparks to the black sky. At the same moment as if by a signal one of the savages brandished his gun aloft and broke into a passionate denunciation.

Once more Ambrose heard the name of Gaviller. Instantly the crowd was in an uproar again. Cries of angry approval answered the speaker from every throat. The man was beside himself. He waved his gun in the direction of the river.

Ambrose waited to hear no more. He saw what was coming. Black horror faced him. He ran to the river straining every nerve. He heard them behind him. Then it was that he so bitterly reproached himself for having left the york boat within reach.

Leaping down the bank, he put his back under the bow and struggled to push it off. He would gladly have sacrificed it. It was too heavy for him to budge. Tole Grampierre and Greer reached his side.

"Quick!" cried Ambrose breathlessly. "Set her adrift!"

But at that moment the whole tribe came pouring over the bank like a flood. Ambrose and the breed sprang into the bow of the boat in an endeavor to hold it against them. Old Simon presently joined them.

"Back! Back!" cried Ambrose. "For God's sake listen to me, men! Go to your lodges and talk until morning. The truth will be clear in the daylight! The police are coming. They will give you justice.

"Justice is on your side now. If you break the white man's law he will wipe you out! Where is your leader? He knows the truth of what I say. Watusk is not here! He won't risk his neck!"

It had about as much effect as a trickle of water upon a conflagration. They made no attempt to dislodge Ambrose from in front, but swarmed into the water on either side, and putting their backs under the boat, lifted her off the stones. Scrambling over the sides, they shouldered Ambrose and the breed ashore from behind.

Ambrose shouted to the breeds: "Go home and stay there all night. You must not be mixed up in this."

"What will you do?" cried Simon.

The york boat was already floating off, the crew running out the sweeps. Ambrose, without answering, ran into the water and clambered aboard. In the confusion and the dark the Indians could not tell if he were white or red.

He made himself inconspicuous in the bow. His only conscious thought was, how to get a gun. He had no idea of what to do upon landing.

Upon pushing off, moved by a common instinct of caution, the Indians fell silent, and during the crossing there was no sound but the grumbling of the clumsy sweeps in the thole-pins, and the splash of the blades.

Standing on the little platform astern, silhouetted against the sky, Ambrose recognized the man who had given the word to attack Gaviller.

He marked him well. He was of middle size, a tall man among the little Kakisas, with a great shock of hair cut off short at the neck.

On the way over Ambrose was greatly astonished to feel his sleeve gently plucked. He studied the men beside him, and finally made out Tole under his flaring hatbrim.

Into his ear he whispered: "I told you to go home."

"I go with you," Tole whispered back. "I your friend."

Ambrose's anxious heart was warmed. He needed a friend. He gripped Tole's shoulder.

"Have you a gun?" he asked.

The breed shook his head.

"Get guns for us both if you can," said Ambrose.

On the other side, the instant the york boat touched the shingle, the Indians set up a chorus of yelling frightful to hear, and scrambled ashore.

Ambrose and Tole were among the first out. Together they drew aside a little way into the darkness to see what would happen. There was no need to warn the Company people; the yelling did that.

The Indians set off across the beach and up the bank, working themselves up with their strident, brutish cries. The habits of thirty years of peace were shed like a garment. The young men of the tribe had never heard the war-cry until that moment.

Ambrose followed at their heels. At the top of the bank, to his unbounded relief, they turned toward the store. He still had a little time. All he could do was to offer himself to the defenders.

"I'm going to the side door of Gaviller's house," he said to Tole. "Get guns for us, somehow and come to me there."

He knew that Tole, who was as dark as the Kakisas, and in no way distinguished from them in dress, ran little risk of discovery in the confusion. There was no sign of life about the post; every window was dark. The Indians swarmed across the quadrangle without meeting any one.

As Ambrose reached the fence around Gaviller's house he heard the store-door and the windows go in with a series of crashes. He crouched beside the gate to wait for Tole. It was useless for him to offer himself without a weapon.

They started a fire outside the store. Fed with excelsior and empty boxes, the flames leaped up instantaneously, illuminating every corner of the quadrangle, and throwing gigantic, distorted shadows of men on the store front.

On the nearer side of the fire the silhouettes darted back and forth with the malignant activity of demons in a pit. Men issued out of the store with armfuls of goods that they flung regardless to the flames.

Already they were dressing themselves up in layer after layer of clothes until they no longer resembled human creatures. What they could not wear they hung about their necks.

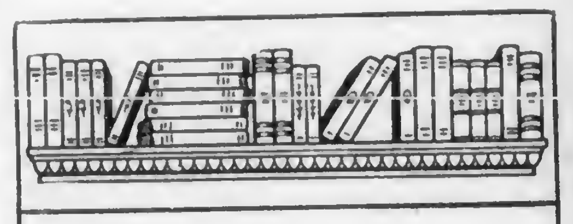
Some came out tearing at food like wolves. Other darted into dark corners of the square to hide their prizes. A man appeared dressed in a woman's wrapper and hat, and capered around the fire to the accompaniment of shrieks of obscene laughter.

There was a continuous sound of rending and crashing from within the store. The trader in Ambrose groaned to witness the destruction of good weapons and cloth stuffs and food. Some one would suffer for the lack of it in the winter.

Within the store, by the door, a furious altercation arose. This was where the case of cheap jewelry stood. Two men rolled out on the platform fighting.

Ambrose saw a raised arm, and the gleam of steel. After a few moments one of the men got up and the other lay still.

(To be continued.)



PIECES *to* SPEAK

We shall be glad to procure and publish poems in this department on request if possible. We believe that the old-time custom of learning and speaking pieces at school and public gatherings should be encouraged, and we desire to aid in such work by publishing suitable pieces.

MY CONSCIENCE

Sometimes my Conscience, say he,
"Don't you know me?"
And I, says I skeered thru and thru,
"Of course I do.
You are a nice chap ever' way,
I'm here to say!
You make me cry, you make me pray,
And all of them good things thataway—
That is, at night. Where do you stay
Durin' the day?"

And then my Conscience says one't
more,
"You know me—shore?"
"Oh, yes," says I, a-tremblin' faint,
"You're jes' a saint!
Your ways is all so holy-right,
I love you better ever' night
You come aroun—'tel plum daylight,
When you air out o' sight!"

And then my Conscience sort o' grits
His teeth, and spits
On his two hands and grabs, of course,
Some old remorse,
And beats me with the big butt-end
O' that thing—'tel my closest friend
'Ud hardly know me. "Now," says he,
"Be keerful as you'd orto be
And allus think o' me!"

—James Whitcomb Riley.

Markets

PHILADELPHIA PRODUCE

The markets have been quite active in the past week and high prices have prevailed on practically all lines of fruits and produce. With work for everyone in the city and wages at record-breaking rates, there is every indication for the continuance of brisk markets thruout the summer months.

On several days last week there were upwards of one hundred cars of potatoes on the tracks, which is a large number for this particular season of the year. About eight cars of this lot were old stock which met with slow demand, altho the general quality and condition was good. Pennsylvania potatoes were sold at prices varying from $1.25 to $1.35 per bushel; western stock sold at $1.20 to $1.30 per bushel which is as high as secured at any time in the season for western potatoes. Florida new potatoes are in moderate receipts and the demand is strong. The best grades sold at $5 to $5.50, second grades at $4 to $4.50; thirds at $2.25 to $2.50 per barrel. Florida potatoes are packed in double-headed barrels and the South Carolina and Eastern Shore potatoes are packed in the cloth-topped barrels which are slightly smaller capacity. The prices on South Carolina potatoes are on an average of 50 cents per barrel below the prices quoted on Florida stock.

Near-by Vegetables

Varieties in near-by vegetables have not been increased in the past four weeks, however, during the present week Jersey peas are expected on the market in large quantities. The prices have been fairly steady on practically all receipts.

Asparagus is in liberal supply and the best grades sell readily at $1.75 to $2.15 per dozen bunches. Choice grades sell at $1.25 to $1.50 per dozen and good cull grass sells well at 85 cents to $1.15 per dozen. Pennsylvania grass is in greater supply and continues to bring an advance of 25 to 50 cents per dozen bunches over Jersey grass.

Radishes have been fairly heavy and of good quality. The prevailing price now is $1.25 to $1.50 per hundred bunches. Rhubarb is on the market heavy and selling at 75 cents to $1 per hundred bunches. Scullions grown from sets are becoming woody and are not very desirable, the prices secured are from 75 to 90 cents per hundred bunches. Spinach arriving is old stock and sell with difficulty at 15 to 20 cents per basket and 20 to 25 cents per bushel box.

Outdoor lettuce is arriving more plentifully and selling at 75 cents to $1 per box of 18 heads. Cauliflower packed eight to twelve heads to the box sells at $1 to $1.25 per box. Carrots are in demand at $3.50 per hundred bunches.

Southern Vegetables

The receipts of tomatoes have been only moderate and with the quantity of poor stock arriving there is an active demand for good, sound tomatoes. From 12 to 15 cars are on the tracks daily. Fancy tomatoes are selling at $3 to $3.40; choice, $2.25 to $2.75 per crate.

Cabbage has been making daily fluctuations, the market cleaning up each day and the demand strong for good stock. Receipts have been light and prices varied from 75 cents to $1.50 per crate, depending largely upon the daily arrivals.

Beets from South Carolina have been heavy and are selling at $3 to $3.50 per hundred bunches. North Carolina beans in half-barrel baskets range from $1.75 to $2, depending upon the quality of the beans. Clean wax beans average from $1.50 to $1.75 per carrier; squash, $1.25 to $1.50 per crate; eggplants, $1.50 per crate. A few lima beans are arriving and selling at $4.50 to $5 per basket. Cucumbers at $2.50 to $3 per basket are in good demand. Lettuce from Virginia is scarce and of poor quality, selling at $1 to $1.25 per hamper. Peas are arriving from the Norfolk section and the Eastern Shore and are selling at $2.25 to 2.75 per half-barrel basket; smaller sizes at $1.50 to $2. Onions from Texas are cleaning up at $1.90 to $2.10 per crate for number one stock and second sizes at $1.65 to $1.90.

Fruits

Strawberries continue to arrive from every section including Kentucky, Norfolk, the Eastern Shore and New Jersey. The stock from Norfolk and Kentucky is arriving in poor condition and selling at buyers' prices. Eastern Shore berries are in good condition generally and sell at 7 to 9 cents per quart. Jersey berries made their first appearance last week and will be heavier thruout this week. Prices secured on the early shipments were from 8 to 12 cents but with the heavier arrivals the market is principally from 8 to 10 cents.

Apples of good quality and condition sell readily at high figures. Fancy Baldwins are moving at $3.50 to $4; Russets, $3.50 to $3.75; Gano, $2.50 to $2.75; Willow Twig, $5. Boxed Staymans sold at $1.75 to $2 per box.

California canteloupes have started and standard crates of 45 lopes sold at $5 to $6; pony crates sold at $4. Florida watermelons are on the market in small express shipments and sell at $1 to $1.25 each.

Poultry

The arrivals of poultry have continued exceptionally light, both live and dressed, altho there has been some increase in the offerings of spring chickens, prices on which are declining gradually. Good quality live fowl have been meeting with a strong demand at 19 to 21 cents. Spring chickens of fine quality and desirable sizes, other than Leghorns, have cleaned up daily at 30 to 33 cents. Leghorns and poor quality found a more slow demand at 24 to 27 cents. Old roosters have held steady at 13 to 13½ cents and the few ducks offered are selling at 14 to 16 cents.

Dressed poultry market has also maintained a strong and active tone, and a great deal more could be used to good advantage than is arriving. There has been a very strong inquiry for fowls weighing from 4 to 5 pounds each and these have sold upon arrival at 22 cents per pound. Smaller sizes have also ruled steady at 21 cents. Springers have sold generally at 35 to 38 cents, with some real fancy Jersey broilers weighing 1½ to 2 pounds each bringing 40 to 45 cents. Near-by spring ducks are also cleaning up promptly on arrival at good prices. There are still a few dressed turkeys wanted at 28 cents per pound.

Eggs

There has been but little change in the egg market for the past several days, except that quotations are about one-half cent per dozen higher on special marks of near-by current receipts. Virginia and West Virginia current receipts are bringing 22 cents; Pennsylvanias 22½ cents, with exceptional lots 23 cents. Candled and graded eggs are selling at 26 to 28 cents. The cool weather which has been prevailing, has been of great benefit to the egg market, as the stock is arriving in good condition and showing no heat effects and dealers are still buying them for storage purposes. This together with a good consumption demand has cleaned up the market daily.

Selmarad.

YORK PRODUCE MARKET

York, Pa., June 5, 1916.

Decoration day brought, as usual, an excellent display of flowers of every description from the choicest cut blooms to the most common woods plants. Trading was lively. The week-end markets were probably the largest for the spring thus far. Choice county strawberries were displayed on possibly 30 stands and these sold readily at 13 to 25 cents a box. Radishes and onions were a glut. Eggs hold their price but move more slowly. Butter is dead stock. Old potatoes are in more demand.

Eggs.—21@25c per dozen.

Butter.—Country, 30@32c lb; separator, 32@35c lb. Milk 6c per quart.

Poultry.—Hens, 13@16c lb. Springers, 30@32c lb; dressed, 50c to $1.10.

Vegetables. — Potatoes, 16@20c ½-pk; $1.15@1.25 per bushel; new, 25@30c ½-pk. Lettuce, 3@10c per head. Cabbage, 2@4c a head. Radishes, 1@3c a bunch. Onions, 3@4c a bunch. Beets, 3@7c a bunch. Lima beans, 16@18c per quart. Soup beans, 12@15 a quart. Lard, 14@15c lb. Southern peas, 35c ½-pk. Beans, 30c ½-pk.

Fruit.—Apples, 15@40c ½-pk. Strawberries, 13@25c a box; shipped, 8@10c box. Cherries, 10@15c box.

Retail Grain Market.—Wheat, $1.10; corn, 90c; oats, 65c; rye, 85c; bran, $1.40 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, 98c; corn, 78c; oats, 52c; rye, 80c; bran, $27 per ton; middlings, $32 per ton.

NEW YORK PRODUCE MARKET

New York City, June 5, 1916.

Speculative buying in both cheese and butter is light—buyers fearing that the prices are too high to risk large investments. Some butter was held over from last week, and there is little export of either butter or cheese. Eggs remain pretty much as last week, some going into storage at shippers request. Trading in dressed poultry is slow and market in unsettled condition. Apples slow, and much scalded. Prices firm. Best vegetables firm and in good demand.

Butter.—Creamery, extra, (92 score) per pound, 30¼c; higher score, 30½@31¾c; thirds to firsts, 27@29½c; state dairy, 26@30c; packing stock. 22½@24½c.

Cheese. — Whole milk specials, 14¾@15c; daisies, 15½@15¾c; skims, 10½@14½c.

Eggs. — Fresh gathered, extra, 24½@26c; dirties, 19@20c; nearby white, fine to fancy, 26@27c; ordinary to good, 24@25c; browns, 25@26c.

Dressed Poultry.—Philadelphia and Long Island, fancy 3 to 4 pounds to pair, 38@40c; Philadelphia fancy roasters, 26@30c. Fowls 19@22c; old roosters 14c; squabs, $2.50@$4.50 dozen. Spring ducks, per lb. —. Turkeys, frozen, 36@38c. Broilers, 12 to box, milk fed, 18 to 20 lbs., 31@32c; milk fed, 25 to 29 lbs., 28@28½c; corn fed, 26@28½c.

Asparagus. — Jersey and Pennsylvania green fancy, dozen, $2.50; do., green, extra, $2@2.25; do., green prime, $1@1.25; do., green culls, 60@90c.

Vegetables and Greens.—Lettuce, per bbl., $1@1.75; radishes, 100 bunches, 50@55c; water-cress, per 100 bunches, $1@1.50; peas, large per basket, $2.25@3; small, $1.75@2.

Apples.—Greening, bbl., $2@3; Northern Spy, $2@6; Baldwin, bbl., $2@4.25; Ben Davis, bbl., $1.50@2.75.

Country Dressed Veals—

Choice, per lb.	16½@17
Prime, per lb.	15½@16
Fair to good, per lb.	14½@15
Coarse, heavy, per lb.	14½@15
Common, per lb.	12½@13½
Buttermilk, per lb.	12 @12½
Grassers, per lb.	11 @11½

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., June 5, 1915.

Receipts for the week ending Saturday evening, June 3:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,022	8,729	4,632
Previous week	3,511	7,912	3,885

Calves.—Total receipts of calves for this week were 2,053 against 1,948 last week.

Beef Cattle.—Current offerings were not excessive, but fully sufficient for every need, the Jewish holiday restrictions causing buying to be quite conservative, as well as easing top-grade prices. Bulls, cows and calves of the better class were keeping fairly steady, altho not very actively sought after.

Best Steers	$10.00@10.11
Choice	9.50@ 9.75
Good	9.00@ 9.25
Medium	8.50@ 8.75
Common	8.00@ 8.25
Bulls	6.00@ 8.25
Fat cows	5.00@ 8.00
Thin cows	3.25@ 4.50

Veal Calves.—

Exceptional lots	$12.00@12.50
Good to choice	11.00@11.50
Medium	8.50@ 8.75
Common	7.75@ 8.25
Southerns and barnyards	6.00@ 7.50

Sheep and Lambs.—Values showed no material deviation and shipments were rather liberal. Demand was moderately normal.

Wethers—Extra	$7.75@ 8.00
Choice	7.25@ 7.50
Good	7.00@ 7.25
Medium	7.00@ 7.25
Common	4.00@ 5.00
Ewes--Heavy, fat	6.50@ 7.00
Lambs, extras	9.75@10.00
Good to choice	9.00@ 9.25
Medium	7.25@ 7.50
Common	5.75@ 7.50
Early spring, per lb.	9@ 12½

Hogs. — The butchers' and slaughterers' strike having completely unsettled the market and cut off sales and arrivals, predominating rates are to a great extent nominal. Quotations: Westerns at $11.20 gross weight, $14 net weight.

City Dressed Stock.—Every description of first-class meats were held in a steady to firm way, tho trade was only ordinary.

Steers	11 @15
Heifers	10½@14
Veal calves	13 @15

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., June 5, 1916.

Cattle.—The supply on sale Monday was 55 loads compared with 45 loads the week before. The market ruled active and higher on all best fat cattle from light to heavy. On the plain medium grades the market ruled steady to strong. Cows, heifers and bulls in fair supply and market ruled steady to strong. Best fresh cows steady; other grades and springers slow. Cattle supply today totaled 77 loads; market active and stronger on the choice, fat, good quality beeves while other grades were steady except grassers which ruled 25c lower.

Good to choice	$10.25@10.65
Good, 1300 to 1400 lb.	9.75@10.20
Medium to good, 1200-1300 lb.	9.25@ 9.50
Tidy, 1050 to 1150 lb.	9.40@ 9.60
Fair to medium, 1000-1100 lb.	8.75@ 9.25
Fair 900 to 1000 lb.	7.75@ 8.00
Common, 700 to 900 lb.	6.50@ 7.50
Rough, half-fat, 1000-1300 lb.	7.00@ 8.00
Common to good fat oxen	6.00@ 7.75
Common to good fat bulls	5.00@ 8.50
Common to good fat cows	4.50@ 8.00
Heifers, 700 to 1100 lb.	4.75@ 9.50
Bologna cows	1.00@ 5.00
Fresh cows and springers	$25@ 80

Calves.—Receipts of calves fair and market closed 50c per cwt. below Monday's prices. Today's receipts of calves numbered 1,000 head; market active.

Veal calves	$8.50@11.50
Heavy and thin calves	5.00@ 7.00

Hogs.—The supply on sale during the week has been liberal and with a good demand the market has ruled fairly active with prices about steady on all grades. Today's hog receipts numbered 50 double-deck loads; market 5c lower.

Prime heavy	$9.70@
Heavy mixed	9.70@
Prime medium weights	9.70@
Best heavy Yorkers	9.70@
Light Yorkers	9.15@
Good pigs	8.65@8.80
Common to good roughs	8.60@8.75
Stags	6.50@7.00

Sheep and Lambs.—The supply of sheep and lambs has been liberal and with a poor demand the market has ruled slow and draggy with prices 40c per cwt. lower on sheep, $1.25 per cwt. lower on clipped lambs and $1 per cwt. on spring lambs. Yearling lambs, unless choice, very slow and selling at less than sheep prices. There were 10 double-deck loads of sheep and lambs in supply today; demand light and market slow. Choice grades of sheep and lambs higher with a few choice lambs at $10; other grades steady. Shipping lambs in light supply; market strong on choice while others were steady.

Prime wethers	$7.50@ 7.75
Good mixed	6.50@ 7.00
Fair mixed ewes and wethers	5.50@ 6.00
Culls and common (clipped)	3.00@ 4.50
Spring lambs	8.00@11.50
Clipped lambs	5.50@ 9.75

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., June 5, 1916.

Hay and Straw.—Hay of fine quality is pretty well cleaned up and is steady. Straw shows little change.

Grains.—Wheat has dropped below the dollar mark during the week. There is very little training. The corn market is dull with ample offerings at lower prices. Offerings of oats are liberal and the market is quiet.

Hay.—No. 1 timothy, medium bales, $24@25.50; No. 2 do., $22@23; no grade, $11@11. Light mixed clover, $23@23.50; No. 1 do., $21.50@22.50. No. 2 do., $17@18.

Straw.—No. 1 straight rye, $15@15.50; No. 2 do., $14@14.50; No. 1 tangled rye, $12.50@13; do., No. 2 $11.50@12. No. 1 wheat straw, $11@11.50; No. 2 do., $10@10.50; No. 1 oat straw, $10.50@11; No. 2 do., $9@9.50.

Wheat.—No. 2 red 98½c@$1.00½; No. 3 red, 98½c@$1.00½; rejected A, 96@98c; rejected B, 94½@96½c.

Corn.—No. 2 yellow, 79½@80c; steamer yellow, 78@79c; No. 3 yellow, 75½@76½c; No. 4 yellow, 72¼@72½c; ear corn, 80½@81c per 70 pounds.

Oats.—No. 2 white, 47@47½c; No. 3 do., 44½@45½c; No. 4 do., 42½@43½c; standard white, 46@46½c; sample oats, 39@40c.

Feed.—Winter bran, 100-lb. sacks, $26.00@26.50; spring bran, do., $23.50@24.

Flour.—Car lots, winter clear, $4.90@5.15; straight, $5.25@5.50; patent, 5.60@5.85; do., city mills, patent, $6.25@6.50; regular grades, $4.90@5.15. Rye flour, $5@5.50 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., June 5, 1916.

Hay.—Receipts of hay to this market are still very light, notwithstanding it is the beginning of June. There is a scarcity of all grades and no difficulty disposing of all arrivals at top market value with the exception, of course, of clover and heavy mixed hay which are hard to place at any price. No. 1 timothy, $23.50@23.75; No. 2 timothy, $20.50@22; No. 3 timothy, $16.50@17.50; No. 1 light mixed, $20@20.50; No. 1 clover mixed, $16.50@17.50; No. 2 clover mixed, $13.50@15; No. 1 clover, $14@14.50; No. 2 clover, $9@11; No. 3 prairie, $13@13.50; No 4 prairie, $9.50@10.

Straw.—Straw receipts are not heavy and the demand is fair; market quiet but steady. No. 1 oat, $9.25@9.50; No. 2 oat, $8.75@9; No. 1 wheat, $9@9.25; No. 2 wheat, $8.50@8.75; No. 1 rye, $10@10.50; No. 2 rye, $8.50@9.

Ear Corn.—Demand very light, owing to the summer weather; very little arriving and hard to place. New stock. No. 2 yellow, 78@79c; No. 3 yellow, 73@75c; No. 2 high mixed, 76@77c; No. 2 mixed, 74@75c.

Oats.—Oats dull and looking lower; buyers off not wishing to purchase and it is hard to dispose of arrivals; market quiet. No. 2 white, 44½@45c; Standard, 43½@44c; No. 3 white, 42@42½c; No. 4 white, 40@41c; Rejected, 35@36c.

NEW YORK HAY AND GRAIN

New York City, June 5, 1916.

Hay and Straw.—The hay market is disturbed by local industrial and labor conditions, altho there is little change in price. The Thirty-third street hay market is largely nominal; the strike of freight handlers has shut off most of the movement of goods, and there are very few cars offering. The Erie hay sheds are also bare of offerings, tho the removal of the embargo on that road should soon result in heavier shipments that way. Much of the demand has been forced on the Brooklyn markets, and trade there has been fairly active, tho prices are still ranging from $1.00 to $2.00 under the values ruling at Thirty-third street. Rye straw is scarce and firm.

Grains.—The wheat market is still dropping, altho there was evidence the last few days of a steadying. Market on all grains depended largely on condition of the growing crop.

Hay.—Large bales.—No. 1 timothy, $29@30. No. 2 $26@28; No. 3 $21@24; fancy No. 1 clover, clear, $26@27; lower grade, clover, light mixed, $14@20; No. 1, $18@19; lower grades, $11@16.

Straw.—Per ton, No. 1 rye, $16.50@17; do., No. 2, $15@16.

Wheat.—No. 1 Northern, $1.23¼; No. 2, $1.21¾; No. 2 hard winter, $1.16.

Corn.—No. 2 yellow, 79⅛c; No. 3 yellow, 77¾c.

Oats.—No. 3 white, 45@45½c; No. 4, 44@45c; ordinary to fancy, 45@46½c.

Rye.—$1.07.

Mill Feed.—Coarse Western spring one hundred-pound sacks to arrive, $23.35 @23.60. Standard middlings, $25.60; flour, do., $29.20 to arrive. Red dog, to arrive, 140-pound sacks, $23.50. Oil meal, $31@32.00. City feed bulk bran, $23. Heavy feed in bulk, $24. Red dog, $33. Flour middlings, $32.50.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., June 5, 1916.

While there is little activity in the local butter market, the demand is fair and supplies of desirable grades of creamery are kept pretty well cleaned up at steady prices. Ladles are quiet and unchanged. Prints of fancy quality are in fair request and steady, but rank grass and garlicky-flavored goods have to be moved at whatever is offered. Cheese is steady.

Butter.—Solid packed creamery, fancy specials, 33c; extras, 31@32c; extra firsts, 29½@30c; seconds, 28½@29c; ladle packed, 23@25c; nearby prints, fancy, 34c; average extras, 33c; do., firsts, 31@32c; do., seconds, 28@30c; special fancy brands of prints, 37@40c.

Cheese.—New York full cream, fancy, new, 17½@17¾c; fair to good, new, 16½@17¼c; do., part skims, 11@15½c.

ELGIN BUTTER MARKET

Elgin, Ill., June 3, 1916.

Butter today sold at 29 cents per pound.

NEW YORK MILK MARKET

New York City, June 5, 1916.

The market is well supplied but conditions are such on manufactured products that the market value is above the average for June. It is considered to be approximately 3¼ cents a quart for Grade B in the 26-cent zone. It is not known whether the Borden company will pay a bonus for June milk or not. It is considered by some dealers likely that something above the contract rate will be paid.

The receipts of milk and cream in 40-quart cans for the week ending June 3, were as follows:

Railroad	Milk	Cream
Erie	51,795	3,969
Susquehanna	8,177	811
West Shore	16,790	1,750
Lackawanna	64,275	2,875
N. Y. Central (long haul)	96,125	3,740
N. Y. Central (short haul)	23,650	47
Ontario	41,419	6,990
Lehigh Valley	44,234	3,592
Homer Ramsdell Line	4,010	45
New Haven	6,472	21
Pennsylvania	6,275	350
Other sources	1,335	35
Totals	364,557	24,225

TOBACCO MARKET

Tobacco market conditions were practically unchanged, the degree of activity being largely regulated by the limited amount of tobacco to be found. Of course growers have practically nothing to offer, the 1915 crop having passed from their hands. It is now held mainly by factories with a small amount in the hands of speculators. The usual damage by black rot and must is now being noted, but such damage is not such as to cause any considerable alarm. All in all, market conditions are quiet and values are good but there can be no real activity until the crop of the present year has been grown. During recent weeks plants have grown rapidly, making amends for lost time and some tobacco has been transplanted. Upon the average, however, the situation is delayed and the crop will be behind time as compared with an average year. There is still some speculation as to the acreage, those who would have it thus persisting in their claim that an increased crop will be planted. On the other hand, growers are sure there will be no increase. It is probable that the latter are more nearly right, as they are in better position to know and are less liable to unfounded claims. The coming of much needed rain brought with it the usual quota of wind and electrical storms, during which some tobacco sheds were blown down.—H. E. Tweed, June 5, 1916.

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Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Worms.—I have a 12-year-old horse that is badly troubled with worms. It makes no difference how much feed I give him, he stays thin. J. E. C., Carlisle, Pa.—Mix together 1 part powdered sulphate iron, 1 part ground nux vomica, 2 parts ground wormseed and 4 parts ground gentian, and give him a teaspoonful at a dose in soft feed, night and morning. Also, salt him well and let him run on grass.

Weak Back.—I have a 12-year-old mare that our veterinarian has been doctoring for the past six months, but so far she shows little if any improvement. While standing in the stable resting, she is comfortable and appears to walk all right, but when worked appears to give out in her back and hind quarters. She eats and drinks all right and these cramp-like spells only come on occasionally. G. R., Frenchtown, N. J.—Give your mare 1 dr. acetate of potash and 1 dr. ground nux vomica at a dose in feed, night and morning. Rub back and hips with grain alcohol, twice a day. Better turn her out in pasture nights.

Infected Udder.—I have a cow that freshened about the tenth of February. I have since learned that she did not clean properly at calving. Now every week or so one front and one back teat on same side of udder hardens up and milk comes out in bunches. She is worse now than at any previous time. I have applied remedies that are recommended for caked udder without avail, she seems dull and somewhat stiff. T. H., Barnegat, N. J.—Apply 1 part fluid extract phytolacca, 1 part fluid extract belladonna and 8 parts wool fat or olive oil to caked portion of udder, once or twice a day. Gentle massage and careful milking will have a whole lot to do with her recovery. Give her a teaspoonful of powdered nitrate of potash at a dose in feed, twice a day.

Mare Disowns Her Foal—Raising an Orphan Colt.—I have a mare that had a colt last year and she disowned it. She is in foal again and will soon drop her colt. In event that she refuses to own it, what can be done? If I decide to raise it by hand, how should it be fed? J. S., Mountain Top, Pa.—Placing another horse within view of your mare when she foals will have a tendency to make her protect her colt; however, she might own it all right and act entirely different from what she did last year. If you raise the colt on cow's milk, select the milk from a cow that has recently freshened. Add a small quantity of sugar and about one-third clean tepid water and feed the milk to colt at body temperature, every 2 or 3 hours until the colt is 3 or 4 weeks old. It is perhaps needless for me to say that your feeding utensils must be kept clean.

Abortion—Chronic Cracked Heels.—I have a 5-year-old mare that is in poor health. She is one of my work horses. She eats very slow. She miscarried some seven months ago after being in foal three or four months. She had lampas a year ago, seemed to tire out easily, perspired too freely and this spring her heels and legs are sore. There is a dry scabby breaking-out on her heels and leg and she perspires very freely when doing light work. When in good flesh she weighed 1,350 lbs; now only 1,100. C. C., Pleasant Mount, Pa.—Her teeth may require floating. Give her 1 dr. powdered sulphate iron, 4 dr. bicarbonate soda, 4 dr. ground gentian, 3 times a day, apply 1 part oxide of zinc and 4 parts vaseline to sore heels and legs, once a day.

Poorly Developed Udder.—I have a 2-year-old heifer recently purchased that came fresh two weeks ago and gave very little milk from her front teats. Can anything be done for her that will make her give more milk from these two quarters? J. P., Knox, Pa.—Gentle hand rubbing for 20 minutes, twice a day, will have a good effect; however, it is not likely she will give as much milk from the two fore quarters as from the two hind ones.

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Vol. 39—No. 25. PHILADELPHIA, PA., SATURDAY, JUNE 17, 1916. 2 Years for $1.00

TIMING CODLIN-MOTH SPRAYS

How may we be sure of applying our second and third sprays for codlin-moth at exactly the critical time? For years the results of spraying have varied so widely that many of the leading growers feel much discouraged over their efforts, and are turning about for other methods of control. The experience of one practical grower is of sufficient interest to the industry to be of value to many others, who as yet, have not succeeded in ridding their fruit of the mid-summer side-worm injury.

"For years I have been spraying faithfully", remarked this grower, "to control insect and fungous pests on my plantings. The sprays used were all standard mixtures, advised by both the government publications and the state agricultural college experts. Incompatible mixtures were avoided, and only the best brands on the market were used, while my most careful men were put on the spray-rods. Yet, year after year, the results varied so widely that it was plain that I was clear off the track in some detail of the game. If it had not been for the fact that in some years I secured practically complete control, I would have been absolutely disgusted. But the fat years convinced me that it was an error in the time of application that allowed so many worms to enter, making frequent lean years in the business.

"There had been mentioned, in some of the publications, the methods used by some of the entomologists in running life-cycles on insects, and right there I determined to become my own entomologist, running life-histories and applying my sprays at exactly the critical periods. Since that day my greatest trouble has ceased."

Judging from the above experience, and from our own observations, it seems entirely reasonable that more of our growers could profitably spend a little more time in observation of the little insects which are at the bottom of their difficulties, and base their operations on the most accurate of data—personal observations. The methods are simple, and the results so correct that much of the written literature may be discarded, and the growers would have the personal knowledge of the pests which they are trying to overcome.

Codlin-Moth Damage

The codlin-moth is by far the most destructive insect pest of the apple. It is the small pinkish worm so commonly found in the fruit of the usual neglected orchard; which causes the excessive drop of the wormy fruit in the summer and which makes the holes in the market fruit in the ungraded barrel stock which gluts the big markets in the fall. It causes much of the rotting in storage fruit, and lowers the earnings of all the orchardists.

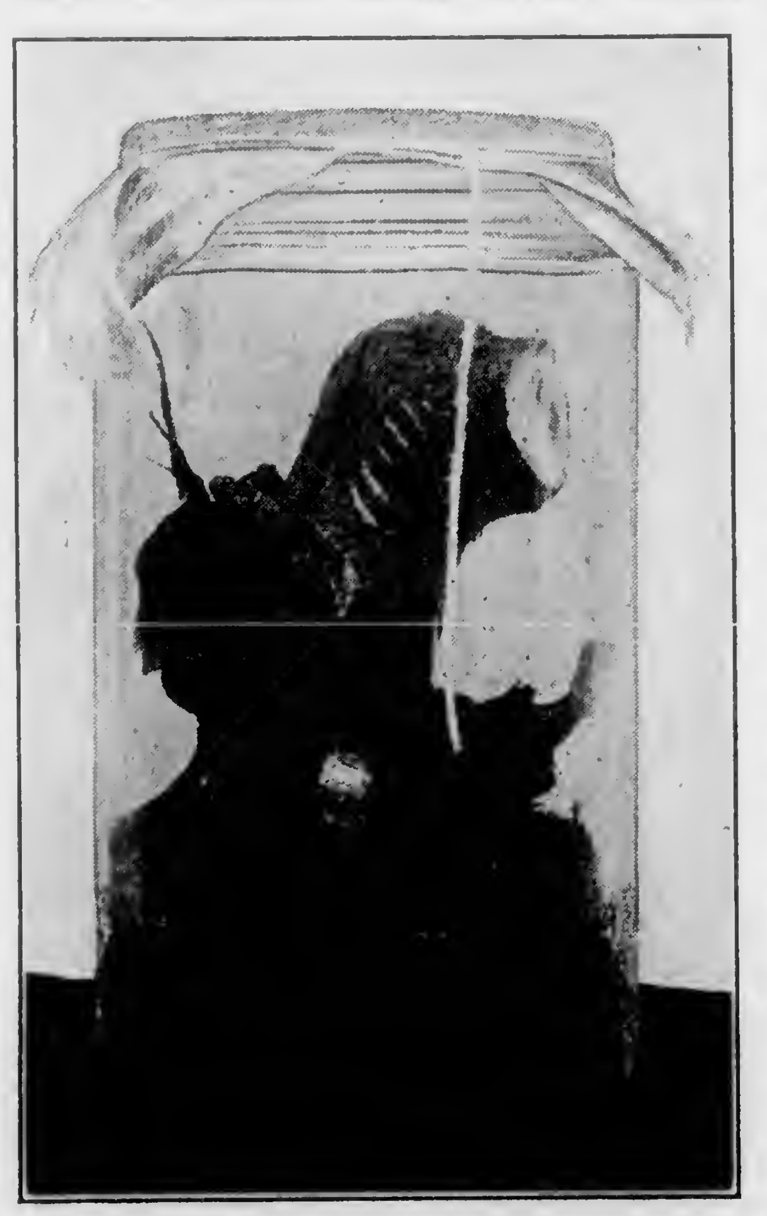
According to the 1910 census statistics, the loss for the year was $12,750,000 to the harvested crop, which does not take into consideration the tremendous loss incurred by the dropping of infested fruit thru the summer. Add to this the greater trouble and expense of grading fruit, and the reduction of the price of the ungraded fruit, and the loss would far exceed the figure given for the harvested crop.

Life Cycle

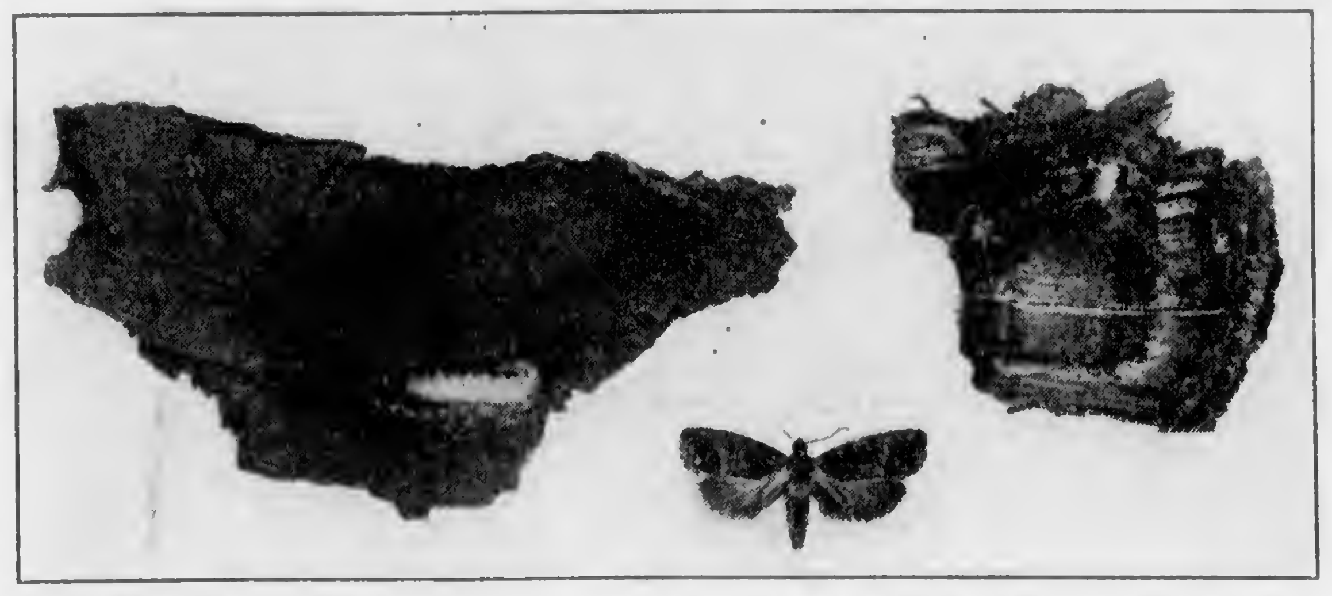
The codlin-moth winters over in the larva stage.

By A. F. Mason & L. F. Reese
Pennsylvania State College

To the uninitiated, let it be said that there are four stages in the life-cycle: The egg, the larva, the pupa, and the adult stage. Any time during the winter, the larva, or worm, may be found in large numbers near the ground on the trunk of the tree, beneath the chips of bark and in sheltered places. As the weather warms up in the spring, the larvae change to pupae, with tough brown pupae-cases within the cocoons, eventually turning into a small greyish moth. It measures about three-fourths inch across the wings, having transverse stripes of blue and grey on the fore wings.



JAR COVERED WITH MUSLIN FOR REARING MOTHS.



LEFT TO RIGHT: Larva of Codlin-Moth under Bark. Adult Moth. Pupa in Cocoon under Bark

The adults will emerge for several weeks, but the majority come out within a week after the petals fall from the blossoms. A few days later egg-laying takes place, usually on the leaves, but also on the twigs and fruit, most of the eggs being deposited within two weeks after the blossoms fall. From five to ten days following deposition, the eggs hatch, and the tiny worm crawls to the calyx end of the fruit, working its way between the closing sepals. It starts feeding in the calyx cup, working its way downward to the core, devouring the seeds and pulp.

Four weeks later the mature larva bores to the surface, crawling down the branch to a suitable place for spinning a cocoon. In a large number of cases, the wormy fruit drops to the ground, whence the mature larva emerges seeking a place to pupate. In a majority of cases both the worms from the fruit on the tree and those from the fallen fruit find their way back to the trunk of the tree, hiding under the rough bark. Within a week it turns into a pupa, or remains over until the following spring in the larva stage before pupating. In Pennsylvania there are usually two broods.

Variations in Time of Appearing

Right here comes the important point. These first moths may vary in their usual cycles several days. If the second generation should mature earlier than expected, an infestation of the fruit would take place before the second brood spray was applied, and the spray would be a total failure. Control of this brood depends upon time of location.

This can be illustrated by comparing the emergence dates in State College, Pa., and Bedford, Pa. Pupae were found at the former as early as April 28, from which the adults will emerge during the latter part of May. However, the adult itself was observed in the orchards at Bedford on May 9, and the larger part of the pupa-cases were empty. The difference between the emergence dates of the moths in these two localities this year will be at least two weeks. If a spray schedule, correct for State College, were followed in both places, the larvae of the second brood would be out at Bedford at least two weeks before the second brood spray was applied. From these observations it would not seem feasible to attempt any spraying schedule for codlin-moth in which any definite date were set for spraying.

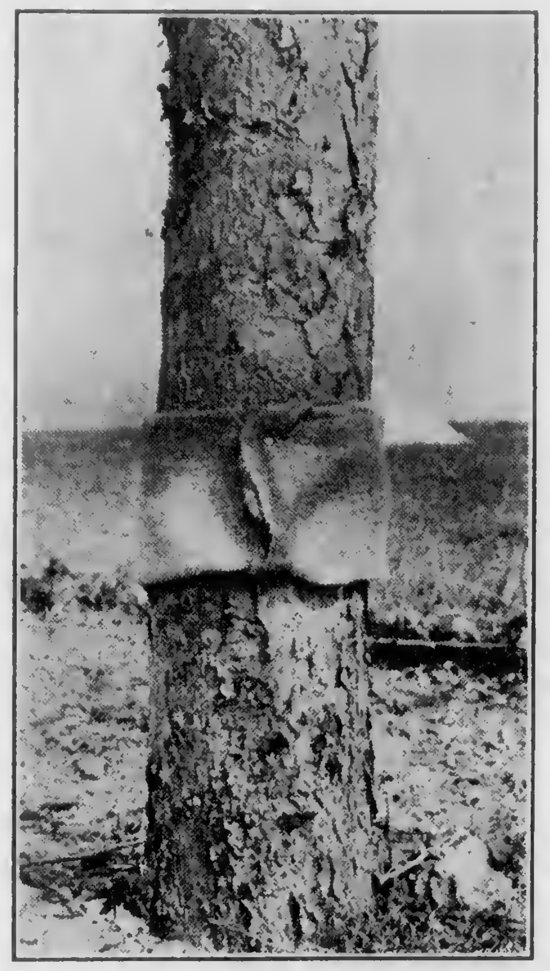
To determine accurately the correct time to apply the spray for the second brood codlin-moth, band the trees before June 15, with burlap or bunting. The bands are made about 18 inches wide, and long enough to extend around the trees and lap well. They should be folded, making three thicknesses about six inches wide. The rough bark should be scraped off the tree, to a distance of two feet from the ground, and the bands then placed around the tree about 18 inches from the ground, and held in place by a nail driven thru the ends into the tree. The larvae, as they crawl up the tree to pupate, will invariably go under the band.

The best method of handling the band is to go around every three days, removing the larvae, until 25 or 50 are collected. All others can be destroyed. Those saved are placed in a jar covered with muslin, or a screen-wire cage containing some trash, so as to allow them some material upon which to pupate.

The jars or cages must be kept in an out-door place, so that the cage-larvae will be under normal outdoor conditions.

The larvae collected in June will emerge as adults during the first part of July. When the adults emerge it is time to begin spraying for the second brood worms. This will give the grower six to ten days to apply his mixture before the first larvae of the second brood appear. Nothing further is done with the bands until the last of July, when several hundred larvae should be collected and placed in the cages to hibernate over the winter.

The next spring the first codlin-moth spray is applied when the blossoms fall so as to fill the open calyces with poison before they close tight, altho the first worms are not expected for some time. The time to apply the second codlin-moth spray for the first brood worms can be most accurately determined by the emergence of the adults which were kept over the winter as larvae in cages, while the third and last spray is applied as described above, for the second brood.



TREE PROPERLY BANDED WITH BURLAP.

By banding a few trees each year, therefore, to collect enough larvae for observation, it is very easy to ascertain the exact time for the application of arsenate of lead. The first application is always determined by the blossoming of the trees, while the other two can be determined from the live specimens held in the cages. Always start to apply the spray when the adults emerge in the cages, as this allows the grower plenty of time to get the sprays on before the young larvae hatch out. A few days' delay allows the infestation, and destroys the results of the year's work.

Dirt Road Don'ts

I once heard of a little girl that expressed a desire to go to another world. Her mother asked why she felt thus and the little one replied that this world is entirely too full of mus'n'ts. So when we read our state road laws and bulletins we find they are quite full of "mus'n'ts", and it would be well if the several hundred road supervisors and road masters would not flee from these "musts" and "mus'n'ts" as a child, but get the state road pamphlets and study them and the logic of road construction and road destruction. A man who is not willing and even anxious to study the agencies of road construction and road destruction is not fit for this important office.

A good road man thinks roads, talks roads, dreams roads. He would almost break the Sabbath to keep roads. And yet many of these men are not selected because of their loyalty to the cause of good roads, much less because of their anxiety to pick stone from the roads or go out in the rain and open clogged water ways.

A road officer should be a public spirited man and familiarize himself with every factor of road construction and maintenance. He then will see the virtue in the advice to cut out the gutters and crown the roads early in the spring season so that the old road surface and the new material will be worked and puddled together by the spring traffic, effecting a better bond and cheaper surface than can be secured in any other way. Two spans of horses will then cut out more soil than three spans in mid-summer.

In all probability the up-to-date road builder will not use so many teams and drivers, wasting the taxes. He will use a tractor or steam roller that will throw up twice to three times as many miles of road in a day. The tractor need not stop to "wind", nor need the day be only 8 or 10 hours. The tractor can go night and day if necessary, and a team or two can be on the log drag finishing the job.

This successful road keeper will read in the road laws: "Water is the great road destroyer": "Side ditches must be open, free from sod, trash, etc."; "Stones must not be on the road surface, pick them off four times in summer months"; "Brush, weeds and unnecessary shade trees must be kept off the road way." A lot of other dos and don'ts appear, but the road man of grit and road intelligence says: "Amen, it is all good logic. It is business. Now farmers and citizens, back me up with your good will and help and I will show you what a full fledged road keeper can do."

But this road master or superintendent must be assured of more remuneration for his grit and toil than the wage of the ditch digger, with the curses and back-biting of the citizens as a rebate. This road builder and keeper should have the pay now given to two or three road masters, and be made responsible for oversight and patrol of every mile of the township roads on the logic of the adage "A stitch in time saves nine." This will be his creed, and then and only then will the burden, the awful burden of bad roads be lightened. As it now is, many townships of our state are paying two road taxes, the money tax and the much larger direct tax—the astounding loss in moving tonnage on sadly neglected road surface. Then the loss to social and educational interests of the rural dweller is lamentable indeed.

Then, too, this champion road keeper will subscribe for a Good Roads Journal and be posted on what is being done in other places and will want to organize improvement associations where better methods will be discussed and genuine enthusiasm created that will be reflected in better roads. Road supervisors and road master tours will be made by truck or auto to see the work and inspect the methods and machinery of other men engaged in the same work.

WHEEL HOES MAKE EASY WORK IN GARDEN.

The man who is so cock sure he knows it all himself and does not want to show respect and courtesy to a superior road builder or keeper by inspecting his handiwork is by nature already condemned as a township officer. We need more road builders and road keepers and fewer pseudo road encumbrances.—D. H. Watts, Clearfield Co., Pa.

Farm Water Power

It cost a Pennsylvania farmer $5 to place in the stream that the young man is seen straddling, a dam that effectually harnessed its wasting power and put it to good use.

THIS SMALL STREAM WAS HARNESSED

Pennsylvania inventive genius contrived an overshot water wheel that did the trick. Another wheel set to catch the water of a somewhat larger stream is now satisfactorily illuminating a New York charitable farm and is also furnishing power for practically all the stationary machinery needed. The New York institution is the Five Points House of Industry, for Homeless boys, Pomona.

By this time ingenuity has made it easy to do the harnessing. Nature has not treated all farms alike in furnishing the water, but it is safe to say that in hundreds of instances it is there but the owner doesn't know it. Nature is simply waiting for the farmer to find out what he has. In a great many instances it is possible to tap a living spring or a number of them, that will start and keep flowing a stream that may be made to do as much work as does the one shown in the picture.

At Pomona the water is turned over a wheel, the wheel generates electricity, and the electricity furnishes light and power for upward of a dozen different machines. While the volume of the stream varies in the course of a year its average flow thru the summer months is sufficient to fill a ten-inch pipe without pressure.

Has the reader any kind of a stream on his place? If he has it will pay him to investigate it. If he finds that even a little is coming all the time, it will be easy to find out what kind of a dam to build that will store the water, provide a spill-way and keep the wheel turning.—J. L. Graff.

Lindenhurst Farm Notes

By R. P. Kester

The 25-acre cornfield at Lindenhurst was plowed by a tractor, and it did a good job, satisfactory in every way. At this writing I can not give the cost but will try to do so later. It is an 8-16 size, that is, 8 horse power at the draw bar and 16 horse power at the belt. It drew a gang of 3 plows and turned over about 8 acres a day, with the attention of one man. The tractor is equipped with a very simple guiding wheel which runs in the furrow, making it self guiding and enabling the operator to walk behind the plows if he so desires, getting on the engine only when turning at the end.

About 11 acres of the field was timothy sod, and 14 or 15 acres corn stubble, all well manured. The tractor was used to disk the heavy sod, making a splendid seed bed. Part of the field is planted to field corn and the balance in silage corn, the latter being a larger, white-grained variety, yet ripening in this neighborhood. It requires about 170 tons to fill the two silos.

To supplement the clover hay, 15 acres were planted to oats and peas, and 12 acres are being planted to soy beans. Unfortunately the peas did not come up well. I have heard others complain of this. Probably the seed was injured at harvesting time last year. Here, again, we find the necessity for testing all seed before planting. The soybeans are being planted in rows 28 inches apart to permit cultivation.

This effort to raise legumes in abundance to feed with silage we believe is one that all farmers should make. Too many dairymen feel themselves fully supplied with roughage when they have full silos. This is certainly a mistake and just as fatal to best success as it would be to depend entirely upon corn meal as a grain ration. In other words it is as important, economically, to balance the roughage as it is to balance the grain feed, and in order to do this most farmers must grow a great deal more clover, alfalfa, or other high protein crops.

Need of More Lime

In order to do this the average farm must be better supplied with lime than at present. If I were asked to name the most needed element for better crop production on eastern farms I would answer, without hesitation, lime. There is scarcely a crop but what would be benefitted by it, and it is absolutely necessary if satisfactory crops of clover, and the grass crops are to be grown. Heavy applications are seldom necessary, but there must be enough to neutralize acidity, and in some instances even to furnish the plants themselves with their lime

uirement, since some soils contain too little lime that purpose. The form of lime to use is not portant. Decision in this regard may be made upon nparing relative prices, condition, and methods of plication. Let there be a general decision this year to ply lime for summer and fall seeding, as clovers are ally sown on fall-seeded land and the primary object liming is for the purpose of getting a "catch" of ver, thus solving the questions of fertility and feed.

Corn Cultivation

It will be wise to begin cultivation of the corn lds this year even before the corn is up. The exptional crop of weeds of last season so filled the ound with seeds that it will require early and ligent efforts to keep most fields clean. This work ould not be left until the corn is big enough to ltivate in the usual way, but the weeder or light rrow should be used frequently before this, conuing until the corn is two or three inches high. ven then it may be necessary to use the wings on e cultivator the first or second me to cover the weeds that art in the rows. The same ractice is to be recommended r potatoes. Timely and suffient cultivation has more to do ith producing these crops satisactorily than has almost anyhing else. The continued rains f the past week will give the eeds a big start, and if rains ome as frequently as last year, e weeds are certain to be a erious problem. But should it rn dry, persistent cultivation ill be needed to conserve moisure already in the soil and turn t to the use of the growing op. An early start will make ch cultivation most effective.

A 2000-Bushel Corn Crib

I want to build a corncrib to hold 2,000 bushels f corn. I want a double crib so later on I can put set of scales under roof on which to weigh hay, traw or similar material. I want each side to hold 1000 to 1,200 bushels of ear corn. I expect to store agons, implements, etc., between cribs.

In building a corncrib that will hold 2,000 bushls of corn, with a driveway between the two parts of e crib, it is necessary to have sides narrow enough to permit proper curing. Cribs in New Jersey should e about 6 feet wide. In Ohio they are from 5 to feet. A bushel of corn occupies about two cubic feet of space. Therefore a crib 6 feet wide, inside easure, 8 feet deep, and 40 feet long will hold bout 1,000 bushels. Thus a double crib with driveay between will hold 2,000 bushels.

Let the driveway be 10 feet wide or 12 feet if it is desired to shelter occasional loads of hay. Let the posts be et on small, neat concrete piers nd be 24 inches high to the ills, and well tinned with galanized iron so that mice and ats cannot pass up them to enter the crib. Let the frame be trongly built of joist construction, the sills of three parts of 2x12 inch stuff, thoroly spiked together and let in between the parts of the built-up posts, which are of 2x8 inch stuff, in three parts. Small cross sills of 2x8 nch stuff enable the floor to be aid lengthwise of the buildings. Nail girts are of 2x6 inches, spiked well, or, better, bolted on and the covering 1x4 inch stuff put on vertically and paced with ¼-inch cracks to permit air to pass thru. The floor may also be left a little open to admit air, which will prevent mold in the corn. Let the crib be well braced in all directions and set apart from other buildings.

Plan shown in Fig. 3 may be substituted. The timbers are so arranged and so thoroly spiked together that they form a perfect brace, and most of the weight being on the inside, wall does not settle out of place. The leaning walls make unloading of corn much more easy while the scoop boxes are so arranged that three or more men may load at once when hauling out. These boxes may also be used for elf-feeders if so desired. Note the cross section (Fig. 3). Below, the timbers are all 2 feet apart and it should be sided with drop siding or shiplap put on horizontally. The cribs are 6 feet wide at the bottom with the walls leaning 3 feet, the driveway being 12 feet wide. The collar beams tie the building together and also support the inside walls. The sills, if pillars are used, should be solid 8x8 inches; or if solid foundation, 2x8 inch joists could be used. The windows should be about 10 feet apart and in two sets; the first set should not be more than 6 to 7 feet above the floor, while the second should be at the top and directly between the lower set. The scoop boxes should be hung 8 inches below the floor and should be 18 inches wide with an 8-inch board on front; a space of 18 inches should be left not slatted for corn to roll out into boxes. The lids should be cut in sections 6 feet long for convenience in handling. The diagram shows a roof ½ pitch. A track 24 feet long, just level with the eaves, will allow two ½-foot doors to roll just out of the way. Each crib holds 1,200 bushels. Ventilators made of 2x8 inch timbers should be put in the outside walls near the bottom of the crib, so the air may pass thru the corn. It will aid greatly in curing the corn.

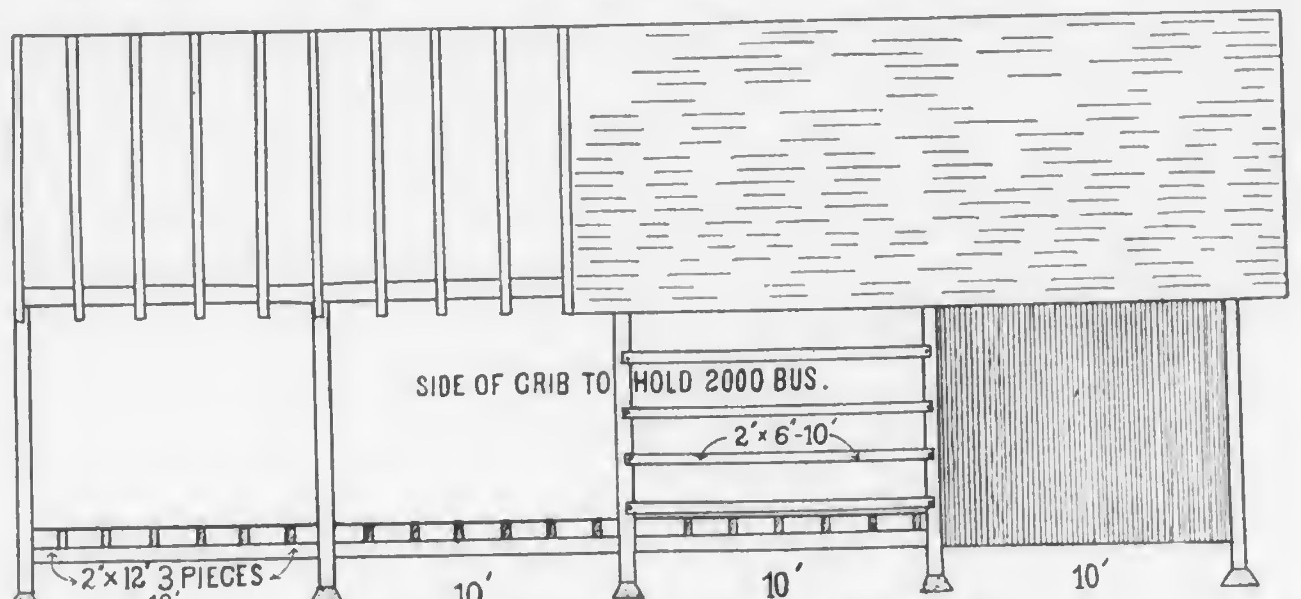


FIG 1. CORN CRIB TO HOLD 2,000 BUSHELS.

Some builders would side (Fig. 3) with vertical siding about 4 inches width, leaving ¼-inch air cracks. This crib might be set on concrete blocks molded in galvanized iron forms, say round, of 12 inches diameter, and that would make it rat-proof, if nothing were ever leaned against it for rats to climb. As you expect to store wagons between the cribs it may be well to put in a concrete floor, sloping both sides to drain off water.

Refrigeration

The question of food supply is one becoming more and more fundamental and perplexing to the cities of the country. Everywhere we hear the cry for good foods, fresh foods, and low prices. Nor are we content unless with all of these we have also a seasonal variety of foods, regardless of our location. In our demands for all these, let us be consistent. We all feel the appeal of fresh foods—fresh in the sense of handling and length of time in transit. But must we not also recognize that the localized supply of various fruits and vegetables, the season production of our country and the country-wide demand are facts incompatible?

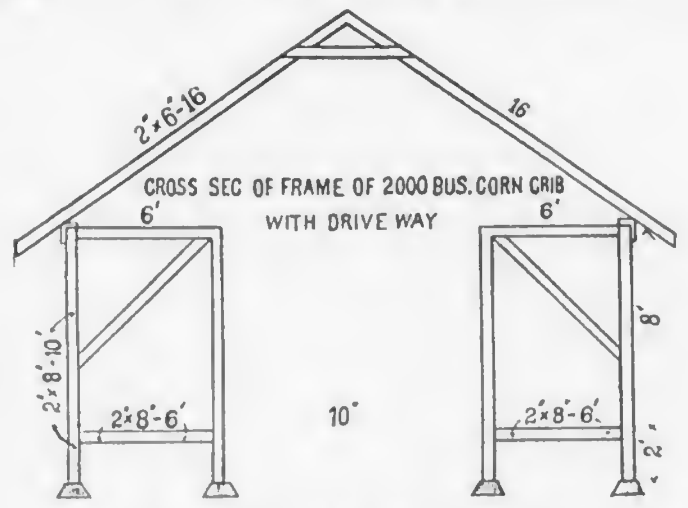


FIG. 2. END VIEW OF CORN CRIB.

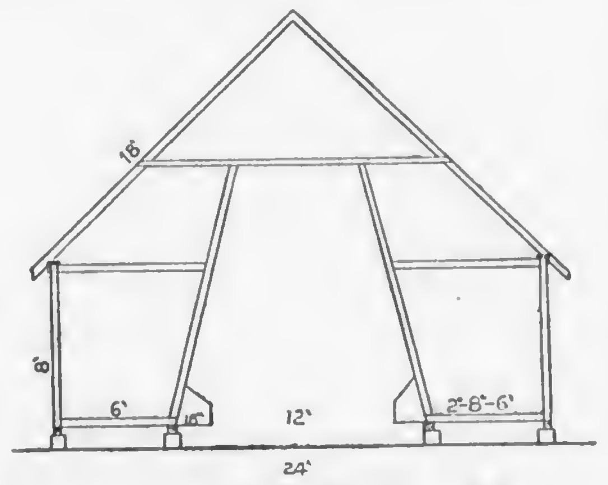


FIG. 3. END VIEW OF IMPROVED CRIB.

A detestation of refrigerated foods and the products of cold storage has even been paramount in the lay mind, and yet, after all, are not these methods of food preservation the only solution to our insistent demands?

Refrigeration is perhaps the most neglected element in the production and marketing of food produce, and yet to it, and its sister, cold storage, we must inevitably turn for the stabilization of the market during the times of under-supply and over-supply. Happily, education along scientific lines is helping consumers look less suspiciously at refrigerated foods, but much is still to be done to bring the housewife to an actual realization of the facts.

Constant pressure has long been brought upon the farmers to sort more carefully and pack better their products at the base of supply, and. thruout the country, the progressive farmers have responded well to this call. The busines of farming has long maintained a reputation of being individualistic, and yet, more and more, farmers are getting away from this individualism, mainly thru the establishment of farming communities, rural organizations and the like. The farmers realize, perhaps better than anyone else, the absolute necessity of the installation of cooling methods all along the line of distribution. The efforts of the farmers must be met by efforts on the part of the markets of the country to provide adequate refrigeration for the incoming products. Hand in hand with well grown, well sorted, well packed food products go modern refrigeration methods for the preservation of these products. It is a striking and regrettable fact that the vast majority of the markets of the country are absolutely lacking in refrigeration plants. In the few cities where such plants exist, worth while results have been accomplished.

Closely akin to refrigeration in the markets of the country is the establishment in farming communities of community refrigeration plants. In many cases, cooling plants have been placed in the community packing houses and operated by the farmers themselves. The rural co-operative societies have been of particular assistance in furthering such endeavors on the part of farmers. To such rural societies much credit is due for farm improvement, for thru their efforts and the opportunities they afford, many savings in time, in labor and in expense have been effected.

Efficient handling of food products, the elimination of needless waste and the economic saving of the results of over-production go hand in hand with modern refrigerated packing houses in rural communities, operated on either an individual or a co-operative basis.

Education along food lines is doing much to dispel the public ignorance regarding the products of refrigeration and cold storage. When we intelligently face the facts as they are, and respond better to the call for adequate facilities for food preservation, we will have taken a great step forward in the solution of the food problem.—Alice E. Roche.

French Drains

Comparatively little is known in the United States of the French method of draining wet land; that is, vertically, thru the soil.

Not all soil types can be drained that way. Sticky clays, for instance, are not adapted to that treatment. But true hardpans, shales and other dry, course subsoils lend themselves to it.

I recently tried an experiment in vertical drainage on the farm of John H. Dulany, of Fruitland, Md. I shall describe how it was worked. I first measured off the surface in ten yard squares. In the center of each, I put down a bore hole four feet deep with an earth auger and loaded it with a half pound of a low grade dynamite; at each corner of the squares, I put down similar holes, loading them with quarter-pound charges. My theory was that the surface water would drain down thru the broken soil where I had set off the smaller charges and then gravitate on down thru the deeper central point where the double charge had broken the soil more thoroly. It was successful.

The subsoil was one of the course, dry types that will remain open after being blasted.

A sticky clay would have to be handled differently. First, it would be necessary to make soil borings to see if a stratum of coarse sand or gravel underlaid the clay. If so, a heavy charge of dynamite would need to be used to blast out an open hole down to the open stratum which would have to be filled with broken stone, cinders, cobbles or some material that would prevent the clay from running together again. There is no such thing as pulverizing wet, plastic clay. It packs when blasted, but if the subsoil is found to be open and porous, dynamiting will do the work very quickly and easily—besides, it is cheap and successful.—H. T. West, Maryland.

Controlling the Peach Tree Borer

Cut Out, Use Protective Wash, Mound Soil Around Trees

By J. P. STEWART

The middle of June is one of the critical periods in the control of the peach tree borer. Under normal conditions in Pennsylvania and adjacent sections, the adult moths begin emerging about this time, and they immediately prepare to lay eggs for the new broods. Much of their injury can therefore be prevented by proper attention near this date.

The first thing to be done, if it has not already been attended to, is to examine the trees thoroly for any borers or pupae that may still be in or upon the trees. Their presence is indicated by masses of gum intermingled with woody castings near the surface of the ground, and by an unhealthy appearance of the foliage in general. To do the work properly, the soil should be removed from around the bases of the trees to a depth of about six inches, and wherever gum is found, the cause of it should be sought for carefully. A strong sharp knife and pliable wire will aid materially in this.

When possible, the tree bases should be left exposed for a few days, as this permits the tunnels of the borers to be detected more readily thru differences in the rate of drying. This exposure should be comparatively short after the egg-laying begins, however, and it should be followed by a safe protective wash, in order to reduce the entrance of new borers as much as possible.

For this coating, there is nothing now known that will give complete protection, and many of the materials thus far suggested have seriously injured the trees. Probably the safest material at present is the lime-sulphur solution and it is also as effective as any, if sufficiently renewed. It can be applied either with a coarse spray nozzle or with a brush, and the trunk should be thoroly covered from the exposed crown to a height of 15 inches or more. We have used this solution at various densities from 1.03 to 1.33, sp. gr., without any apparent injury to the trees, and the denser materials make a better coating. If so desired, a little sediment or extra lime may be added. Eight or ten pounds of either material are enough for fifty gallons of solution. Arsenicals should probably be omitted in this coating, as some of them have proved injurious to the trees, as well as useless against the borer.

As soon as the coating is dry, the soil should be replaced around the bases of the trees, and should be mounded up to a hight of about 6 inches. This is to enable any borers that may enter in spite of the coating to be located and destroyed more readily. The coating should be kept in good order until the close of the egg-laying season, which is generally about the middle of September. This can usually be done with about two additional applications—one early in July and the other about the middle of August—with the exact times depending on the condition of the earlier coatings. The mounds should not be disturbed in the later applications.

Whenever possible the trees should again be examined for borers in the same manner as above, sometime in the fall and preferably in October. At this time care should be taken to replace the soil about the trees before any severe freezing occurs, as the exposed bases are especially subject to winter-injury, and a light mounding of the soil is also advisable at this time to protect against mice.

This addition of a protective wash to the older method of simply mounding and cutting out, may seem to increase the labor considerably, but when once in full operation, the reduction in amount of cutting required and the accompanying improved condition and longer life of the trees should much more than compensate for the extra labor at the start.

"Bee Lore."—It is good policy to follow the old motto, "Be sure you are right, then go ahead." One reader in Delaware county censures my article, Bee Lore, published in Pennsylvania Farmer recently, stating that, "It is not truthful and the writer did not know what he was talking about." The information upon which my statement was based came from good authority. I find that the appropriation of $10,000 was reduced one half by the governor, hence should not have appeared as it did in the article. I have no doubt that the bee inspectors are "upright and honorable gentlemen," yet I do not believe there is reason to incur expense upon the tax payers to support a private business.—W. H. Stout, Schuylkill Co., Pa.

Preparing Asparagus for Market

The blanched asparagus with its delicate tip of purplish pink or green is cut as soon as the tips pierce the surface of the ridges of earth that are thrown over the rows. Asparagus growers begin early in the morning to cut time to box them for shipment.

The bunches are classed as primes and culls according to the size of the spears.

The popular asparagus box is a wooden box holding eighteen bunches—three

CLEAN ROWS MAKE EASY CUTTING.

their beds and try to have it done before the sun is high. This insures it from wilting. As it is cut it is laid upon the rows in handfuls of spears laid parallel. A boy with horse and cart closely follows the cutters and picks up the asparagus, carting it to the packing house. The asparagus loses much of its freshness if allowed to lie upon the surface of the warm earth in the sun, hence it is necessary to have it promptly picked up.

In the packing house the asparagus is put into tubs of cold water and washed, drained in wire racks if available, sorted and bunched in bunching machines. The asparagus is laid neatly in the machine using spears of uniform size. A lever tightens the bunch, two bands of raffia or palm are tied around it, the base is cut squarely off with a sharp knife and the bunch is released. These bunches usually stand in a trough in about an inch of water until tiers of six bunches each. A bunch of blanched asparagus is a trig looking arrangement of waxy white spears when put up by an expert packer. An expert packer can put up over four hundred bunches per day.

There is in some markets, however, a demand for unblanched or green asparagus. It has a different flavor which to many people is preferable. The beds are not ridged but left level. The spears begin greening as soon as exposed to the sun and air. They are allowed a hight of ten or twelve inches and are cut off at the surface of the ground.

Green asparagus is delicious if it has made rapid growth. It is then very tender. It toughens very quickly after it has reached this stage and lifts the scaly bracts near the tip of the spear preparatory to sending out its foliage branches; hence cuttings should be promptly and regularly made.

This asparagus is not made into as wide a bunch as the blanched asparagus in some markets. It is often tied with but a single band of raffia. There is practically no waste to a bunch of green asparagus properly grown and cut for it is tender in all parts.—M. R. Conover, New Jersey.

Timely Fruit Notes

Terrapin Scale on Peach

"Kindly tell me what this is on these pieces of limbs you will find in this package. Also the effect they have on the tree and what will dispose of them, and any other information you can give." F. T. B., Lackawanna Co., Pa.

Replying to this inquiry, would say that the twigs sent are infested with the lecanium or terrapin scale. It is probably a trifle late to combat this scale in the most efficient manner, as it is best controlled by oil sprays shortly before the buds open. Standard miscible oil applications at that time, at the rate of about one part of miscible oil to fourteen parts of water, will usually reduce them to negligible proportions.

A new Bulletin 351, issued by the U. S. Department of Agriculture, recommends the following emulsion on the dormant twigs: Raw linseed oil, 5 gallons; gasoline, 2 gallons; soap, 2 pounds; water, 92 gallons.

It is recommended for application shortly before the buds burst, and is apparently slightly preferable to the miscible oil preparation because of the lessened risk of injuring the trees and especially the fruit buds, which sometimes occurs with the applications of miscible oil.

At present practically the only thing that can be done is to wait until the young begin to appear, which is usually about the middle of June, but is best determined by making daily examinations of the infested twigs around that date. As soon as the young insects appear, they can be greatly reduced by a thoro application of lime-sulphur solution diluted at the rate of 1 to 60 or slightly weaker. This application may burn the foliage a trifle.

Peach Leaf Curl, and Its Present Treatment

"A large number of our peach trees have the peach leaf curl. We did not spray this spring, nor did we prune, thinking possibly we might have a few peaches, but were disappointed. The trees were planted in 1911 and 1912. What should we have done, and what is the best thing to do now?" H. N. F., Erie County, P.

This disease is usually severe and wide-spread on peaches this season, owing doubtless to the cool and relatively moist spring which favors the development of the causal fungus.

As to what should have been done, I would say that the standard method of controlling peach leaf curl is by spraying with winter-strength lime-sulphur, or a similar fungicidal material, in the spring before the buds have started to swell. With this one spray thoroly applied, at least 90 to 95 per cent of the infections can be prevented.

When this spray is omitted, there is no other treatment now known that will afford any large degree of protection. However, it is often possible to reduce the number of new infections, and thus materially check the further spread of the disease, by one or more thoro applications of self-boiled lime-sulphur (8-8-50), as soon as possible after the disease becomes apparent.

The newer hydrated lime-sulphur, made in accordance with the directions issued by the Experiment Station at Blacksburg, Virginia, will probably be at least equally effective and less troublesome to make and apply.

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Poultry

HOW I RAISE 98 PERCENT OF MY CHICKS

From my first hatch this season I got 100 chicks out of 136 fertile eggs. Four died in the incubator so that I started with only 96 chicks. Out of that number only 2 died. The chicks are now 6 weeks old and as spry and fine looking as you want to see. They are Gibson Strain S. C. White Leghorns. Thus it will be seen that I raised 98 percent of my hatch over the first 6 weeks which is really the critical period in the life of a chick.

My second and subsequent hatchings via the hen method produced 76 chicks from 93 fertile eggs. All of these chicks are living, some of them 5 weeks old, and are strong and lively.

My good luck or rather success in rearing these chicks I attribute chiefly to sour milk feeding.

When they are 24 hours old I give them sour milk for their first meal or rather first course. Then I give them toasted bread crumbs and finely pulverized hard boiled egg, followed after a while by commercial chick feed.

The first meal of sour milk is used chiefly as a medicine to prevent white diarrhea and other intestinal troubles so fatal to baby chicks. Afterwards I use it regularly as a food, giving them all they can drink.

Care must be taken, however, not to feed sweet milk in conjunction with sour milk as this will produce disastrous often fatal results. Summing up my own experience therefore, I have found that sour milk is the panacea for nearly all the ills that chicks are subject to and is an invaluable aid in rearing strong and healthy chickens.—Leonard F. Strickler, Lebanon Co., Pa.

IS FREE RANGE NECESSARY?

A healthy fowl is naturally an active one but, like human beings, it can also become lazy. If, however, an opportunity is given to work, it will busy itself.

Hens out on range are constantly on the go. Between chasing bugs, scratching for worms, hunting tid-bits and going about nipping off pieces of grass, they get a boundless amount of exercise that is not afforded to the fowls enclosed in runs.

Yet these conditions can be applied to poultry kept in confinement, if the man in charge will give his best attention, and the profits in consequence will be greater.

In the first place, there is very little chance for hidden nests. Thousands of eggs are annually lost to the farmers by the hens hiding their nests in bushes, in old buildings, and in divers places on the farm.

In the next place, the hens will be more tame and do better when kept in yards.

Over thirty years' experience with poultry has taught me that free range is not only unnecessary, but gives less profit than does the regular yarding system. It also has clearly proved that a 50-foot run will give as good results as one twice the size. But the hens must be kept busy. They must be made to scratch for every bit of grain they get. They must be fed such material as will put energy in them.

I have a double run to each house—one in front and one in the rear. Each run measures 16x50 feet. While the fowls are occupying the one, some green crop like rye or oats is grown in the vacant run. When this green stuff is a few inches above ground the fowls are allowed in the planted area, and the other is at once sowed to oats. In that way the pens are alternated as long as green food can be grown.

Each house is part scratching shed and part roosting pen. The floor of the scratching shed is kept littered with straw, and among this straw grain is scattered. The hens must work like beavers to get their feed, but it does them good—it keeps them in prime health, and the grain is more properly digested.

I see that there is a variety in their feed—that they daily have prepared meat scrap—that the green food supply never runs out—that they have grit and oyster shell and water constantly within reach, and as I keep them working, they are getting the same conditions they would have on range, and I am getting twice the number of eggs that a neighbor does from the same breed and same number of hens. My neighbor's chickens have free range—mine are kept busy at work in confined quarters.

Some years ago it was generally believed that runs should measure from 100 to 125 feet in length, but experiments have proved that just as good results can be obtained in runs of fifty feet, provided the stock is made to exercise.

I do not believe in large flocks, especially with our American breeds. Overcrowding not only lessens the egg yield, but it leads fowls to vices that very often cannot be remedied. My breeding pens of White Wyandottes are limited to ten females and a male.

The secret of success and heavy egg yields is small flocks kept busy.—M. K. Boyer, New Jersey.

THE LATE HATCHED CHICKS

Owing to the cold late spring many farmers who depend upon setting hens to hatch their chicks and brood them find themselves this year with very few chickens hatched out, the hens began to lay so late in the spring that they will not want to set before hot weather is here. Now the question is, will it pay to try to hatch out chicks so late? We all know it is easier as a rule to raise the early hatched chickens but if we do not have them we will have to do the next best thing.

With the high prices poultry is commanding now and the indications are that it will be still higher we can afford to take more trouble than usual with our late chicks.

The first thing is where to set the hens. They should never be set in a hot, dry hen-house during hot weather, the lice will take the life all out of your setting hens.

The best place is in some cool quiet wing or on the north side of some building if you can protect the nests from storms. A good way to make the nests is to knock the bottom out of an old box and place it on the ground and use a thin coat of straw or hay right on the ground so the moisture from the earth can come up in the nest. This seems to make the hens more comfortable and the eggs seem to hatch better.

We know the hens that steal their nests generally hatch nearly all the eggs that they set upon and they have their nests directly upon the ground, as a rule.

When the chickens are hatched we should dust them and the old hen well with insect powder and place the coop in some cool, shady place; an orchard makes an ideal place for late hatched chicks.

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Philadelphia, Pa., June 17, 1916.

WATCHING THE FAIRS

Secretary Patton, of the state department of agriculture, evidently means business in his warning to agricultural fairs and exhibitions. He has served notice on managers that if they are to draw financial aid from the state, they must give more prominence to agriculture and less to amusements. The success of several smaller purely farm and live stock shows gives evidence of the willingness of the people to support the real agricultural show and give less excuse for the carnivals that have been masquerading as county fairs. These fair managers have persistently opposed all efforts to establish a state fair on the ground that it would interfere with their lesser fairs. If they insist on a monopoly of the state support of such institutions they should be made to conduct fairs on accepted standards. The secretary will have the support of farmers generally in his effort to make the fairs what they should be.

DEBT OR DONATION

We heard a man say the other day that people should be taught that their financial obligations in support of the church are in the nature of a debt, not a donation. A debt, not because it is assessed against them by the church officials, but because the individual actually owes it because of the service the church has rendered him, both directly and indirectly. The degree of civilization we have attained, the security we enjoy, rest more upon the results of religious and moral teachings than upon police power. For this reason every one owes, not only financial but moral support, to the institutions which contribute to the advancement of civilization. Nor is this support and loyalty due only to the church. There are many charitable, philanthropic and educational movements which contribute to the work of human betterment and which offer an opportunity for the individual to contribute his mite in payment of what he owes to society. These obligations cannot be fully discharged by the payment of tax money into the public treasury, for much of the best and most important work of the world is done independent of governmental agencies. The semi-public agencies are avenues thru which the individual may contribute his share towards promoting the common good and render patriotic service to his country. The common, narrow conception of patriotism often fails to recognize the many opportunities for its exercise which are found on every hand.

COUNTY FARMERS' CONGRESS

Farmers' Weeks and Farmers' Excursions to state schools of agriculture and state experiment stations have become common. There are Farmers' Days at fairs and Farmers' Nights at Chautauquas. But it remained to Niagara County, N. Y. to hold the first Farmers' Congress in which the country and the townspeople co-operated to advance the farm interests of the county. The town people no doubt had in mind (as they had a right to) some direct benefits to come to them from the visiting crowds. But they saw more plainly the increased prosperity to come from a better organized and more prosperous agriculture of the county, and they gave loyal support to the undertaking. Niagara County is pre-eminently a horticultural county, and interest centers in the production, handling and marketing of fruit. The program gave particular emphasis to this industry, and the spirit of co-operation manifested thruout shows that these growers have caught some of the spirit and methods of the fruit growers of the Northwest who have developed individual prosperity thru community prosperity. The Niagara event was a real Congress. There were carnival features to entertain visitors, but there was also a solid program participated in by authorities from state and federal departments of agriculture, by the director of the state experiment station, the state commissioner of agriculture, the Governor of the state and one of the several candidates for the presidency of the United States. The speakers, however, represented solid worth rather than an array of spell binders. They would have done credit to a state gathering, but were none to good for the farmers of a single county seeking the best. Not all counties can follow the lead of Niagara, but every agricultural county can take a lesson in town and country co-operation in fostering the basic source of the county's wealth—farming.

CROP PROSPECTS

According to the Department of Agriculture's Crop estimates for June the outlook for bumper crops is not so good in most directions as last year. It is estimated that the 1916 wheat crop will be 300,000,000 bushels less than the crop of 1915. This will no doubt be influenced more or less by the weather conditions between now and threshing time. The forecasted yield is less than any crop since 1911. It must be remembered, however, that the surplus on hands is the largest in years. Canada has 100,000,000 bushels more on hands than last year at this time. At harvest time a year ago the big mills were cleaned up; now they have a good supply of both flour and grain. The following percentages compare this year's estimate with a normal crop; also last year's figures and those of the ten-year average:

Wheat.—Area planted, 50,871,000 acres, compared with 59,898,000 last year. Condition, 77.7 percent of a normal crop, compared with 88.2 last year and 86.2 the 10-year average. Indicated yield, 14.1 bushels per acre, compared with 16.9 last year.

Oats.—Area planted, 40,599,000 acres, compared with 40,780,000 last year. Condition, 86.9 percent of a normal, compared with 92.2 last year and 88.6 the 10-year average.

Rye.—Condition, 86.9 percent of a normal, compared with 92.0 on June 1 last year and 90.2 the 10-year average. Indicated yield, 16 bushels per acre, compared with 17.2 last year.

Hay.—Condition, 90.3 percent of a normal, compared with 87.8 last year and 87.6 the 8-year average.

Pastures.—Condition, 93.4 percent of a normal, compared with 91.3 in 1912 and 89.0 the 10-year average.

Apples.—Condition, 76.0 percent of a normal, compared with 70.1 last year and 65.9 the 10-year average.

Peaches.—Condition, 55.4 percent of a normal, compared with 75.9 last year and 60.8 the 10-year average.

A MODEST ORGANIZATION

We have all heard of the man who built a boat in his cellar and had to break out the cellar wall to get the boat out. We hear of business concerns so highly systematized that an extra force of men is required to operate the system. Some of the efforts now being made to organize farmers appear to be based upon much the same plan. The National Chamber of Agriculture which is being very liberally advertised thru the franked mail of a U. S. Senator is a fair example. The proposed Chamber is strong for organization, but like many other recent undertakings of a similar character it would begin at the top. It proposes a National Chamber of nine members to be appointed by the president and to receive a salary of $20 per day and traveling expenses. These members would go out to build up the organization. They would start in farm communities. When they succeeded in persuading twenty farmers to join a local organization called a chamber, a charter would be granted. When four or more local chambers were organized in a county, a county chamber would be formed. When one-third of the counties of a state were organized a state chamber would be formed. When twenty state chambers had come into existence a national convention would be called for the purpose of organizing a permanent National Chamber of Agriculture. The purpose of this elaborately organized body would be to "promote the equitable distribution and advantageous marketing of farm products and to co-operate with federal, state and other agencies." There are farm organizations now in existence that have the services and loyal support of earnest, energetic and sympathetic men trained in farming and experienced in the needs of the farm and farm communities. These men are sufficiently interested to give their time for much less than $20 per day and many have paid their own traveling expenses. They have built up organizations with keen organization spirit back of them, but they have not succeeded in materially affecting equitable distribution or bringing about advantageous marketing. The promoters of the National Congress of Agriculture have no evidence in the history of similar organizations to prove that their chamber could accomplish the purposes sought, but they are willing to risk $250,000 of public funds (the amount requested from Congress) on the venture. At $20 per day for the organizers, $7,500 per year for a general secretary, $5,000 per year for a first assistant secretary and $4,000 a year for a second assistant secretary, they feel perfectly safe in risking federal appropriations on their plan. Here is the manner in which the Congress would operate when fully established and well under way. "Whenever a local unit or chamber, or any member thereof, desires to offer for sale or to purchase any agricultural products or commodity, or commodity related to the farm, or desires information relating to said product or commodity, said chamber or said member may communicate such desire to the secretary of the local chamber, whose duty it shall be, in case he cannot meet the needs of the applicant, to certify and forward the application to the secretary of the county unit or chamber. If the secretary of the county unit or chamber can not meet the needs of the applicant he shall certify and forward the application to the secretary of the state unit or chamber. If the secretary of the state unit or chamber can not meet the needs of the applicant he shall certify and forward the application to the secretary of the national chamber whose duty it shall be to act at once upon the application." It is indeed a satisfaction to know that the national secretary is compelled by constitutional provision to act on that troublesome application, and act immediately. Without this wise provision the applicant would be in danger of being expelled as an undesirable citizen of undue and unreasonable wants. But so long as the national secretary must act, every member may go the limit. It will help make the national secretary earn his salary. If mere organization is the remedy for all agricultural ills, this chamber scheme should be the universal panacea. But we are told that salvation comes from within and not from without, and farm problems must be solved by the men in the ranks rather than an elaborate overhead organization. The roots of this scheme are misplaced. They need to get nearer to the soil.

"CLOVER SICKNESS"

For years we have heard the term "clover sickness" when reference was made to land upon which clover no longer did well. It was commonly used in reference to soil that previously produced good crops of clover but later developed a condition in which the plants became sickly, spindly and finally died. It was considered that the soil had become "surfeited" on clover and was no longer friendly to it and it was necessary to rest the soil from growing clover for a while. The remedy proposed is logical and is good practice in order to remedy the trouble called "clover sickness," but it is found that the cause is different from that formerly supposed. Instead of the trouble being one of the soil only, it is usually one, or several, of the clover plant itself. Following are some of the troubles that clovers are heir to and usually bring about the conditions referred to as clover sick land: Soil exhaustion or the lack of one or more essential elements of plant food; soil acidity, or the lack of lime; injury caused by the toxic substances excreted by plant roots; lack of inoculation, or the inactivity of nodule organisms; destruction by insect pests; destruction by fungi which live upon the tissues of the plant. Careful examination in this territory usually shows that unsatisfactory clover crops are due to one or more of these troubles. When good stands are secured and the crop goes "bad", the most frequent causes in the east are the stock borer, or clover weevil, leaf blight, and stem rot. These troubles become more common and serious in proportion to the amount of clover raised and the frequency in the rotation. When stem rot is the trouble, it is recommended that the crop be left off the land for a number of years, as the spores of the disease live in the soil for a long time. Of course for the first two causes named, lack of plant food and lime, the logical and only thing to do is to supply them, and these are more frequently the trouble than anything else. Proper rotations, good drainage, clean cultivation, applications of lime and sufficient fertility will usually spell success with clovers.

HARRISBURG NOTES

To Discuss Winter Work.—Important matters pertaining to winter educational work of the State Department of Agriculture and the scope of recommendations to be made to the legislature regarding the farm advisory work will be discussed by the State Commission of Agriculture this month. The meeting will also hear reports relative to proposed plans for co-operation and secure an agreement with the State Department of Health concerning rules for cattle along streams. This subject has been taken up with the state health authorities, who have met the agricultural people in a sympathetic way and who will endeavor to work out some plan. It is likely that an increase in the appropriation for institutes will be asked for the next two years and that the farm advisory work will be more closely handled with State College. Reports that it is planned to abolish the advisory system are baseless.

Marketing Problem.—Within a few months it is expected that the details of the plans for improving marketing conditions will be worked out and promulgated so that they may be given a trial when the apple picking season comes around. The January meeting of the State Board of Agriculture was notable for the fervency of the talks of the state advisors on the subject of grading and packing, but thus far not much in the way of practical information has come out from Capitol Hill. It was announced some time ago that the state authorities planned to establish some systems of selling and marketing with the township as the unit, but even this seems to have been mislaid.

Down to Common Doings.—Now that the Chicago convention is over it may be expected that the state administration will now devote itself to the advancement of those policies of agricultural advancement to which the governor is committed. For a time it is reasonably certain that the officials on Capitol Hill will be busy getting even for the way delegates voted in the Pennsylvania delegation at Chicago. This is one of the results of war. The wonder is that there was not some shaking up long ago.

The Main Road System.—Serious attention is being given at the Capitol to the problems attending the development of the road system and it is figured out that with less than $300 a mile available the efforts of the commonwealth are going to be more or less restricted. To this end it is likely that the department will work this summer toward putting what are known as the arterial roads into fine shape and keeping the others in condition. One of the suggestions which will be made is that the funds received from the registration of motor vehicles should be used exclusively for repair of main highways, the cost of construction being met by direct appropriation. In this way the state will be sure of a maintenance fund.

More Premiums.—More premiums for agricultural products are reported to have been offered by county fairs and agricultural exhibitions and efforts are being made to secure some exact data on the subject. In several counties where competition in corn and fruits has been stimulated as the result of clubs there has also been an increase in premiums. It is believed that the increase when ascertained for the state will prove a surprise of a very pleasant character.

Rural Telephones.—Three rural telephone companies have been chartered by the state in the last month and applications are pending for three more. This is the largest number to be heard from in a long time and indicates that some of the farmers are getting together in practical community development. The movements have been encouraged by the big telephone companies, but it is noticed that the control is vested in the men who will benefit by the service and that the country store exchange appears to be growing popular.

Western Horses. — Some complaints have come to the Capitol about the quality of horses that have been shipped into the state for farm use. The war in Europe has taken the best of the horses and Pennsylvania markets have been stripped of the animals which formerly supplied the farmers. As a result they have been compelled to fall back on western horses which from all accounts are not suited to the Pennsylvania weather.

Students for the Farm.—Officials in charge of the State Employment bureau have been surprised at the number of students applying for jobs and efforts have been made to interest a number of them in summer work on the farm. The number asking to be put into touch with farmers wanting hands has been disappointing, but it is believed that with some attention next winter the schools may be made a valuable feeder for farm workers.—Hamilton, Harrisburg, June 12.

NEW YORK LETTER

Cherry Trees Injured.—The cherry red bug is doing much damage to the cherry crop in some parts of western New York. It is the second brood that is now operating and it is said to be about two weeks later than last year. A spray of tobacco extract, arsenate of lead and limestone sulphur is recommended as most effective. The tobacco extract is a contact spray and kills the bugs it hits while the arsenate of lead is an adhesive and coats the leaves so that it kills the bugs that feed on them. This spray is also said to be effective on plumbs.

County Fairs Get Premium Money.—The department of agriculture is now sending to the treasurers of the county and town fairs the money which shall reimburse them for premiums paid last year. The total amount of premiums paid in the state was $323,991.36 and the appropriation of $250,000 made by the legislature will be devoted to reimbursement. The limit of $4,000 is awarded to 16 societies and the balance is divided in proportion to the amount of premiums paid by the other societies. The counties receiving the $4,000 are Cortland, Dutchess, Genesee, Monroe, Oneida, Orange, Queens, Nassau, Suffolk, Tioga, Washington and Westchester; also the Binghamton Industrial Association, Rochester Industrial, Oswegatchie Agricultural Society, Union Society of Ulysees, Covert and Hector.

Dean Galloway Resigns.—There was general surprise when, on June 8, Dean Galloway of Cornell College of Agriculture presented his resignation as dean of that institution. He asks that the resignation take effect not later than July 1. No reason was assigned for the resignation by Dr. Galloway. He came to the agricultural college two years ago from the Federal Department of agriculture, succeeding Dr. L. H. Bailey.

Demand For Farm Help.—The state Employment Bureau is busy these days in supplying help for farmers. The Syracuse office has filled one position every 13 minutes during the month past and 35 to 45 percent of all the calls for help have been supplied. During May the Syracuse office registered 640 applications. There were 1,289 calls for help while 1,193 were referred to employers and 931 reported placed.

Onondaga Corn Contest.—The second annual contest of the Onondaga Farm Bureau is creating larger interest than last year's. For best yields of grain corn to the acre $100 will be awarded. The first prize is $25. Farmers entering the contest are to notify the county agent, S. A. Martin, before July 15.

Holstein-Friesian Finances.—Wing R. Smith, of Syracuse, is treasurer of the Holstein-Friesian association of America and at the recent session of the association he reported total cash receipts for the year at $218,000 and disbursements at $173,000. The balance of cash on hand May 1 was $215,000. There are about 300,000 head of Holstein-Friesians in the United States, owned by 30,000 persons. Prize money to the amount of $15,000 was given last year. There are now 8,885 members of the association, the gain last year having been 1,260. —D.

NEW JERSEY FARM NOTES

Farmers Advocate Canneries.—Realizing that large quantities of truck and fruit are wasted each year in South Jersey because of poor prices, farmers who attended the spring meeting of the Gloucester County Board of Agriculture at Mickleton, during the past week took much interest in discussing the practicability of establishing co-operative canneries to save part of the surplus crops of later marketing. Some of the members favored the idea claiming that it would help solve some of the market problems. Others were afraid the scheme wouldn't work because they said everybody would swamp the co-operative cannery with produce in a season of glut, while at other times when prices are high it would get nothing. It was declared that the farmers were "worked" by canning firms, who are anxious for a large acreage of tomatoes this fall, holding out the inducement that the prices are going to be high.

Burlington Bureau Active.—It is reported that the Burlington County Farm Bureau, altho organized less than a year ago, is making rapid progress in its work. Burlington County is the only county in New Jersey having a system of farm demonstration in which the county board of freeholders does not co-operate with the state in supporting it. The sentiment among the farmers of the county was so strongly in favor of the demonstration work that they organized the bureau with the idea of supporting it themselves. They now have a membership of 300. Altho such a system is less democratic and is considered less desirable in general than that of the other counties, the personal responsibility of the members to the bureau has resulted in an unusually active interest in the work. Hence the members are advertising the bureau extensively and the work is progressing more rapidly than is usual. Practically all the banks in the county have joined the bureau and have made subscriptions for its support. George T. Reid, the county agent, has, among other projects, been influential in organizing a cow-testing association among fifteen dairy farmers. A dozen other farmers have entirely reorganized their feeding methods under the direction of the bureau official.

Urges Tested Seed. — Farmers of New Jersey are being urged by the state seed analyst to test their seed before buying or sowing. It is claimed that buying seed on the basis of a reliable test not only protects the farmers against fraud, but also enables them to make a selection according to actual value.

Farm Sale Postponed.—It was expected that the postponed sale of the International Poultry Sales Company and the Hoover Incubator Company, would be conducted during the past week when the property known as Brown's Mills-In-The-Pines, long famous as a health resort, was sold to the highest bidder. The poultry company and incubator company are to be sold under the direction of the receivers, Reese V. Hicks and William A. Willson. The sale, however, was again postponed in order to give the bondholders an opportunity to arrange to take over the property. The poultry company and farm has been known as the "million dollar poultry farm" and was considered the largest in the world.

Will Accompany Farmers.—Professor Agee, director of the division of extension work of the New Jersey Experiment Station will accompany the Mercer County Farm Bureau Automobile Tour, June 21. Prof. Agee is responsible in a large measure for the growth of farm demonstration work in New Jersey.—L.

COUNTY NOTES

Cumberland Co., N. J., (S.W.) June 7.—Weather stormy; have been having a shower about every third day. Milk cows are in demand and good prices are paid for them. All stock brings a good price. Eggs are worth 25 cents per dozen; usually at this time they are not over 20 cents. Potatoes and corn are looking nice. The general outlook for farmers is good. Many farmers are now setting out late tomatoes. There will be a large acreage of this crop.—Everett H. Sheppard.

Venango Co., Pa., (N.W.) June 7.—Weather very wet. Heavy frost June 1. May was warm and wet. Live stock improving in flesh but falling in price. What crops are planted are doing well but are late with planting. Butter, 30c; eggs, 25c; potatoes, $1.20; veal, 14c; chickens, 18c; hay, $25 per ton; straw, $12 per ton. Farm work very much behind. Corn not planted yet because of wet weather. General conditions not good as we would like.—W. J. Pringle.

Lancaster Co., Pa., (S.E.) June 7.—Weather cold and wet at present. It has been exceptionally cool for this season of the year. The ground has been kept reasonably moist by frequent rains and thunder showers. The county has been visited by several hail storms already. Live stock is in good condition. Cows are doing well on pasture. Good cows bring $90 to $100; fat steers are being marketed at 9 to 10 cents; fat hogs, 12c. Corn is not doing well. Many farmers have had to replant entire fields. Oats is doing fairly well. Average is not so large as last year. Potatoes are up but not growing fast. Bugs are very bad. A large acreage of tobacco will be put out. Farmers are planting and are experiencing some difficulty in getting the plants started. Some clover fields have made an excellent growth. Timothy is short yet. Wheat is well headed and promises a fair crop. Wheat, 98c; corn, 80c; oats, 50c; hay, $22; straw, $10.50. Farmers are harrowing corn and potatoes and getting things in shape for harvest.—J. Henry Haverstick.

DELAWARE WATER GAP CUT BY NATURE'S WHIP SAW

Delaware Water Gap is a vertical-walled trench, 1,200 feet deep, in the narrow ridge of Kittatinny Mountain thru which Delaware River flows. Did the river find this gateway ready-made thru the mountain or did it cut its way thru the hard mountain ledges, and if so, how could it accomplish its mighty task?

By the study of the geology of the region the following history has been worked out. After the rocks had been formed, layer by layer, as sediments in the sea they were folded and tipped on end and worn down by nature's forces to a gentle surface across which Delaware River flowed to the sea. The top of Kittatinny Range was then part of this surface and the adjacent area that is now lowlands stood nearly at the same level. Elevation of the land caused the Delaware and its tributaries to wear away the softer rocks and leave the harder rocks standing in relief as ridges. The hard rocks that compose Kittatinny Range formed rapids in the Delaware where it crossed them but the river gradually cut this barrier away.

It is easy to believe that streams can remove soft shale and limestone in their course, but it may seem at first thought impossible that water alone can cut away hard rock. The water, however, is only a medium, for the cutting is done by the sand, gravel, and bowlders carried by the stream, just as emery fed to a caw cuts thru the hardest rock or steel. Large round holes that were ground into hard rocks by the churning of pebbles at the bottom of small falls have been left as "potholes" on the sides of gorges as the evidence of such stream cutting. So the Delaware, concentrating its power on a small section of the hard rock of Kittatinny Range was able, during a long period, to cut the gap thru the rocky barrier.

The story is told more fully and in plain language in the text printed on the back of the U. S. Geological Survey's Delaware Water Gap map, which is sold by the Survey for 10 cents.

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Diagnosing and Treating Milk Fever

By IRVING M. AVERY
Sussex County, N. J.

Let us correct an erroneous impression at the very outset: "Milk Fever" is in reality not a fever at all; quite the reverse. Its real name is parturient paresis, and it may be defined as anemia, or lack of blood in the brain. It is quite common among well-kept heavy-producing dairy cattle. It is brought on by an excessive supply of blood in the udder at the time of calving and a consequent deficiency at the brain, with an uneven distribution thruout the circulatory system, resulting in a sort of apoplexy. Attacks of this nature are serious and call for quick action and speedy relief, otherwise the cow is very apt to die.

It is always best if one is inexperienced to secure the services of the local veterinarian as promptly as possible. Once he can diagnose the symptoms and has seen treatment administered and relief effected, however, the average dairy farmer can give first aid, or even confidently handle the case without outside assistance. So simple is the theory of treatment that anyone can readily comprehend it; the necessary equipment is equally simple. The idea is merely the inflation and distention of the udder by means of sterilized air, forced in thru each teat with the apparatus described below. This relieves the congestion of blood in the udder and brings about a speedy return to normal conditions by inducing an even distribution thruout the body and a consequent forcing of blood to the brain.

DAUGHTERS OF KING SEGIS PONTIAC CLARINDA, LAURAY FAMS, N. J.

Outfit for Treating

The outfit for treatment consists of a soft rubber bulb to be compressed in the hand, next to which is a second bulb which acts as an air chamber and regulates the pressure. Next, several feet of light rubber tubing, halfway of the length of which is included a small metal cylinder to be filled with sterilized cotton and thru which the air is forced by the compression of the bulb at the end of the line. At the other end is attached an ordinary milking tube to be inserted in the teat. That is all there is to the device, which may be purchased for a small sum from any dairy supply house.

Treatment

In practice, the milk tube (previously sterilized by boiling for ten minutes in water) is carefully introduced into each teat and the quarter inflated to the greatest possible extent by pumping in sterilized air. The milk tube is then withdrawn, the teat squeezed firmly between thumb and finger, and finally tied securely with a tape, in order to retain the air pressure. This is the entire treatment. However, an ounce of prevention is worth a pound of cure, and it is well never to milk a cow clean for at least twenty-four hours after calving, as the resulting distention of the udder serves practically the same purpose as artificial distention and aids materially in keeping the blood pressure evenly distributed thruout the circulatory system.

Symptoms

So much for the treatment. Now for symptoms, which luckily again are simple, well defined and comparatively easy of recognition. Milk fever seldom attacks any but the heaviest milkers and usually manifests itself when the cow is in her prime—say from five to seven years of age. Heifers dropping first or second calves are seldom if ever afflicted, and cows over eight or nine years old rarely suffer from it.

Because of approaching paralysis of the bowels, the cow is invariably constipated; she is uneasy, wild-eyed and restless. After a short time she commences to sway and stamp her feet, later on staggering about and exhibiting increasing signs of weakness, and finally exhaustion. At last her hind parts refuse longer to support her, and she collapses, always falling upon her right side and with her head drawn to the left and resting upon the hindquarters. At the end, paralysis having spread and become general, the cow appears entirely without consciousness and to all intents and purposes, dead. The eyes are fixed and glassy, the muscles relaxed, and the limbs may be readily handled and placed in any position desired.

If the attack is taken in time, your animal of course will not present the apparently hopeless case described above. But once she becomes unconscious, rest assured her time is short unless relief comes quickly. So remember to act promptly, for with milk fever you are not left long in doubt; your cow is either entirely well or entirely dead inside the space of a very few hours. There is no gradual decline or lingering either way, and a great deal depends upon one's ability to recognize the above symptoms and start first aid measures in time. However, the malady may be said, in a negative sense, to possess one redeeming feature, viz: No particular ill effects follow an attack and there is no permanent damage; once well, your cow is as well as ever.

Prevention

Under the head of prevention I would suggest first, refraining from milking entirely out for at least twenty-four hours. In the case of a heavy milker in overly good condition, where an attack of milk fever is dreaded, it is well to remove all grain feeds and substitute bran for a week or two before calving. Just before, give this in the form of steamed mashes, with plenty of salt added, and also offer plenty of laxative feeds, such as grass, green crops, green corn, etc., in the summer, and beets or beet pulp in winter. The bowels should be kept very free, and immediately the calf is dropped give a drench of 1½ pounds Epsom Salts with one ounce creolin added; this to restore the normal movement of the bowels and prevent fermentation. Feed very lightly for several days; avoid gluten, cottonseed etc., retard instead of stimulate an early large milk flow, and you will run little danger of milk fever.

In conclusion, I might mention two dont's, i.e.: Never by any chance attempt to give a cow medicine thru the mouth after she is down; the muscles of the throat are in a paralyzed state and she is liable to choke to death thru flooding her lungs. And above all things, in making use of the above treatment, keep everything scrupulously clean to avoid infection. This means surgically clean and includes the operator's hands and the patient's udder and teats, as well as the milk tube and other apparatus—a fact occasionally overlooked by most dairymen and some veterinarians.

WASHING THE MILK TEST BOTTLES

Thoro cleaning of milk and cream test bottles is absolutely necessary to an accurate test. Chemicals and dirt will not work together. Empty the bottles directly after the test is finished. Rinse them out with warm water. The bottles are greasy from the butter fat, and some good soap powder or washing powder should be put in each bottle to remove the grease. Fill the bottles with hot water, and use the bottle brush forcing it up and down like a pump. The powder used should be one to make a suds when the brush is forced up and down. The tube and acid glass must receive their share of the cleaning. Rinse thoroly with hot water.

It is convenient to have a drying rack for drying the bottles. A home made one which only takes a few minutes to make, was made by boring holes in a board large enough to allow the necks of bottles go thru. Nail pieces of wood or blocks on each end of the board as high as the necks of bottles are long. Turn the bottle necks thru the holes, and you have a handy drying rack with no danger of the bottles being broken. Bottles cleaned and put away clean are always ready for the next test, and insure an accurate test.—M. A. Kintigh, Westmoreland Co., Pa.

GOAT MILK BUTTER

One of the odd questions asked recently of a food specialist contained a request for information about producers of butter made from the milk of sheep and goats. It seems that a large number of Greeks, Syrians and Armenians in the vicinity of New York have been in the habit of importing it, but the war has shut off the supply. Butter of this sort usually sells for $1 a pound. The Wells Fargo Express Co. has been trying to find American producers who can meet the demand, but it appears that the industry is new.

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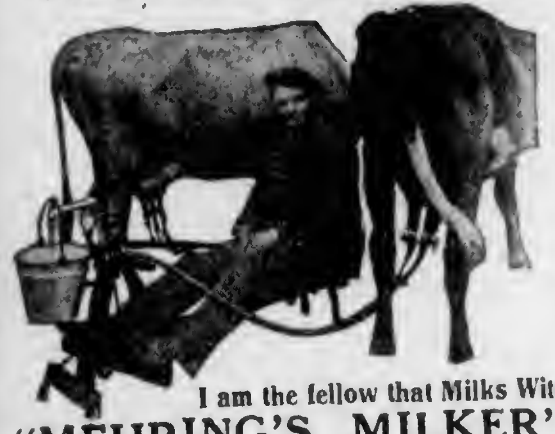

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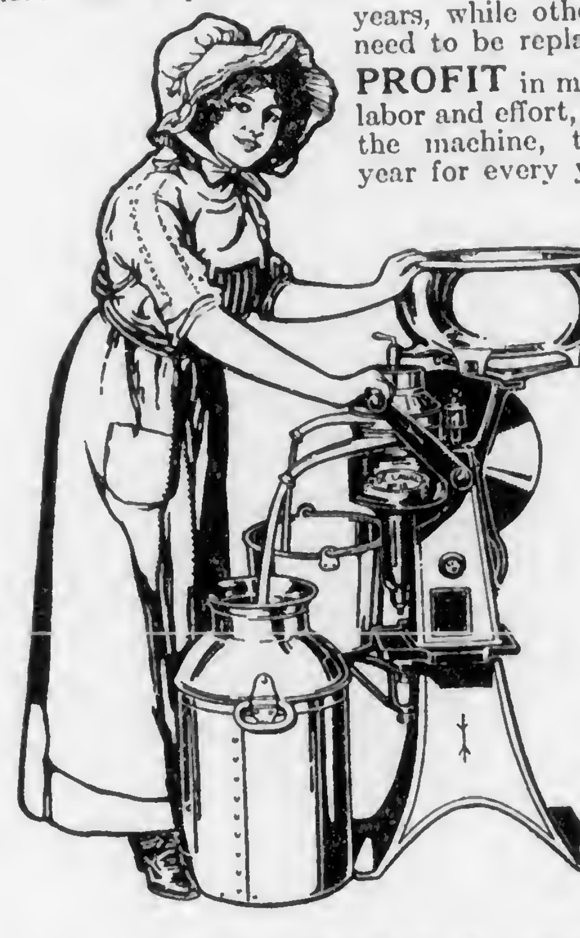

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Live Stock

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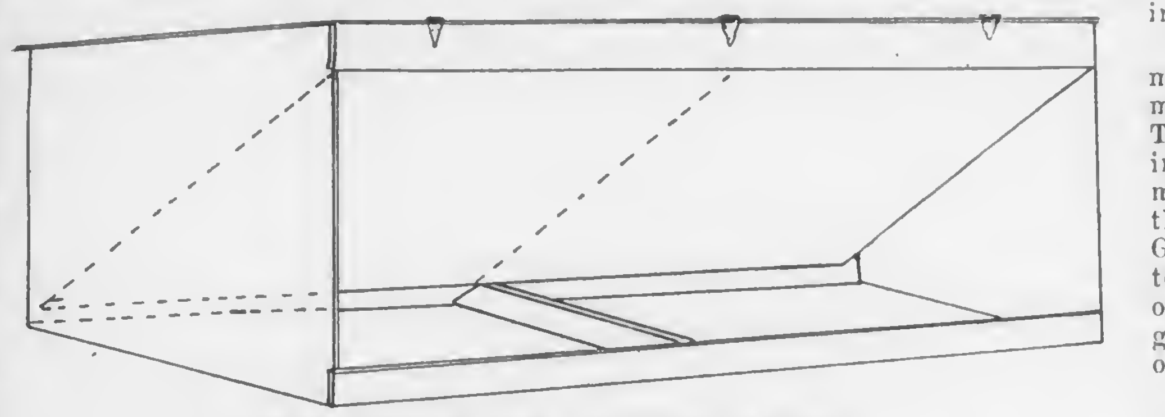
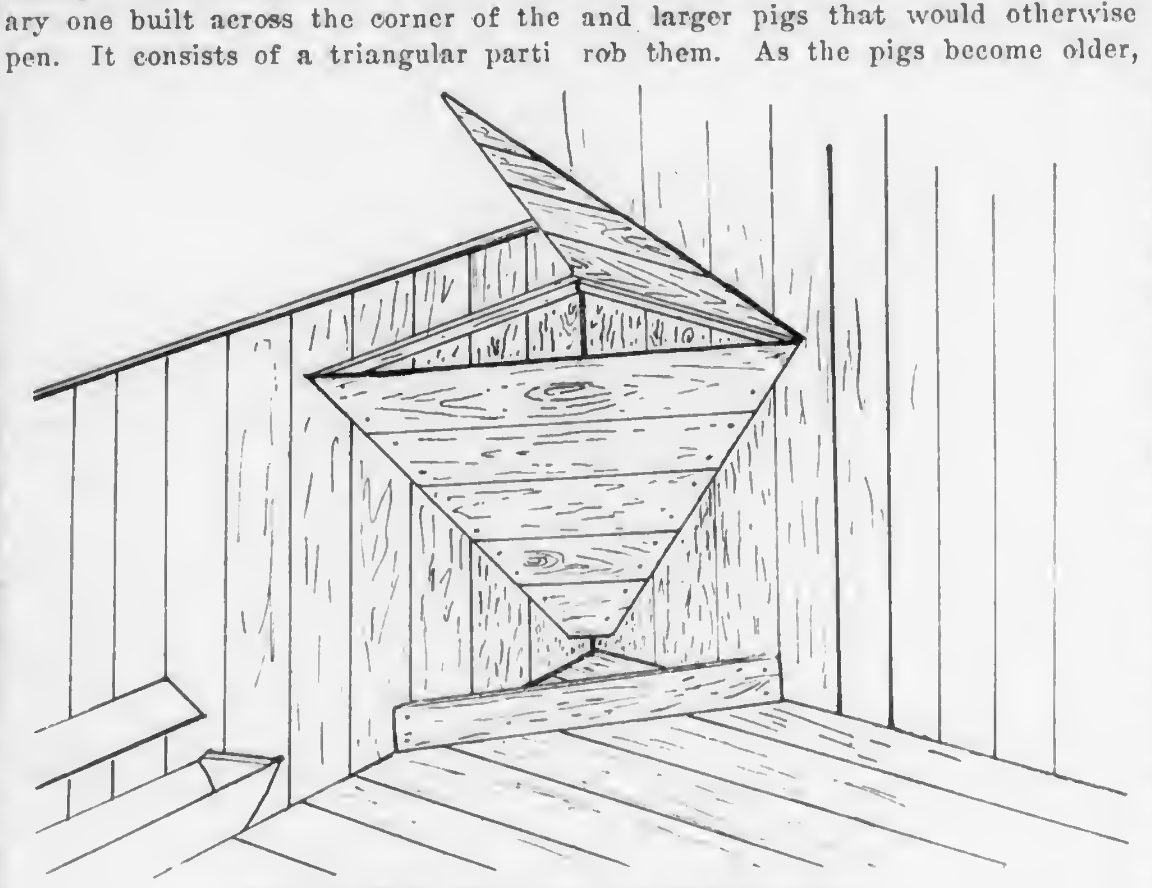
We use three types of self-feeders, all home made, cheap and satisfactory and answering the purpose in every way. One type is a large portable feeder containing two compartments, holding about one hundred pounds each. It consists of a wedge shaped bin, opening at the bottom into a rectangular box into which the feed runs. It is intended for out-door use in the pasture lot and is fitted with a tar paper roof. For fattening hogs on pasture we use the feeder entirely, feeding cracked corn and tankage in the two compartments. With this feed our hogs last spring gained from two to two and one-half pounds a day per hundred weight. They were fed no milk or slops of any kind.


SELF FEEDER FOR OUTSIDE FEEDING.

The other two types are for pen fattening. The first of these is a stationary one built across the corner of the pen. It consists of a triangular partition across the corner, sloping down to the floor and forming an inverted triangular pyramid. An opening in the bottom allows the feed to run out. A six-inch board placed on edge across the corner about a foot out, forms a feed box into which the feed passes. We also have a small portable feeder intended to be placed in any pen temporarily where a few hogs may be placed for a short time. It is a wedge shaped feeder, very similar to the out-door feeder except much smaller, having a single compartment holding about 70 pounds. Both of the pen feeders are intended for feeding either whole or cracked corn or corn meal. Tankage may be fed very well in a low box on the floor of the pen, for not a great quantity is consumed.


SELF-FEEDER BUILT IN CORNER OF PEN.

Pen fattening with a feeder is also productive of fine results. This spring we sold two pens of 26 fall pigs, seven months old, that dressed on an average 215 pounds. The accompanying sketches may give some idea of appearance and method of construction of the feeders.—Eugene Stapler, Bucks Co., Pa.

FEEDING YOUNG PIGS

It pays to feed the young pig as much as possible, both thru the mother and later directly from the trough. Never again will he make such rapid and cheap gains and it pays to keep him growing as rapidly as possible while young. To this end the sow should be given all the good milk-producing feed she will eat. When the pigs are about a month old they will begin to need something in addition to the mother's milk, even tho she is well fed.

As soon as the pigs will eat they should have skim milk in a shallow pan. Then a slop made of milk, some shorts, a little bran, and some oil meal or tankage. If this is fed with corn and the pigs are given plenty of exercise there should be no trouble from either thrumps or scours. Mix by weight rather than measure 4 parts of corn, 4 parts of shorts, 1 part of bran, and 1 part of tankage. The little pigs should always be fed in a creep of some kind; that is, in a small pen into which they come thru and which shuts out the sows and larger pigs that would otherwise rob them. As the pigs become older, the amount of corn in the ration may be gradually increased until it has been doubled.

In addition to these methods of feeding the pigs must be in the sunshine and direct light should get into the sleeping quarters to kill disease germs. Plenty of exercise is also important.—L. A. Weaver, in Mo. Press Circular.

In Canadian experiments with autumn bearing strawberries the Progressive has thus far given best results. Last year it yielded a fair amount of fruit in the usual strawberry season and again in the autumn. The fruit continued to ripen until injured by frost.

Veterinary

Conducted by W. C. Fair, V. S.

Advice thru this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also the name and address of writer. Initials only will be published. We cannot make reply by mail. This is one of the most valuable columns of the paper and we invite readers to make use of it. Clippings from this column, when properly preserved and classified, make one of the most valuable medical symposiums a farmer-stockman can obtain.

Sprained Ligaments of Stifle Joint.—I have a colt, coming three years that has a weak stifle. Once in a whi the cap appears to slip out of place, then back into its socket. Can a case of this kind be cured and if so what had I better apply? A. W., Jersey Shore, Pa.—Clip hair off stifle and apply 1 part powdered cantharides and 4 parts lard, or you can safely apply any of the commercial blisters regularly advertised in this paper.

Nasal Catarrh.—I have a 12-year-old mare that has a discharge from her nose, much worse at one time than another. This discharge is a thick mucus and during damp weather she seems to cough more or less. I would like to know what the trouble is and what I can do for her. G. E., Hawkins, N. Y.—Give her a teaspoonful of powdered sulphate iron, one dr. ground nux vomica and ½ oz. ground gentian at a dose in feed, two or three times a day.

Quittor—Foot Puncture.—I have a 13-year-old mare with a nasty discharge coming from upper part of hoof. It is the result of this mare stepping on a butter nut some four or five years ago. This nut penetrated the lower part of foot and gradually worked out at coronet. About a year ago her foot appeared to rot when this discharge commenced and has not yet ceased. The one side of hoof seems to have raised up considerable and is now higher than opp site side. I have been applying w fat, but fail to see any decided impr ment. K. A., Laceyville, Pa.—App tincture of iodine to enlargement on coronet and wound every day or two, and lower diseased side of foot. A chronic ailment of this kind is no easily remedied; however, good shoeing will go a long way towards making your horse comfortable, and doubtless your horse-shoer, if a good workman, can apply a shoe that will afford some relief.

Cracked Heels.—I have a horse that is troubled with scratches. The sores ooze out a watery fluid and I am anxious to have him cured. I might say that this is a horse I use on the road. J. W., Doylestown, Pa.—Dissolve ¼ lb. acetate of lead, three ounces sulphate of zinc and two ounces of carbolic acid in a gallon of water and apply to sore heels, three times a day. Give him ¼ oz. Donovan's solution of arsenic at a dose in feed or water, two or three times a day.

Atrophy of Udder.—I have a heifer two years old that came fresh January 7, giving 18 pounds of milk daily for two and a half months, a very even flow from all quarters; then I noticed that one forward quarter began to fail in quantity of milk and now the quarter is much smaller than the opposite quarter and she gives very little milk from this portion of udder. But, the quarter is free from bunches. Can anything be done to bring the milk back to this quarter? A. E. S., Otsego, N. Y.—Handrubbing and proper feeding is all that can be done.

Warts.—I have a heifer with warts about the size of hickory nuts and she also has one dry quarter which I would like to know if it will be all right when she again freshens. E. J. S., Trenton, N. J.—Cut off warts and apply tincture of iodine occasionally. No person can tell without making a careful examination of the quarter whether it will remain functionless or not.

Chorea—Azoturia.—I have a mare that had an attack of azoturia about a month ago and it left her with paralysis of the cheek and one hind leg. Her mouth is some better but she has not much use of her hind leg. The hip and thigh are pretty badly sweenied. L. W., York, Pa.—Rub hip with alcohol twice a day. Apply equal parts of turpentine, aqua ammonia and olive oil to sweenied thigh and hip every two days, but before treating her, clip hair off sweenied parts. Give her 1 dr. ground nux vomica and ½ oz. ground gentian at a dose in feed two or three times a day.

Among the Granges

Wayne County, Pa.—Pomona No. 41 met with Delaware Valley Grange No. 1564, Wednesday, May 24, with Worthy Master Samuel Saunders in the chair. The session opened at 11 o'clock in the morning in full form. Reports of the subordinate granges were read and the honor banner was awarded to Beech Grove No. 1089 for having received twenty new members during the past quarter. Brother Clarence I. Hopkins, of Hickory No. 1483, was appointed to carry the banner from his grange and present it. Over fifty new members have been added to the subordinate rolls since the February Pomona.

Brother Will Barklay, of the visited grange, made a very cordial address of welcome, which was responded to by W. W. Baker, treasurer of Pomona and former deputy who organized the host grange some years ago.

After a splendid dinner served by the ladies of Delaware Valley grange, the guests were escorted thru the buildings and grounds which were purchased last fall. The hall was formerly a grist mill of historic fame and afterwards remodeled into a large summer boarding house. The building is 28x60 feet and three stories high. The upper floor has been removed making a large well lighted and finely ventilated hall with stage fully equipped and a large balcony in the rear of the hall. Large porches and four dining rooms, kitchen and serving room on the first floor, a fine concrete basement with a large living spring of the coldest water add interest to the hall. Two large barns and ten acres of land were purchased with the building for $2,000. This is the largest grange hall in the county and one of the largest in the state.

The afternoon session was taken up with reports of committees and a general discussion of the Farm Bureau project. Prof. J. J. Koehler, county superintendent of schools and chairman of the bureau publicity committee, gave a report of the work done and a general discussion followed. The committee was continued with power to select six progressive farmers and business men to act on the committee in furthering the work of getting information before the people of the county as to the work of the county agent.

Brother George Heller, of the visited grange, who is a practical poultryman, gave a splendid talk on poultry raising.

A discussion on the toll bridges connecting New York and New Jersey with Pennsylvania occupied a part of the afternoon and a committee composed of George Heller, of No. 1564; Prof. J. J. Koehler, of No. 1074, and F. S. Keene, deputy, was asked to investigate conditions and find out why the states involved were not getting appropriations to purchase these bridges after the laws were enacted allowing their purchase.

Narrowsburgh, N. Y., which lies across the Delaware river about one mile from the grange hall, is the nearest purchasing centre and a charge of thirty cents is made for a return trip. On the day of this meeting it cost the grange forty cents to make a very needful ten cent purchase.

Misses Ramble and Gromlich, of Harvest grange No. 892, furnished the music for the session.

W. H. Bullock, state orchard inspector, closed the afternoon session with a talk on the different fruits and sprays and how to make and test the material used.

After the evening meal, the fifth degree was conferred in full form to a large class and the business of the day transacted.—F. S. K.

Lycoming Co., Pa. — The regular spring meeting of the Lycoming county Pomona Grange was held Thursday, at Montgomery, Eagle Grange, the oldest grange in the county, acting as host on this occasion. Owing to the delayed work of the farmers in this section the attendance was not large, but an enthusiastic meeting was held. The morning was devoted to business, reports from the different granges being received. Following a resolution, passed at a former meeting, the afternoon session was a closed one. Three important questions came up for discussion, a number of men and women taking part in these. The first one was, "Is the farmer always complaining of hard times, a detriment to his profession?" All who talked on this subject declared that this was a serious mistake to make, and undoubtedly harmed the profession. It discouraged those who wish to enter, and gave outside people a wrong impression of the work. One of the reasons that the farmer is apt to become a passimist is that the elements combine sometimes to ruin a crop, thus destroying the labor of a season. However, with the modern improvements in machinery, with the aid of the state and Nation, men are learning how to fight enemies on the farm and are better able to farm successfully. That farming is a profitable business, and the business world is learning to recognize the farmer, should make the farmer of today an optimist, not a pessimist, was the verdict of all. The second question, "Important Needs of the Rural School," was also discussed by a number of people. That the schools of Pennsylvania have improved wonderfully was acknowledged. A few suggestions were made in regard to improvements. First, better buildings, second, co-operation between parents and teachers in the rural sections, similar to that found in cities, and consolidation were mentioned.

The third and last question: "What should be the chief aim of the program in the Pomona Grange?", brought forth a heated discussion. It was declared that the Pomona, in the first place, should be an example to the Subordinate Granges. There should be a kindly feeling, the discussion should be friendly, and the aim of the program should be to inspire the other granges. Subjects of interest to the farmer should always be on the program. The women of the grange should be remembered and at least one question in which they are interested, be brought up. The wisdom of having an expert present to talk on a subject of interest to all was heartily endorsed by many of the grangers. That this meeting brings farmers from all parts of a large county, in the time of the year when men are needed on the farm, is a sufficient reason for planning a program that will be helpful, and pay them for sacrificing the farm for the day. What the farmer needs more than anything else is to learn the value of co-operation, and the one way to do this is to come together, talk over things of interest to all, and have present an expert, one who can not only make an address, but who can answer any questions that are of practical value to the agriculturist. The ladies of the Aid society of the Baptist Church of Montgomery served the dinner and supper. It was decided that each grange shall present a list of members wishing to take the fifth degree, so that this work can be carried out systematically. The next meeting of the Pomona in September will be held at Capt. John Brady Grange, Pennsdale.—D. D.

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Please discontinue my ad as my fall and winter Berkshire pigs are all sold. I find your paper to be a good selling medium for Berkshires.—C. C. Keiser, Marietta, Pa. Feb. 1, 1916.

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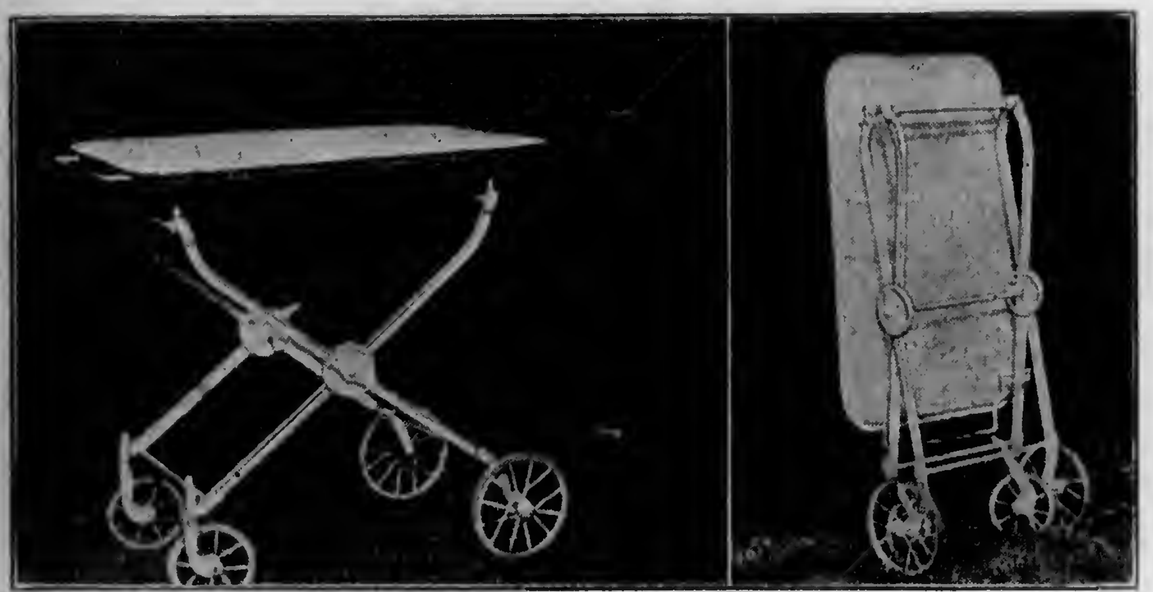
House Wagon for the Housewife

Two years ago a new helper came into our household. Its silent helpfulness soon became indispensable. We had often talked of the possibilities of a wheel-tray, but because our rooms were small and because the furniture stores offered us only the low; parlor-table affairs, at a high price, we refrained and continued to make many steps bridge the distance from kitchen to dining-room.

At last we attained our coveted country home with large room and many windows. The kitchen is 17 by 15 feet. The sunny southeast room adjoining was chosen as the dining-room. Its dimensions are 15 by 15 feet. Every meal is a restful luxury in this sun parlor. The windows are filled with thrifty house plants in winter. Thru the open windows in summer airy coolness greets us from the maple shadows of the lawn. The kitchen is a compactly arranged workshop in one end, while the end next to the dining-room is really an open hall from which five doors open—one to the side porch, one to the dining-room, one to the cellar, one to the hall and one to the nursery.



MRS. MINNS' HOUSE WAGON, OPEN AND FOLDED.

A pantry and washroom are back of the kitchen. This arrangement and these dimensions explain why our country home demands a wheel tray. Had time permitted we would have made our tray to order, but time was occupied morning, noon and night. Therefore we were glad of the opportunity to purchase, direct from a factory, a most practical wheel tray at half the cost of any of the rather impractical ones that we had found in the stores.

This tray is a light, steel frame mounted on small wheels, and holds a tray 20 by 30 inches. All is white enameled and sanitary. The small steel handle occupies but two inches at the end of the tray, therefore the wagon requires so little space and is so constantly convenient that we have never made use of the fold-up feature which it possesses.

The uses to which this wagon has been put are varied. After supper, I sit on my high stool, beside the draining board, wipe my dishes and set them directly on the tray, which is drawn up by my side. When all are wiped and arranged on the tray, my five-year-old son joyously and carefully draws the tray into the dining-room and leaves it standing between the dining-room table and the china closet. Here I find it convenient for the placing of dishes on the table or in the closet.

I set the table for breakfast and place on the tray all the dishes that I will need in serving the breakfast. When I come down in the morning, I pass thru the dining-room and draw my tray out to its position between kitchen table, sink and stove. When the entire breakfast is placed thereon, again my five-year-old son is at hand. He carries the cream pitcher in to the table and draws the tray into the dining-room beside the table. While I am getting baby into his chair the boy and his father usually have the tray emptied onto the table. At the close of the meal, the table is quickly cleared of soiled dishes and left-overs for the pantry.

At dinner and supper, the dessert is served from the tray.

Sometimes it is pleasant to serve a lap luncheon in the living-room. Then the tray is filled with the necessary dishes, napkins and eatables and drawn thither. The Dorcas-minded women of our neighborhood frequently gather in our dining-room to quilt, tie comfortables or to do other philanthropic sewing. Here again the wheel tray is most convenient. The scissors, thread, pins, needle cases, twine, yarn and all such necessities are accessible on the wheel tray. How many steps, how many sighs, this wheel tray has saved me! How many smiles, how much of youth have been preserved for the mother!—Daisy Amick Minns, Broome Co., N. Y.

DAINTY EMBROIDERED FILET PILLOW

The net foundation comes wide, and is cut into the size required at a reasonable price. This pillow contains 12 small squares, and as the pattern of flowers and frames for each square is all woven into the net no extra charge is required for the stamping. The flowers are jonquils and lillies of the valley, a bunch of each flower forming a square. The colors are not confined strictly to the natural but can be shaded as desired. The jonquils are worked in yellow and two shades of yellowish pink, the lillies of the valley in baby blue and pink, while green forms the stems and leaves. There is no shading required for this style of work. The frames for the squares are worked with white cotton.

The cotton used is the 6-strand mercerized embroidery cotton, which comes in small skeins. Using all 6 threads in the needle at once, the work is speedy. Place the net straight in the hoops and work in satin stitch over the solid portions of the net. Where the solid portion is long the stitch is long, and where short the stitch corresponds. For the centers of the jonquils green is used.

The lining is a beautiful shade of apple green sateen, which shows to the best advantage thru the net. The pillow is edged with 2-inch filet lace.

If desired to harmonize with a room's general color scheme, this design should be developed in the required shades. By working the flowers all in white and the leaves green, with a white or green lining a delicate floral effect is secured. Yellow and green also develop prettily. For a dresser scarf to match, two squares wide and the length of the dresser is the size to make it. One square with a narrow lace edge answers for a pin cushion, and four squares edged with lace for a table cover, makes the set complete.—H. Kaufman.

Broken china may be mended with white paint. Use like glue and tie parts together with strong cord until it hardens. When applied wipe off all surplus paint while soft and the break will be hardly noticeable. Many a choice dish is preserved in this way. The paint is really more effective than most china cements.

Penna. State Summer School Dom. Sci. Teacher.—Miss Evelyn Ancona, supervisor of domestic science in the public schools of Reading, has been secured as one of the instructors in the domestic science course that will be given this summer at the Pennsylvania State College. Miss Ancona graduated from Penn State with the class of 1913.

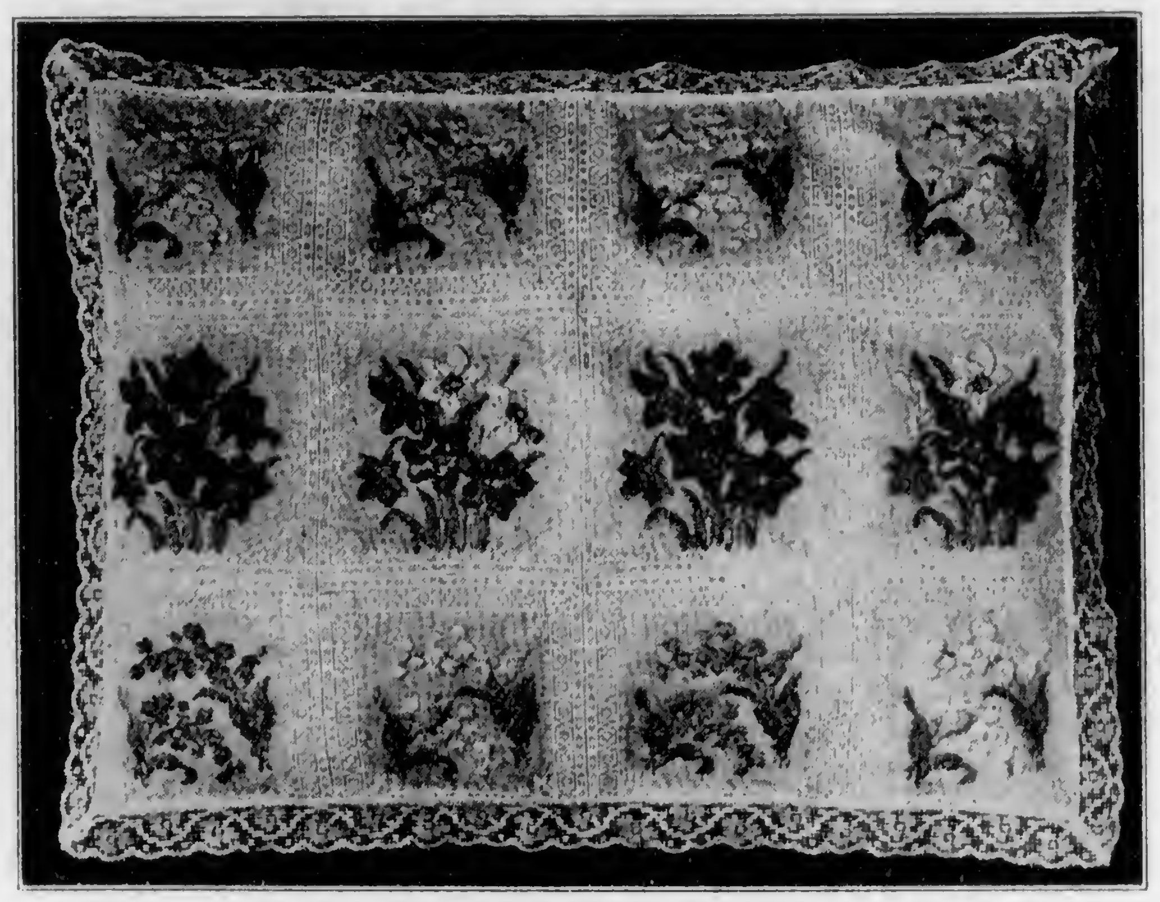
Making Cottage Cheese

Replies to Queries

(The following article is published in reply to Mrs. H. R., of Rising Sun, Md.; A. H. N., of Vernfield, Pa.; and J. F. B., of Center Hall, Pa., who request information about making and marketing good cottage cheese.)

The making of good cottage cheese, Dutch cheese, smear-case or schmierkase, as it is variously called, requires intelligent management, but is not at all difficult when once you learn a few simple principles. It works in very easily with the rest of one's housework, and can be made to return a neat little income for the farm woman. The curd must not be allowed to get too acid or bitter; it must not be curdled too rapidly or too slowly; it must not be heated too quickly, too hot or too long, and you must not lose most of the fat and some of the solids by draining it too hot. To prevent these difficulties one must know a little something about the bacteria in milk, and this we will attempt to make plain herewith.

The souring or curdling of milk is due to certain bacteria, which are called lactic acid bacteria. They sour it by making acid out of the sugar in the milk. This milk sugar is called lactose. To make good flavored curd, it is necessary that the lactic acid bacteria get in their work before other bacteria which cause alcohol, gas and bitter, sometimes poisonous, residues have had time to multiply. For this reason we sometimes add "starter", which consists of milk in which lactic acid bacteria have been developed in large numbers, to insure rapid development of curdling in fresh milk, and to make sure of good flavor.



EMBROIDERED NET PILLOW COVER

Dietetic Value of Sour Milk

It has been pretty conclusively proven that lactic acid bacteria, if sufficiently numerous, are able to retard the development of various putrefactive bacteria in the intestines. They seem to act about as the acid of vinegar does in retarding fermentation in foods. Because of this, physicians and dietitians recommend eating buttermilk, sour milk and sometimes the fermented milks called kefir, kumiss and yoghurt, which we are able to get at some soda fountains now. The last three are, however, produced by the activity (in addition to lactic acid bacteria) of yeasts and other ferments which result in alcohol and carbonic acid gas, which latter causes foam like soda water.

Lactic acid bacteria are present in all milk, sweet as well as sour; the advantage in eating buttermilk and sour milk lies in the multiplication of their number therein to the point which enables them to overwhelm in the intestines the putrefactive bacteria which produce a sick condition called auto-intoxication, indicated by biliousness, nausea, lassitude. This is the result of a too high protein diet, that is, too much meat and other tissue-making food as eggs, fish and even dried beans, but chiefly meat, for we are not likely to get too much protein in eggs or beans. The remedy is to cut down on the protein food, and eat instead more vegetables, especially green vegetables, more fruit, and to take a glass of good sour milk or buttermilk every day. However, it is essential that the sour milk or the buttermilk be right in flavor; a bitter or too sharply acid flavor indicates the work of too many bacteria other than the beneficient true lactic acid kind, and such milks should not be eaten.

How to Get the Curd Just Right

The curd should be solid or firm when ready for heating. If it wheys off before heated the fermentation has proceeded too fast or too far, and is too

acid and perhaps bitter. Milk that is at all uncertain as to quality should be pasteurized by holding it at 180 to 185 degrees for 30 minutes, then cooling as quickly as possible to 70 degrees. This will arrest the development of the bitter putrefactive bacteria which the dirty milking conditions put into the milk. Then you will have to make a "starter" that is full of lactic acid ferments by getting some lactic acid culture tablets from the druggist, and developing them in some of this pasteurized milk. Or else you can sour a little of the unpasteurized milk, use this to sour a jarful of the milk, then take this to sour still another jarful, by which time you will probably have helped the lactic acid bacteria to multiply enough to keep ahead of the bitter ferments in the "starter". If you persist in having dirty milk, you will have to keep on making "starter" like this, to enable you to have enough on hand when you want to make cottage cheese that is good. The easiest way is to have your stable, your cows, the milkers and the milk utensils as clean as possible, then do not let the milk stand in the stable longer than to get that one cow milked.

Thus treated, the lactic acid bacteria will keep ahead of the undesirable ferments if you next give them the right temperature in which to develop. This temperature is obtained by keeping the milk at 70 to 75 degrees for 24 hours or sometimes a little longer; if the milk got cooled down very much from blood heat before you got it into the house, it should be brought up again very slowly to about 90 degrees, then cooled to 75 degrees. Ordinarily a firm curd will have formed in about 24 hours. This should be broken up, then heated very slowly up to 90 degrees, taking about 30 minutes to bring it to this point. This will give you a smooth creamy curd of good texture; any higher heat or longer cooking makes the curd hard and granular, and much more difficult to digest. The whey will then readily separate out in a few minutes. Let it get cold, so that the melted butterfat will solidify and stay with the curd rather than drain off with the whey. Then drain thru cheesecloth. It is then seasoned with salt, a little pepper and some sweet cream, and put into shape for serving or marketing.

For draining a small amount of curd I find one of my fireless cooker kettles just the thing. I spread the ends of my cheesecloth square over the edge of the kettle so that the curd is suspended inside the kettle far enough above the bottom to keep out of the drip, then I press down the cover and clamp it on, and leave the curd to drain dry.

Marketing Your Product

The fresh whey is also good for digestion, because there are still some working lactic bacteria in it. If you are delivering the cheese, butter and buttermilk, why not try to induce your customers to take some of the whey also? Sometimes the doctors recommend whey for ailing babies and babies which are being fed largely on patent baby foods, because the lactic ferments are lacking in these foods unless added by mixing with enough milk to otherwise disagree with the disordered digestion.

It is not difficult to dispose of cottage cheese. If you could see the quantities of it sold over the counters of grocers, butchers and market stalls in the cities and towns, you would say, "I am going after these appetites myself." You can make arrangements with your local grocers and butchers to handle your product if you do not care to work up a regular private custom for it. There are now on the market stiff glazed paper-pulp cans used chiefly for customers to carry home buttermilk or milk in. These would answer very nicely for sending cheese by parcel post to your customers, and they would not need to be returned. They are not expensive when purchased by the thousand, and are very light, therefore the postage on them would not be much.

Bulletins on Cottage Cheese and Sour Milk.—You should send to the New York Experiment Station, Geneva, N. Y., for the bulletin, "Chemistry of Cottage Cheese." It is free. Also write to the Department of Agriculture, Washington, D. C., for Bulletin No. 319, "Fermented Milks," also free.—Harriet Mason.

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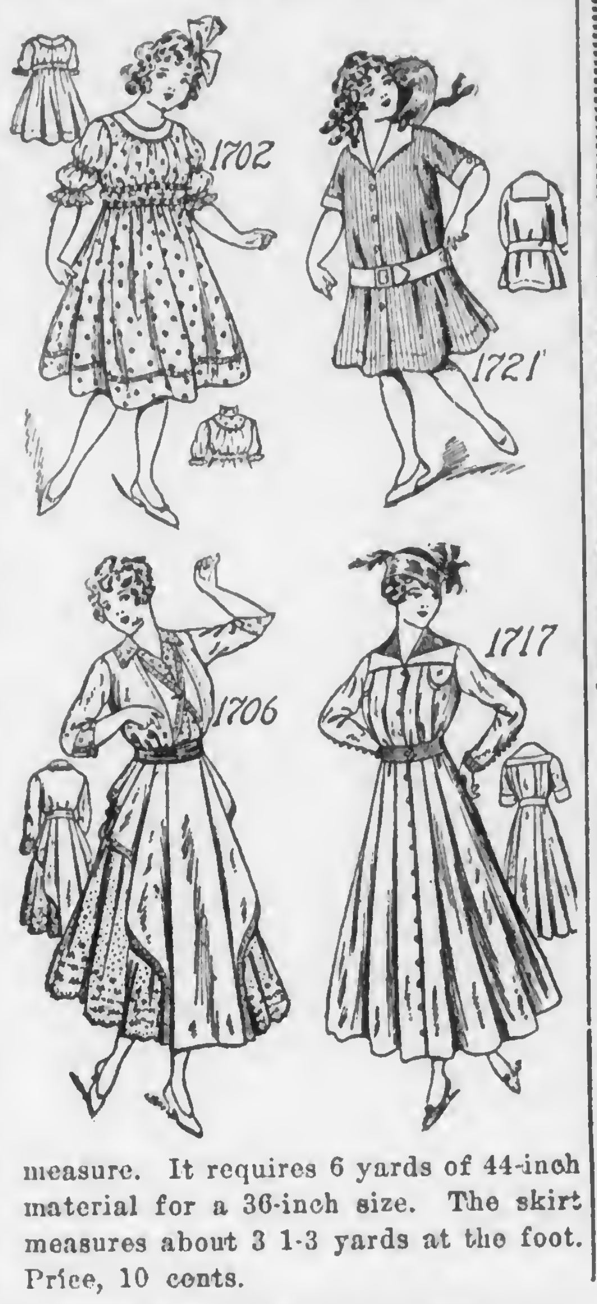
1721.—Girls' Dress.—Cut in 4 sizes: 4, 6, 8 and 10 years. It requires 3 yards of 44-inch material for an 8-year size. Price, 10 cents.

1706.—Dress for Misses and Small Women.—Cut in 3 sizes: 16, 18 and 20 years. To make as illustrated will require 4⅜ yards of 44-inch material for full portions of skirt, vest, collar, sleeve extension and skirt yoke, and 3⅜ yards for panels, sleeves, waist por- The skirt measures 3 1-3 yards at the foot. Price, 10 cents.

1717.—Ladies' Dress.—Cut in 6 sizes: 32, 34, 36, 38, 40 and 42 inches, bust measure. It requires 6 yards of 44-inch material for a 36-inch size. The skirt measures about 3 1-3 yards at the foot. Price, 10 cents.



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Borax should be used in the proportion of one part borax to three parts soap. Soap alone, no matter how good it is, will not produce the cleansing results that soap and borax together will produce. It softens the water, removes dirt, germs and odors, whitens the clothing, brightens colors and prevents woolens from shrinking.

Use 20 Mule Team Borax and your washing will be sweet-smelling and fresh.

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Monday is a hard day. But not so hard that it should give you the blues. Neither should the end of the day find you nervous, done out, fit for nothing but bed.

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THE FUR BRINGERS

By Hulbert Footner

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CHAPTER XXIV

Colina Relents

The Indians continued in a mad scramble about the store. It was only a guess what they might do later.

At last Ambrose saw a man detach himself from the group and run around the square, darting behind the houses for cover. The runner reappeared nearer him, and he saw that it was Tole. He came to him, running low under shelter of the palings. He thrust a rifle into Ambrose's hands.

"Loaded!" he gasped. "Plenty more shells in my pocket."

"Did you hear any talk?" asked Ambrose. "Are they coming over here?"

"Talk no sense," said Tole. "Only yell. It is moch bad. They got whisky."

"Whisky!" echoed Ambrose aghast.

"A big jug. It was in the store."

Ambrose's heart sank. "Come," he said grimly.

As Ambrose and Tole started in the gate they were hailed from the dark doorway under the porch. "Stand or I fire!" It was the voice of Macfarlane.

"It is Ambrose Doane and Tole Grampierre," cried Ambrose.

They heard an exclamation of astonishment from the door.

"What do you want?" demanded the voice.

"To help you defend yourselves."

From the sounds that reached him, Ambrose gathered that the door was open and that Macfarlane stood within the hall. From farther back Colina's voice rang out:

"How dare you! Do you expect us to believe you? Go back to your friends!"

"They are not my men," Ambrose answered doggedly.

"Wait!" cried still another voice. Ambrose recognized the smooth accents of Gordon Strange. "We can't afford to turn away any defenders. I say let him come in."

Ambrose was surprised, and none too well pleased to hear his part taken in this quarter. There was a silence. He apprehended that they were consulting in the hall. Finally Macfarlane called curtly:

"You may come in."

As he went up the path Ambrose saw that the windows of the lower floor had been roughly boarded up. The thought struck him oddly: "How could they have had warning of what was going to happen?"

"There's barbed wire around the porch," said Macfarlane. "You'll have to get over it the best way you can."

Ambrose and Tole helped each other thru the obstruction. They found Macfarlane sitting on a chair in the doorway, with his rifle across his knees.

"Go into the library," he said.

The door was on the right hand as one entered the hall. Within a lamp had just been lighted; even as Ambrose entered Colina was turning up the wick.

Heavy curtains had been hung over the windows to keep any rays of light from escaping, and the door was instantly closed behind Ambrose and Tole.

Inside the little room that he already knew so well Ambrose found all the defenders gathered. The only one strange to him was little Pringle, the missionary, who sat primly on the sofa. It had much the look of an ordinary evening party, but the row of guns by the door told a tale.

John Gaviller sat in his swivel chair behind his desk, leaning his head on his hand. Ambrose was shocked by the change that three months' illness had worked in him.

The self-assured, the scornfully affable trader had become a mere pantaloon with sunken cheeks and trembling hands. Ambrose looked with quick compassion toward Colina.

"What have you to say for yourself?" Gaviller demanded in a weak, harsh voice.

"Do you know the reason for this attack?" demanded Ambrose.

Several voices answered. "No!"

"All the flour was stored in Michel Trudeau's shack. Some wretch set fire to it and destroyed it all. Naturally they thought it was done by John Gaviller's orders. This is their reprisal."

"You dared to think we would stoop to such a thing!" cried Colina.

The general animosity that he felt like a wall around him made Ambrose defiant.

"I said they thought so," he retorted. "I harrangued them until my throat was sore. I couldn't hold them, and I hid myself and came with them, thinking perhaps I could help you."

"How did they come?" asked Strange smoothly.

"In my boat that they seized," said Ambrose.

"It all comes back to you whichever way you trace it," cried Gaviller. "If you had not attacked us yesterday, they would never have dared today! You have brought us to this! I hope you're satisfied. I warned you what would happen as a result of your tampering with the natives. If we're all murdered it will be on your head!"

"On the contrary, if we're murdered it will be because they found whisky in your store," retored Ambrose.

"Impossible!" cried Gaviller and Strange together.

Ambrose laid a hand on Tole's shoulder. "This man saw it on the counter," he said. "I sent him to the store to get guns for us both. It had no business to be there, as you all know."

"They must have brought it with them," said Strange. "I locked the store myself."

"Of course they brought it," said Gaviller.

"Not much use to discuss that point," said Ambrose curtly. "They have it, and it has robbed them of the last vestiges of manhood. They're nothing but brutes now."

The old man rose. "Silence!" he cried quaveringly. "You are insolent! By your light-mindedness and vanity you have raised a storm that no man can see the end of! You have plunged us into the horrors of Indian warfare after thirty years' peace! How dare you come here and attempt to hector us! Silence, I say, and keep your place!"

"Father," murmured Colina remonstratingly. "You must save your strength."

He shook her off impatiently. "Must I submit to be bearded in my own house by this scamp, this fire-brand, this destroyer?"

Ambrose could not bandy words with this wreck of a strong man. He signed to Tole, and they went outside and joined Macfarlane.

The three of them waited in the doorway in a kind of armed truce, smoking and watching the Indians across the square. At any moment they expected to see the yelling demons turn against the house.

By and by Ambrose heard the library door opened. The light inside had been put out again for greater safety.

He heard Colina come out, and go the other way in the passage. He knew her by the rustle of her skirts. She went upstairs on some errand.

His heart leaped up. He could no longer deceive himself with the fancy that he had ceased to love her. Not with death staring them both in the face. He quietly made his way back into the house to intercept her on her return.

When he heard her coming he whispered her name. Here in the middle of the house it was totally dark.

"You!" she gasped, stopping short. But the scorn had gone out of her voice, and somehow he knew that he was already in her thoughts when he spoke. He put out a hand toward her.

"Don't touch me!" she whispered, shrinking sharply.

There, in the compelling darkness, with danger waiting outside, they could not hide their souls from each other. "Colina," he whispered, "don't harden yourself against me tonight. I love you!"

Her breath came quickly. She could not speak. Her anger against Ambrose was, at the best, a pumped-up affair. She felt obliged to hate him because she loved her father. And her overweening pride had supported it. All this fell away now. She longed to believe in him.

Perceiving his advantage he followed it close.

"It may be the last night," he whispered. "I'm not afraid to speak of death to you. You're no coward. Colina, it would be hard to die thinking that you hated me!"

"Don't!" she murmured painfully. "Don't try to soften me. I need to be hard."

"Not to me," he whispered. "I love you!"

She was silent. He heard her breathing on a shaken breast.

"If I knew it was my last word I should say the same," he went on. "I came back to Enterprise because I thought I had to come to save you!"

"It hasn't turned out that way, has it?" she said sadly and bitterly.

"There is some evil influence working against us all," he said. "If I live I shall show you."

"I don't know what to think," she murmured.

They were standing close together. Suddenly the sense of her nearness in the dark, the delicate emanation of her hair, of her whole person, overwhelmed his sense like a wave.

"Oh, my darling,' he murmured brokenly. "Those devils outside can only kill me once. You make me die a thousand deaths!"

"Ah, don't!" she whispered sharply. "Not now. First, I must believe in you!"

He beat down the passion that dizzied him. He sought for her hand and gripped it firmly. She allowed it. "Listen," he said. "Take me into the light and look in my eyes."

Her hand turned in his and took command of it, drawing him after her. Crossing the stair hall they entered the dining-room. Colina closed the door and lighted the lamp.

Ambrose gazed at her hungrily. She came to him straight and, offering him both her hands, looked deep into his eyes.

"Now tell me," she murmured.

This was the real Colina, simple as a child. Her eyes—the lamp being behind her—showed as deep and dark as the night sky.

Her lovely face yearned up to his, and Ambrose's self-command tottered again—but this was no moment for passion. His voice shook, but his eyes were as steady as hers.

"I love you," he said quietly. "When you hated me most I was doing the best for you that I could. I—I'm afraid I sound like a prig. But it is the truth. I stood out against you when I thought you were wrong because I loved you!"

Her eyes fell. Her hands crept confidingly up his arms. "Ah! I want so to believe it," she faltered.

He thought he had won her again. His arms swept around her, crushing her to him. "My love!" he murmured.

She went slack in his arms and coldly averted her head. "Do not kiss me," she said.

He instantly released her.

"It's not the time," she murmured. "It seems horrible to-night. I—I am not ready. By what happens tonight I will know for always!"

"But Colina—" he began.

She offered him her hand with a beseeching air. "I do not hate you any more," she said quickly. "You have a lot to forgive in me, too. Be merciful to me. Show me—to-night."

He drew a steadying breath. "Very well," he said. "I am contented."

CHAPTER XXV

Accused

The long suspense wore terribly on the defenders of the house.

To wait inactive, listening to the frightful yelling and watching the play of the fire, not knowing at what moment yelling, bullets, and fire might be directed at themselves, was disorganizing to the stoutest nerves.

When the attack should come all knew that their refuge was more like a trap than a fortress. Ambrose wished to abandon the house for the Catholic church up the river.

This little structure was stoutly built of squared logs; moreover, it was possible that some lingering religious feeling might restrain the Indians from firing it.

The suggestion was received with suspicion. John Gaviller refused pointblank to leave his house.

As the hours passed without any change in the situation they began to feel as if they could endure no more. They were almost ready to wish that the savages might attack them and have done with it.

They endlessly and vainly discussed what might be passing in the red men's minds. Tole Grampierre, hearing this talk, offered to go and find out.

There was no danger to him, he said. Even if they should discover that he was not one of themselves, they had no quarrel with his people. Ambrose let him go.

He never returned. Ambrose and Macfarlane helped him thru the barbed wire, and he set off, making a wide detour behind the houses that faced the river, meaning to join the Indians from the other side.

Most of the Indians had for some time been engaged in rifling the warehouse, which adjoined the store behind.

Ambrose and Macfarlane, anxiously watching from the porch, heard a sudden outcry raised in this quarter, and saw a man come running desperately around the corner of the store, pursued by a howling dozen.

(To be continued.)

Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., June 12, 1916.

Unable to conveniently do her buying in son during such continued rainy weather, mands of the housewife become great- d and the effect is evidenced on the markets. The quality of near-by oducts in many cases is impaired by the treme wet weather; especially strawberries ow considerable mold and are soft. The eral tendency of prices, however, in the t week has been good and near-by grow- re finding the early season much more couraging than in the past two years.

New potatoes continue to arrive in heavy pply principally from Norfolk and the tern Shore of Virginia. Receipts are eraging about 60 to 75 carloads per day. e market continues active under very good mand and the potatoes are arriving in erally good condition. Norfolk and East- Shore stock in cloth top barrels are sell- at $4.25 to 4.50 per barrel for first grades $2.25 to $2.75 for second grade. Heavy ipments are expected thru the balance of e season from the Eastern Shore altho the p in that section has earlier been reported siderably less than that of the last year. e arrivals from Florida are very light and e in many cases very heated.

Old potatoes are cleaning up well. Penn- lvania stock is selling at $1.35 per bushel; rk State, $1.20 to $1.25 per bushel and estern potatoes, $1.15 to $1.25. Less at- tion is being given to the few cars of potatoes with the heavy receipts and vised prices on the new crop.

Near-by Vegetables

Peas from the near-by Jersey farmers have en in heavier receipt each day since Thurs- y and at the present time are selling at to 70 cents per basket for large peas and 5 to 50 cents per basket for the smaller ies. Asparagus continues to arrive in heavy pply and is maintaining a comparatively od price. The best grades are selling at .75 to $2.25 per dozen bunches; medium ades, $1.50 to $1.75 and the smaller sizes, 5 cents to $1.25 per dozen.

Rhubarb is a hard seller and large quanti- es are being offered at 60 to 75 cents per ndred bunches. It is generally expected hen the price of berries is low that the le of rhubarb will practically end. Spinach riving on the market is in generally poor ndition and offered at buyers' prices. Hot- use lettuce is selling at 50 to 75 cents per shel box and is in good demand when well aded. Bunch carrots are not in sufficient pply to meet the present demand at 3 to ½ cents per bunch, depending on the size the carrots.

Southern Vegetables

Tomatoes are now arriving from Mississippi d Florida; the receipts are moderate and les are quite brisk, especially on the ississippi stock. The Florida tomatoes are this season showing a large amount of aste and are selling at $1.50 to $2 for the est marks and $1.25 to $1.50 for the small- grades. The Mississippi tomatoes are acked in the flat crates which contain four rriers of four quart capacity each. They re selling at 75 to 80 cents per crate.

Onions on the market at the present time e from Louisiana and Northern Texas. The rst grades are selling at $1.60 to $1.85 per andard bushel crate and the second grades t $1.35 to $1.50 per crate. Cabbage is ar- ving quite heavily from Norfolk and the astern Shore section and selling at $1.25 $1.50 per barrel. South Carolina cab- ge in crates is selling at $1.65 to $1.80. orfolk beets are selling at $3 per hundred nches; peas from Norfolk and the East- n Shore packed in half barrel baskets are lling at $1 to $1.50 per basket. A small mount of lettuce is arriving from Virginia d selling at 50 cents to $1 per box. North arolina green and wax beans packed in one- hird barrel baskets are selling at $1 to $1.25.

Fruits

The bulk of the strawberries offered at is time are being hauled direct to the stores y the Jersey growers. Nearly every popu- r variety is to be found on the market but hose receiving the preference are the Gandy d the Chesapeake. The general run of ock is selling at 5 to 7 cents per quart; ncy Gandy and Chesapeake berries are sell- g at 8 to 9 cents. Considerable mold was idenced in the receipts at the beginning this week, due to the excessive rains. A w berries are still arriving from Delaware d sell at 4 to 6 cents per quart.

Blackberries from North Carolina sell at to 11 cents per quart and dew berries at 1 to 12 cents per quart. The cherries on e market from Delaware are poorly colored d generally small. They are selling at ices ranging from 3 to 6 cents per pound. ersey cherries are expected in heavy supply rly in the next week and it is rumored that e crop will be unusually heavy. Cantaloupes om California packed in standard crates 45 melons are selling at $4 to $4.50; ony crates at $3.50. Carlots of water- elons from Florida sell at $350 to $400.

The first of the Georgia peaches are ar- iving and selling at the usual high figures. he "Uneeda" variety is selling at $2.75 $3 per carrier and "Greensboro" at 2.25 to $2.50 per carrier.

The government report of cold storage pple holdings on June first indicate that here were 121.3 percent more apples in old storage at that time than were held n June 1, 1915. The report shows by comparison that 4.3 percent of the holdings in torage on December 1, 1915, continue to be eld. The supply on the market at the pre- ent time is chiefly on unattractive stock which sells at low figures but all offerings of first grade fruit were absorbed at full quotations. Baldwins are ranging from $3 to $4 per barrel; Ben Davis, $2 to $2.75 and few Winesaps at $3.25 to $3.50.

Poultry

The receipts of fowl have been light and the prices well sustained while live spring chickens have been in more abundant supply and the market somewhat declined. Good quality heavy live fowl are selling at 19½ to 20½ cents. Spring chickens weighing one o two pounds apiece sold according to quality from 24 to 30 cents. White Leghorns sold at 22 to 24 cents. Live spring ducks continue to sell at 14 to 16 cents.

Dressed fowl are selling at an average advance of one cent per pound over quotations of one week ago. The demand is strong for fancy dry packed fowl weighing about re pounds at 23 cents. Lighter stock is lling at 21 to 22½ cents, and fowl under 3 pounds at 18 to 20 cents. Jersey broilers are in good demand at 40 to 45 cents; other near-by broilers at 38 to 40 cents. Near-by spring ducks sell readily at 19 to 20 cents.

Eggs

The demand for desirable fresh eggs has continued steady with offerings cleaned up daily. Near-by extras are selling at 26 cents per dozen, firsts 23½ cents; current receipts, 22 to 22½ cents. Candled and graded eggs are jobbing at 29 and 30 cents per dozen.

—Selmarad.

YORK PRODUCE MARKET

York, Pa., June 12, 1916.

Eggs move slowly, yet the light supply holds the price up. Butter is dull; no over-supply but less demand. Old potatoes are active, few being offered, and at almost any price taken up quickly. The usual strawberry glut occurred last week. Prices ranged as low as 5 to 6 cents for the nicest berries; the larger growers realizing better prices thru the dealers. Many were shipped away. A few early peas were offered at 30 to 35 cents per ½-pk.

Eggs.—22@25 cents per dozen.

Butter.—Country, 28@34c lb; separator, 30@35c lb. Milk, 6c quart.

Poultry.—Hens, 12@15c lb; dressed, 50c @$1.00 each; springers, 25c lb.

Vegetables. — Potatoes, 14@20c ½-pk; $1.20@1.40 per bu; new, 30@40c per ½-pk. Lettuce, 3@6c per head. Cabbage, 2@6c per head. Onions, 2@5c a bunch. Beets, 4@5c a bunch. Radishes, 2@3c a bunch. Lima beans, 16@18c per quart. Soup beans, 12@15c a quart. Lard, 14@15c a lb. Peas, 30@35 per ½-pk. Beans, 15@20c a ¼-pk.

Fruit.—Apples, 15@40c a ½-pk. Strawberries, 5@15c a box. Cherries, 5@7c box. Currants, 10c a box.

Retail Grain Market.—Wheat, $1.08; corn, 90c; oats, 65c; rye, 95c; bran, $1.40 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, 98c; corn, 78c; oats, 50c; rye, 85c; bran, $27; middlings, $32 ton.

NEW YORK PRODUCE

New York City, June 12, 1916.

Quite liberal receipts of butter on hands and prices slightly lower. Cheese in fair demand with prices a shade higher. The egg market for the week opens rather dull, altho prices remain about the same as last week. Live broilers in good demand. Prices of good frozen dressed poultry a shade higher with a good demand. Vegetables in good demand, but much of the Southern stuff is not first class.

Butter.—Creamery, extra, (92 score) per pound, 30c; higher score, 30½@31c; thirds to firsts, 27@29½c; state dairy, 26@30c; packing stock, 22½@24½c.

Cheese. — Whole milk specials, 15½c; daisies, 16c; skims, 10½@12½c.

Eggs. — Fresh gathered, extra, 24½@26c; dirties, 18@21c; nearby white, fine to fancy, 26@27c; ordinary to good, 24@25c; browns, 25@26c.

Dressed Poultry.—Philadelphia and Long Island, fancy 3 to 4 pounds to pair, 38@40c; Philadelphia fancy roasters, 26@30c. Fowls 19@22c; old roosters, 14c; squabs, $2.50@$4.25 dozen. Spring ducks, per lb. —. Turkeys, frozen, 36@38c. Broilers, 12 to box, milk fed, 18 to 20 lbs., 31@32c; milk fed, 25 to 29 lbs., 28@28½c; corn fed, 26@28½c.

Asparagus. — Jersey and Pennsylvania green fancy, dozen, $3@3.25; do., green, extra, $2.50@2.75; do., green prime, $1.75@2.25; do., green culls, 75c@$1.00.

Vegetables and Greens.—Lettuce, per bbl., 75c@$1.00; radishes, 100 bunches, 50@75c; water-cress, per 100 bunches, $1@1.50; peas, large per basket, $1.50@2.25; small, $1.25@1.50. Strawberries, Jersey, fancy, 8@9c; do., average, 4@7c.

Apples.—Greening, bbl., $2@3; Northern Spy, $2@6; Baldwin, bbl., $2@4.25; Ben Davis, bbl., $1.50@2.75.

Country Dressed Veals—

Choice, per lb.	17	@
Prime, per lb.	16	@16½
Fair to good, per lb.	14½	@15
Coarse, heavy, per lb.	14½	@15
Common, per lb.	12½	@13½
Buttermilks, per lb.	12	@12½
Grassers, per lb.	11	@11½

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., June 12, 1916.

Receipts for the week ending Saturday evening, June 10:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	2,905	5,524	4,901
Previous week	3,022	8,729	4,632

Calves.—Total receipts of calves for this week were 1,542 against 2,053 last week.

Beef Cattle.—The market was well supplied with Lancaster County, Pa., and Chicago, Ill., cattle, and while trade was somewhat slow and indifferent, prices closed steady all along the line. Bulls, cows and calves that were of the desirable kind commanded full values.

Best steers	$10.00@10.10
Choice	9.50@ 9.75
Good	9.00@ 9.25
Medium	8.50@ 8.75
Common	8.00@ 8.25
Bulls	6.00@ 8.25
Fat cows	5.00@ 8.00
Thin cows	3.25@ 4.50

Veal Calves.—

Exceptional lots	$12.00@12.50
Good to choice	11.00@11.50
Medium	8.50@ 8.75
Common	7.75@ 8.25
Southerns and barnyards	6.00@ 7.50

Sheep and Lambs.—Offerings showed quite a material decrease, but with demand noticeably conservative current rates were well sustained.

Wethers, extra	$ 7.75@ 8.00
Choice	7.25@ 7.50
Good	7.00@ 7.25
Medium	6.00@ 6.75
Common	4.00@ 5.00
Ewes, heavy, fat	6.50@ 7.00
Lambs, extra	9.75@10.00
Good to choice	9.00@ 9.25
Medium	7.25@ 7.50
Common	5.75@ 6.00
Early spring, per pound	9@ 12

Hogs. — The butchers and slaughterers' strike has unsettled the market to such an extent that at present trade is lacking. In consequence thereof prics are purely nominal. Westerns, gross weight, $11.20; net weight, $14.

City Dressed Stock.—Prime and choice meats of every variety are held in a steady to firm way, with demand somewhat restricted.

Steers	11	@15
Heifers	10½	@14
Cows	8	@12
Veal calves	13	@15
Extra calves	17	@
Southerns and barnyards	10	@12
Country dressed	12	@14
Extras	16	@
Sheep	14	@15
Extra wethers	16	@
Lambs	16	@18
Extra lambs	20	@
Early spring	22	@23
Hogs	14½	@

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., June 12, 1916.

Cattle.—The supply on sale was 77 loads compared with 55 loads the week before. The market ruled active and higher on all the good fat dry-fed cattle, while the grassy grades sold slow and lower, generally 25 to 35c lower. Cows and heifers in liberal supply and decline was about the same as on the grassy grades of steers. Bulls in liberal supply and sold lower. Fresh cows in liberal supply and sold generally $5 per head lower on best, while medium and springers sold at even more of a decline. Cattle supply today numbered 65 carloads; demand good and market active and higher on best fat cows and dry-fed steers.

Good to choice	$10.50@11.00
Good, 1300 to 1400 lb.	10.10@10.40
Medium to good, 1200-1300 lb.	9.25@ 9.50
Tidy, 1050 to 1150 lb.	9.40@ 9.60
Fair to medium, 1000-1100 lb.	8.75@ 9.25
Fair, 900 to 1000 lb.	7.75@ 8.00
Common, 700 to 900 lb.	6.50@ 7.50
Rough, half-fat, 1000-1300 lb.	7.00@ 8.00
Common to good fat oxen	6.00@ 7.75
Common to good fat bulls	5.00@ 8.50
Common to good fat cows	4.50@ 8.00
Heifers, 700 to 1100 lb.	4.75@ 9.50
Bologna cows	4.00@ 5.00
Fresh cows and springers	$25@75

Calves.—Veal calves in fair supply and the market closed 50c per cwt. above Monday's prices. Receipts of calves today, 800 head; market active at steady prices.

Veal calves	$9.00@12.50
Heavy and thin calves	5.00@ 7.00

Hogs.—The supply of hogs during the week has been liberal, and with a good demand the market has ruled fairly active but the prices for the week closed about 10c per cwt. below Monday's prices. Today's receipts of hogs totaled 65 double-deck loads; market steady on heavy hogs while other grades are 10 cents higher.

Prime heavy	$9.65@
Heavy mixed	9.65@
Prime medium weights	9.65@
Best heavy Yorkers	9.65@
Light Yorkers	9.35@
Good pigs	8.80@9.00
Common to good roughs	8.25@8.50
Stags	6.50@6.75

Sheep and Lambs. — The supply of sheep and lambs has been light during the week. Choice grades of sheep ruled steady, while the choice handy weight lambs closed 25c per cwt. lower. Sheep and lamb receipts today numbered 10 double-deck loads; market active on choice yearlings and spring lambs while other grades of yearlings and sheep were slow sale but at steady prices.

Prime wethers	$7.50@ 7.75
Good mixed	6.25@ 7.25
Fair mixed ewes and wethers	5.50@ 6.50
Culls and common (clipped)	3.00@ 4.50
Spring lambs	8.00@12.00
Clipped lambs	5.50@10.00

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., June 12, 1916.

Hay and Straw.—There is a fair inquiry for desirable grades of hay and values of this description are steadily maintained. Supplies, however, are mostly of the under grades which are dull and irregular in value. Straw is steady.

Grains.—Wheat is showing slight daily fluctuation with the trend of the speculative market which in turn follows closely on the condition of the growing crop. There was a slight advance during the week. There is a fair demand for corn and the price advanced. Oats are firm but demand is only moderate.

Hay.—No. 1 timothy medium bales, $24.50@25; No. 2 do., $22@23; no grade, $11@14. Light mixed clover, $22@23; No. 1 do., $20@21. No. 2 do., $17@18.

Straw.—No. 1 straight rye, $15@15.50; No. 2 do., $14@14.50; No. 1 tangled rye, $12.50@13; do., No. 2 $11.50@12. No. 1 wheat straw, $11@11.50; No 2 do., $10@10.50; No. 1 oat straw, $10.50@11; No. 2 do., $9@9.50.

Wheat.—No. 2 red $1.00@1.02; No. 3 red, $1.00@1.02; rejected A, 97½@99½c; rejected B, 96@98c.

Corn.—No. 2 yellow, 79½@80c; steamer yellow, 82@82½c; No. 3 yellow, 78@79c; No. 4 yellow, 75@76c; ear corn, 80@80½c per 70 pounds.

Oats.—No. 2 white, 47@47½c; No. 3 do., 44½@45½c; No. 4 do., 41@42c; standard white, 46@46½c; sample oats, 38½@39½c.

Feed.—Winter bran, 100-lb. sacks, $26.00@26.50; spring bran, do., $23.50@24.

Flour.—Car lots, winter clear, $4.60@4.80; straight, $4.85@5.15; patent, $5.25@5.50; do., city mills, patent, $5.90@6.25; regular grades, $4.60@4.80. Rye flour, $5@5.50 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., June 12, 1916.

Hay.—Receipts of hay are increasing. This fact has caused an easier feeling. Market, in all probability, will rule a little lower. At present we are enjoying a good outlet for all grades of sound hay. No. 1 timothy, $22.75@23; No. 2 timothy, $18.75@20; No. 3 timothy, $15.50@17; No. 1 light mixed, $19@20; No. 1 clover mixed, $16@17; No. 2 clover mixed, $12@14; No. 1 clover, $13@14; No. 2 clover, $9@11; No. 3 Prairie, $13@13.50; No. 4 prairie, $9.50@10.

Straw.—Receipts of straw increasing while the demand is not very active; market a trifle easier. No. 1 oat, $9.25@9.50; No. 2 oat, 8.75@9; No. 1 wheat, $9@9.25; No. 2 wheat, $8.50@8.75; No. 1 rye, $10@10.50; No. 2 rye, $8.50@9.

Ear Corn.—Arrivals of ear corn while not large are more than equal to demand. This commodity is hard to sell in warm weather. New stock. No. 2 yellow, 79@80c; No. 3 yellow, 74@76c; No. 2 high mixed, 77@78c; No. 2 mixed, 75@76c.

Oats.—Receipts of oats liberal; market declining, not much demand. No. 2 white, 44½@45c; Standard, 43½@44c; No. 3 white, 42¼@42¾c; No. 4 white, 40@41c; Rejected, 35@38c.

NEW YORK HAY AND GRAIN

New York City, June 12, 1916.

Hay and Grain.—There is little change in the local hay market. The Erie road has replaced its embargo and there is still a rather short offering. Brooklyn markets report good business on all except low grade timothy and heavy mixed hay, of which there is a surplus. Good grades are moving out at steady prices with heavy mixed grades slow sale. Straight clover is not wanted and shipments are not wanted. Rye straw is very plentiful and weak.

Grains.—Wheat prices advanced sharply on the issuance of the June crop report, but the advance was lost in heavy selling on the speculative market. Corn is weaker with wheat. Oats are quiet and none too firm.

Hay.—Large bales.—No. 1 timothy, $30@31. No. 2 $27@28; No. 3, $22@24; fancy mixed clover, $26@27; lower grade clover, light mixed, $14@20; No. 1 clear, $18@19; lower grades, $11@16.

Straw.—Per ton, No. 1 rye, $15.50@16; do., No. 2 $14@15.

Wheat.—No. 1 Northern, $1.26½; No. 2 $1.26; No. 2 hard winter, $1.18½.

Corn.—No. 2 yellow, 83⅞c; No. 3 yellow, 82⅞c.

Oats.—No. 3 white, 45@45½c; No. 4 44@44½c; ordinary to fancy, 44½@46c.

Rye.—$1.06.

Mill Feed.—Coarse Western spring one hundred-pound sacks to arrive, $22.50@23. Standard middlings, $24@25; flour, do., $28.60 to arrive. Red dog, to arrive, 140-pound sacks, $23.50. Oil meal, $31@32. City feed bulk bran, $23. Heavy feed in bulk, $24. Red dog, $33. Flour middlings, $32.50.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., June 12, 1916.

Weaker markets outside caused a decline of ½-cent in solid-packed creamery and 1 cent in prints. There was a fair demand for fine goods at the revised figures but supplies are largely of more or less unattractive stock which are dull and irregular in value. Packing stock and ladles are dull and unchanged. Cheese is steady.

Butter.—Solid packed creamery, fancy specials, 32c; extras, 30@31c; extra firsts, 29@30c; seconds, 27@27½c; ladle packed, 23@25c; nearby prints, fancy, 33c; average extras, 32c; do., firsts, 28@30c; do., seconds, 27@27½c; special fancy brands of prints, 36@39c.

Cheese.—New York full cream, fancy, new, 17½@17¾c; fair to good, new, 16½@17¼c; do., part skims, 11@15½c.

NEW YORK MILK MARKET

New York City, June 12, 1916.

The receipts of milk and cream in 40-quart cans for the week ending June 10 were as follows:

Railroad	Milk	Cream
Erie	50,167	3,548
Susquehanna	8,697	461
West Shore	16,047	1,707
Lackawanna	65,125	3,050
N. Y. Central (long haul)	99,130	4,180
N. Y. Central (short haul)	23,675	48
Ontario	41,975	7,059
Lehigh Valley	46,297	3,573
Homer Ramsdell Line	4,035	46
New Haven	6,350	21
Pennsylvania	13,520	510
Other sources	1,340	36
Totals	380,861	23,239
Same week last year	354,110	18,450

ELGIN BUTTER MARKET

Elgin, Ill., June 10, 1916.

Butter today sold at 29 cents per pound.

WOOL MARKETS

The Boston Commercial Bulletin of June 10 says:

"The advances made a week ago in the wool market have been maintained and a fair volume of wool has again passed into consumers' hands, including both domestic and foreign, principally of the finer grades. Buying in the west is proceeding steadily at 30c to 32c for medium territories and 35c to 37c for medium fleeces, while fine territories are bringing 23c to 27c, according to wool. Manufacturers are moving cautiously, but are still well occupied on old contracts."

Ohio and Pennsylvania fleeces.—Delaine, washed at 37@38c; ½-blood combing at 37@38c; ⅜-blood combing at 40@41c; delaine, unwashed, at 33@34c.

Michigan and New York fleeces.—Fine unwashed at 27@28c; delaine, unwashed, at 30@31c; ½-blood, unwashed, at 35@36c; ⅜-blood, unwashed at 40c.

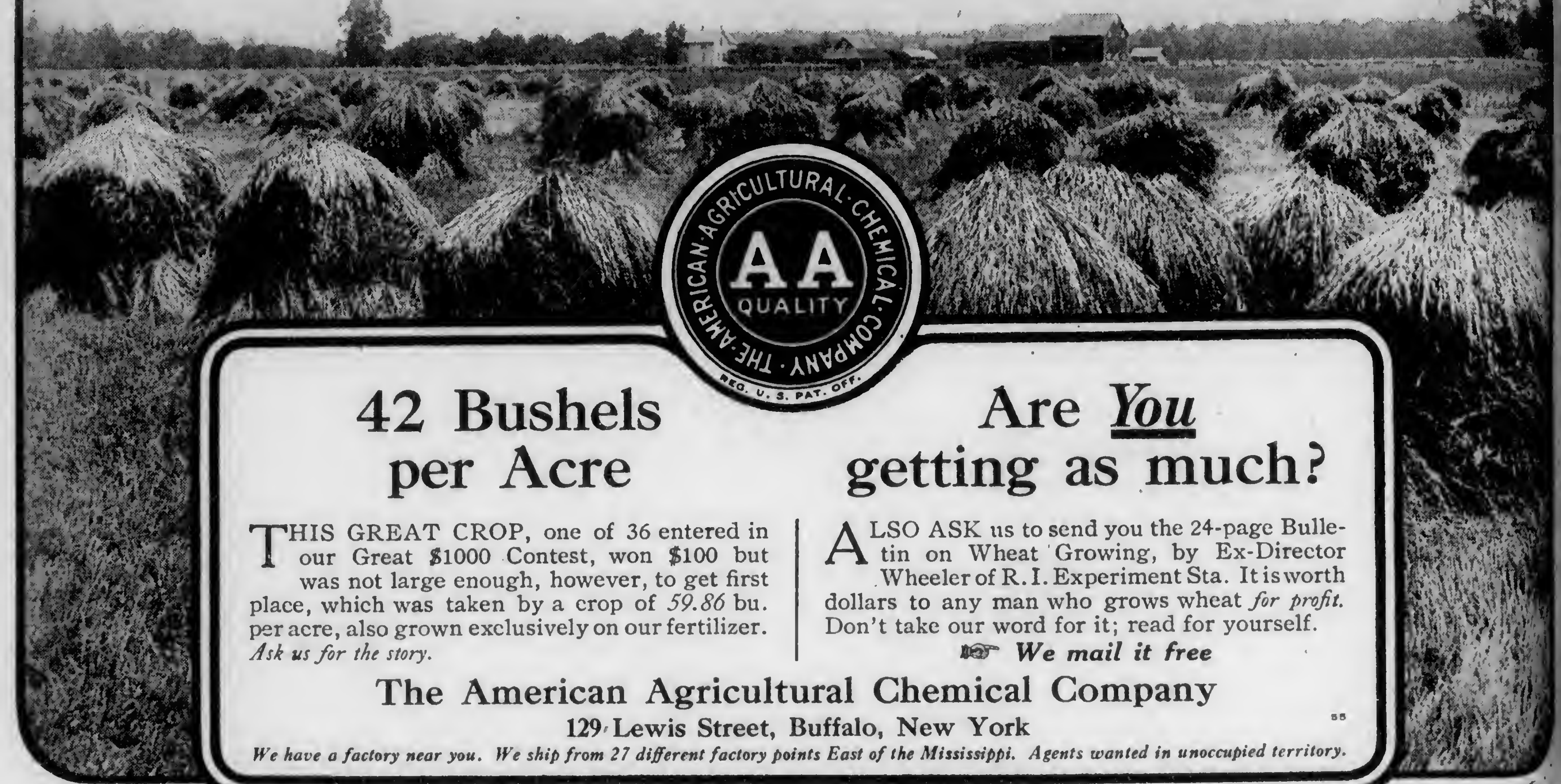
Wisconsin, Missouri and average New England—¼-blood at 38½@39c; ⅜-blood at 39@40c; ½-blood at 33@34c.

Kentucky and similar.—Half-blood, unwashed, at 38c; ⅜-blood, unwashed, at 41@42c.

TOBACCO MARKET

Conditions were favorable for transplanting but the work could not be accomplished to the usual degree at this time of year owing to lateness of plants and generally delayed conditions. The spring has been so backward that plants are many days behind time, which presages trouble with frost and cool weather in the end. If it is true that "well begun is half done" it may follow that poorly begun is half defeated. At best it will be a race with the season. However, many growers have planted a larger part of their acreage and some have even completed the operation. Market values were well sustained and while there were no country sales it is sure that were the tobacco to be found it would command prices fully satisfactory and as high as at any previous time this season. Manufacturers reported increased activity in the cigar business and showed a generally favorable view of the situation with reference to all concerned.

Transplanting is well under way in the various northern tobacco sections. In Maryland practically the whole of the crop is out and it is said that the acreage shows an increase of from 10 to 25 percent. In Wisconsin a large part of the crop has been put out and the work is advancing rapidly. In the eastern Ohio burley section the prospect is good and there will be some increase in the acreage, it is said. The burley crop of Ohio and Kentucky is practically all set out and in many instances cultivation has commenced. A destructive storm visited the latter section destroying many tobacco sheds, residences and a few human lives.—H. E. Tweed, June 12, 1916.



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ALFALFA VARIETIES AND TYPES

The corn belt farmers no longer try to grow flint corn. The New England farmers grow but little dent corn. Yet both grow corn. Kansas and Missouri farmers do not grow soft winter wheat. Pennsylvania and New York farmers do not grow hard winter wheat. Yet all of these states produce wheat. Experience has taught that certain types of corn and wheat are especially suited to certain soil and climatic conditions and the wise farmers have learned not to confuse those types.

Ask almost any farmer outside of the natural alfalfa sections of the East what he thinks of alfalfa and his reply will be: "It is the best forage crop I know of but it is difficult and expensive to get started. It needs lime, inoculation, a deep soil or tile drainage, and careful seeding. It is so finicky in its soil and cultural requirements that I think I had better stick to red clover altho I know that alfalfa is the better crop." He has in mind the common commercial variety of alfalfa that is grown on natural alfalfa soils, and has never considered type variations.

Alfalfa has been grown experimentally in every state in the Union. On natural soils, ie., deep, well-drained soils, where the common tap-root variety will grow, the crop is firmly established. On other soils the crop is still in the experimental stage with comparatively little progress being made in popularizing it. These experiments have dealt with alfalfa as a plant of fixed habits, and with unchanging requirements. Recommendations for its growth are specific on certain points and farmers attempting to apply those recommendations to all conditions of soil have concluded that alfalfa is "finicky". Some of our leading experimenters have but recently begun to give serious attention to variety and type variations, and alfalfa is providing them with a most interesting study, and will help to solve the difficulties.

A Test of Varieties

The common objection to the ordinary variety of alfalfa is the tap-root habit of growth which precludes its use on shallow soils and makes the plant subject to heaving with heavy winter freezing. When the Grimm variety, with spreading roots as shown in Fig. 2, was first brought out, it introduced something new in alfalfa growing. It was suggested that this variety would overcome the objections to the older variety and adapt the crop to new fields. About three years ago it was taken up in a constructive way by the Industrial Department of the Lehigh Valley Railroad. Mr. F. R. Stevens, agriculturist of the Road, became convinced that the difficulty of heaving by winter frosts and the adaptation of the crop to shallow soils that would not permit the development of the tap-root could be overcome by the introduction of Grimm alfalfa. He decided to test it out with the view of introducing it on the volusia silt soils along the line of his railroad.

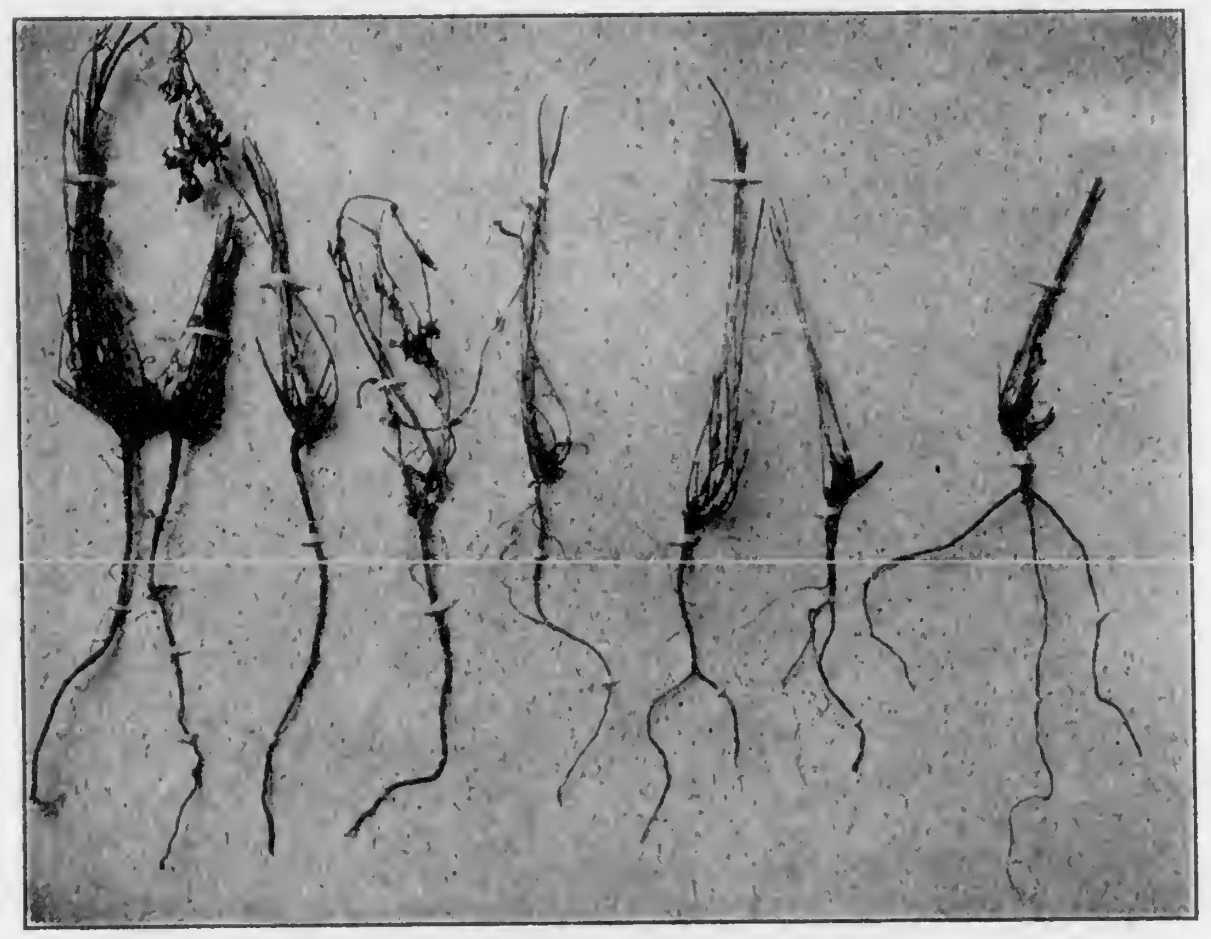

FIG. 1. YEARLING ROOTS FROM FIELD OF ORDINARY ALFALFA.

But Grimm alfalfa seed was selling at $1 per pound and few farmers felt that they could afford an experiment at that price. Accordingly the railroad officials decided to make the experiment. They bought a quantity of Grimm seed and distributed it among a number of farmers along its line, one pound to each grower. Under direction of Mr. Stevens the farmers agreed to sow the seed in drills in a seed plot, watch its growth and save seed for use on larger areas. The seed was sown in drills about eleven inches apart and some farmers succeeded in spreading the one pound of seed over about one acre of ground. All seed plots did well and in practically every case merchantable seed has been returned.

Here was the start for a study of type adaptation. These plots were put out three years ago. It was my good fortune to be one of a small party making a recent automobile trip over a part of the section covered in this investigation. We made frequent stops at selected fields to study and compare results. Starting at Geneva, New York, we found the common commercial variety of alfalfa at its best. The soil conditions about there have been found to be almost ideal for the production of thick, uniform stands that hold their vigor of production for a long period of time. Lime applications are needed for best results and first seedings require inoculation.

On Irrigated Land

Our first stop was at the farm of Charles R. Mellin. Here the common commercial variety does well. A twelve-acre field on this farm has been cut consecutively for six years, cutting three crops per year and yielding a total of from five to six tons per acre annually. The field was seeded in 1910. It was inoculated with soil from an old alfalfa field and there was applied one and one-half tons of lime per acre and 500 pounds of acid phosphate per acre. The six-year-old stand as we saw it was uniformly thick and in excellent condition with the single exception that bluegrass is coming in. The bluegrass problem is troublesome in all of that section, the grass encroaching on the alfalfa after the first two or three years. No absolute control of the trouble has yet been found, but sowing the alfalfa in eight to ten-inch drills and cultivating with special sharp-pointed spring tooth harrows after each cutting is suggested as the best treatment.

The Mellen farm is of unusual interest in that it was the first farm on which tile drains were ever used in this country. The farm was formerly owned by Mr. John Johnson, a Scotchman who had been converted to faith in tile drainage in the old country. In 1835 he imported the first drain tile from Holland and laid them on this farm. They were of the U-shaped type and did service for many years. Mr. Johnson later imported equipment for moulding tile here, and his drain lines were extended. The 300-acre farm now has 72 miles of tile drains, and presents a striking demonstration

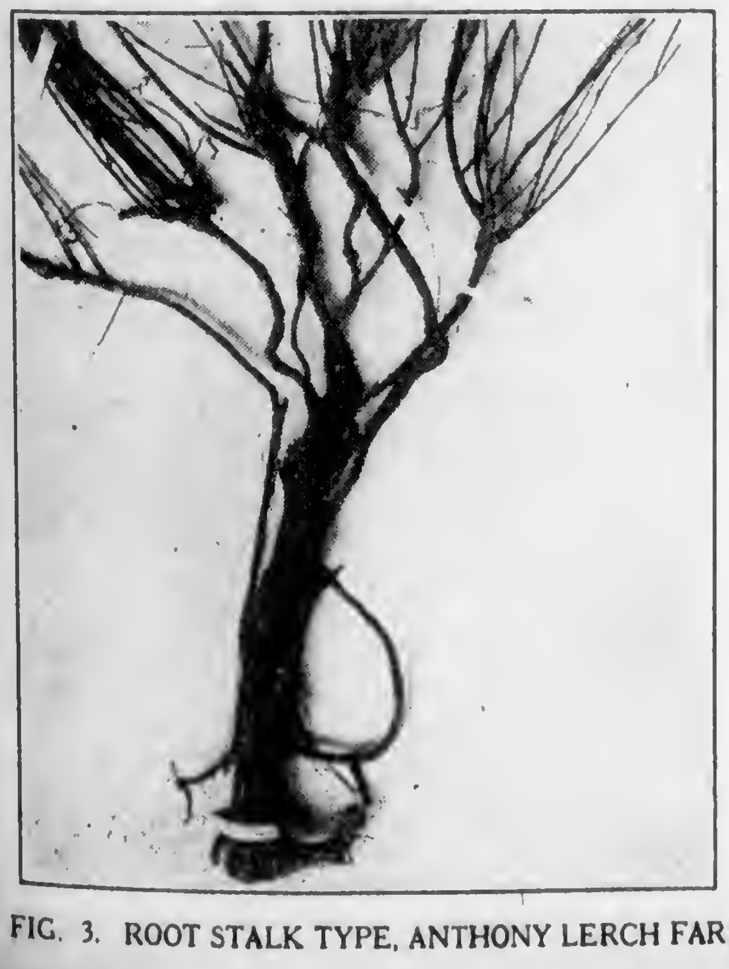

FIG. 3. ROOT STALK TYPE, ANTHONY LERCH FARM.

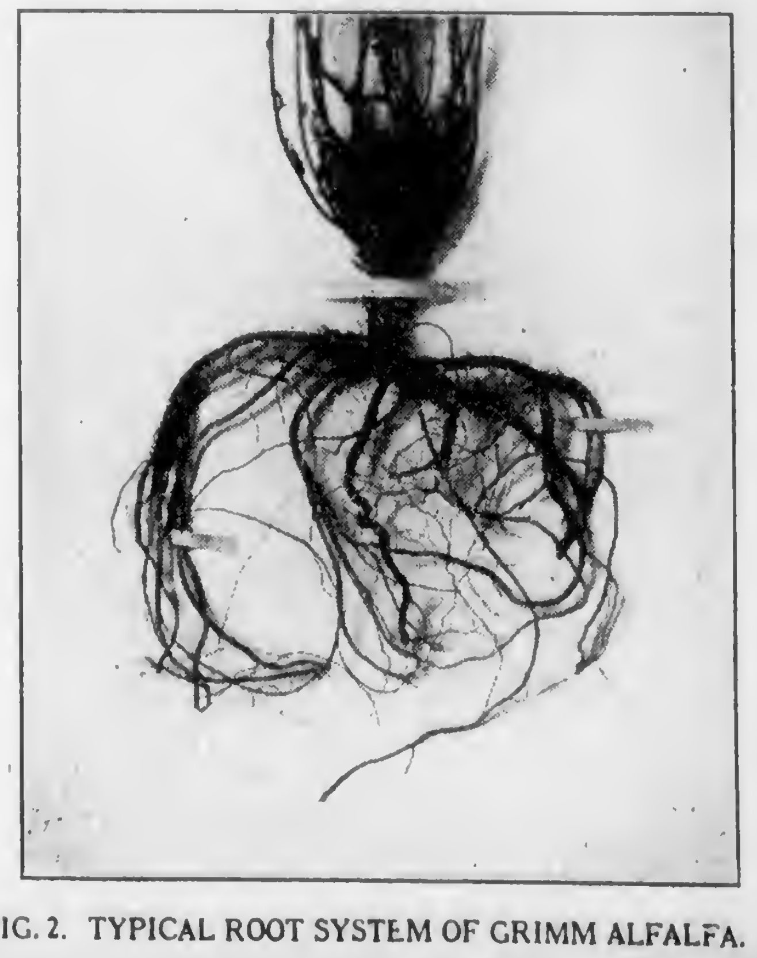

FIG. 2. TYPICAL ROOT SYSTEM OF GRIMM ALFALFA.

of the value of under-drainage. That stretch of country between Seneca and Cayuga lakes is one of the most beautiful farm sections of the East and the Mellen farm is one of the choice spots of the section.

Our next stop was at the farm of Anthony Lerch, farther south in Seneca County. Here was found a freak variety of alfalfa that is apparently little known but is deserving of preservation for adaptation to different uses. The type is shown in Fig. 3. It will be noted that the central plant has a heavy tap root from which root stocks are sent out running just below the surface of the soil. These root stocks send out shoots at joints which not only develop a new plant but a new spreading root system at each new plant, much as strawberries reset from runners. Ten years ago Mr. Lerch bought alfalfa seed in his local market to sow a ten-acre field. The field was prepared in the usual way as alfalfa grows readily on his soil. The variation in type of plant was not discovered until quite recently altho there is some difference in color of stem and foliage, and the stems are usually finer than with the commercial variety. Mr. Lerch did not know that the seed purchased was different from the ordinary kind, and so far as he knows there is none other like it in his section. He has never attempted to save seed but will do so this year. If the root characteristics shown in this field can be perpetuated thru the seed it should supply a variety that will resist heaving and hold its own against weeds, bluegrass, etc., as the branching tendency will maintain a thick stand. The ten-year-old field showed a perfect stand except in spots where lime was quite evidently needed.

The Grimm Seed Plots

On the Lewis A. Morgan farm we saw one of the original Grimm seed plots established by Mr. Stevens. The plot covers nearly an acre and five bushels of seed were secured the second year. The soil condition on this farm presents a new problem. The soil is deep enough for the ordinary type of alfalfa, but it is heavy and tenacious and difficult to aerate. The problem is to secure a variety of alfalfa that does not go to great depths. The Grimm variety appears to have solved the problem. The original seed plot, three years down, was in excellent vigor and new seedings on over twenty acres are most promising.

Alfalfa in Drills—Liming

Our last stop in the natural alfalfa section was made at the farm of Jean Kane Foulke, in the southern end of Seneca County. Here was alfalfa of the ordinary variety sown in drills eight inches apart, using eleven pounds of seed per acre. One field down two years showed almost a perfect stand. The crop completely covered the ground and it was only by dividing the growth that the drill rows could be distinguished as shown in Fig. 4. The success here suggests the possibility of sowing a smaller amount of seed on soils adapted to the crop. If cultivating in drills as suggested with sharp spring-tooth harrow will control weed and bluegrass invasion, the drill method may be found advisable in many sections.

On this farm there was also a striking demonstration of the effect of lime on land that shows no lime deficiency under chemical test. A field on the lower end of the farm was tested by a soil chemist and was declared favorable to alfalfa growth without the addition of lime. There was a surplus of lime on hand, however, and a portion of the field was given an application at the rate of 500 pounds per acre. The limed portion now shows a thick, uniform set of plants while the unlimed portion is thin, uneven and will be plowed up and reseeded after having lime applied. This experience emphasizes the fact that the plant itself is the most reliable diagnosing agent and is much more sensitive to lime requirements than the ordinary chemical test.

The Test of Grimm

All fields visited up to this time had been in the natural alfalfa belt where the common variety thrives with little or no extra care. The test of the Grimm alfalfa particularly was to come on the shallower soils. This test was found on the L. D. Luther farm of Bradford Co., Pa. Located on the top of a typical Bradford County hill, growing in about eight inches of volusia silt soil, underlaid with hard-pan and shale rock, was one of the original Grimm seed plots. The plot was sown three years ago from one pound of seed. The crop has firmly established itself and gives no evidence of heaving or winter killing. The spreading roots of the plants are feeding the crop and holding the plants to the soil. The one-pound seed plot in two years has produced sufficient seed to sow a fourteen-acre field and a considerable quantity has been sold. The Luther farm is typical of large areas in the state and if Grimm alfalfa can be made to grow there, as it is growing, the variety should open the way to increasing fertility and enlarging the annual return from thousands of acres of similar land. The Luther seedings need lime and a considerable quantity is being applied this year to the fourteen-acre field.

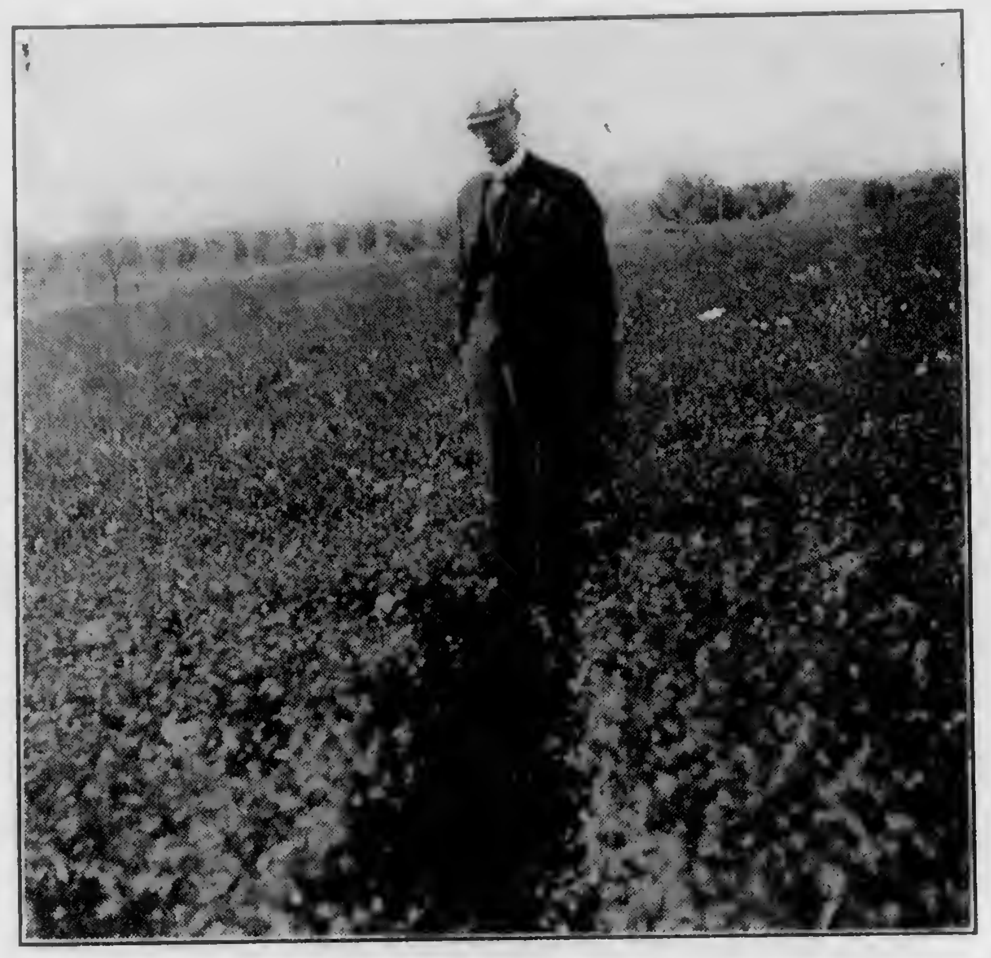
FIG. 4. DRILLED ALFALFA, SEEDED 11 POUNDS PER ACRE.

FIG. 5. HOME OF CHAS. R. MELLEN, SENECA COUNTY, N. Y., WHERE FIRST TILE WAS LAID IN THIS COUNTRY.

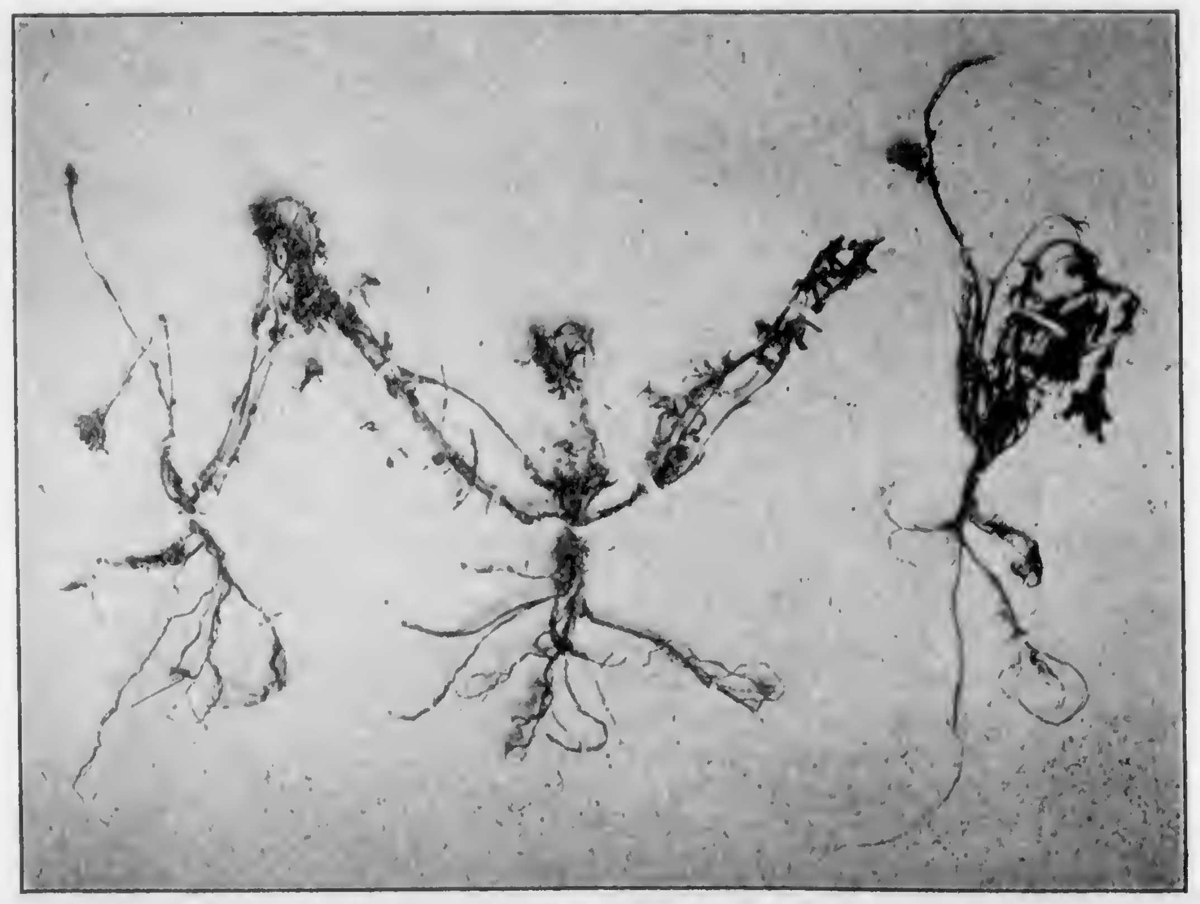
FIG. 6. "LEHIGH ALFALFA," A NEW AND UNUSUAL VARIETY.

Pat Grace Alfalfa

Mr. Stevens is constantly on the lookout for new and unusual variations in the alfalfa under his observation. Fig. 6 shows plants grown from a seedling found on the right-of-way of the Lehigh Valley Road. The root is of a spreading type. The crown of the plant is beneath the surface of the soil, branches running underground and appearing at some distance from the parent plant. The Pat Grace is another similar "sport" plant found on the right-of-way, seeded probably from seed dropped from western cattle cars. Pat Grace also forms a crown below the surface and branches much like quack grass rooting. These peculiarities suggest the possible development of a variety or varieties for pasturing purposes. The underground crowns would suffer no injury from tramping by live stock, and should be immune to crown insects or disease. The parent plant shows unusual growth, and if this quality can be perpetuated thru seed, it should be a heavy producer. This, however, is yet to be proved by more extensive use.

General Conclusions

A number of general conclusions formulated by Mr. Stevens and apparently verified in the farms visited are as follows:

The common commercial variety of alfalfa is probably best for deep, well drained soils that do not heave in winter.

Grimm alfalfa is best for poorer, shallower soil where the tap-root varieties heave or winter-kill.

There is no perceptible difference in feeding value of the two types, and no practical reason for attempting to grow Grimm where the other will grow well.

The best variety for use on heavy clay soils of poor aeration is still in doubt, altho the Grimm appears to do well.

Both types require a sweet soil, so require liming; should be inoculated at time of first seeding, and if a nurse crop is used it should be one that matures early.

From eight to ten pounds of seed per acre is sufficient with the Grimm; from fifteen to eighteen is advisable with the commercial variety, altho eleven pounds in drills have given good results on natural alfalfa soil.

Seeding a small quantity of alfalfa with each sowing of clover is a growing and promising practice. Whatever alfalfa is made to grow adds to the value of the clover crop, both as a feed and as a soil builder. It also helps inoculate the soil and prepare the land for general use of alfalfa in later years. Some excellent meadows of mixed clover and alfalfa were seen on the trip. The Grimm alfalfa should be as suitable to such use as the common variety except in cost of seed.

All varieties show considerable variation in tendency to produce seed. More seed is produced in dry than in wet seasons. This may be due to the fact that the strength of plants is spent in abundant growth in wet seasons and little energy goes to seed production, or to the natural tendency of the plant to perpetuate itself thru seed production when threatened by dry weather. Either first or second crop may be saved for seed.

Alfalfa is an old crop in many sections of the East but there is evidently much yet to be learned about alfalfa varieties and their special soil and climatic requirements.

Soldering Metals

By R. A. Andree
Pennsylvania State College

How many times have you wished that you could do that little odd job of soldering on the farm for yourself? Perhaps you have even gone so far as to buy a soldering iron and some solder to try your luck at it. You figured that you could save time and money by soldering up the hole in that leaky pail, and perhaps too, you just naturally enjoy doing a little tinkering of this sort. Very probably, after several attempts you failed to make the solder stick and then gave it up for a bad job. Soldering is really not a difficult task if the few underlying principles are well understood.

The equipment necessary for doing the work consists of a soldering copper, a file, sal amoniac, solder, some kind of a flux, and some means of heating the soldering copper. The soldering copper, iron as it is sometimes called, for general use should weigh about one and one-half pounds. This can be purchased from any hardware dealer for about fifty cents. Very often a newly purchased copper presents the appearance as shown in Fig. 1; that is, it has a rounded point. This makes it rather difficult to work with, and it is well to dress the tool so that it becomes well pointed as shown in Fig. 2. Where the point is only slightly rounded, it can easily be brought into shape by means of a course file or emery wheel. Where, however, the point needs re-tapering, it is best to heat it to a dull red heat in a forge fire and shape and point it on the anvil.

The file should preferably be flat and fine. A 10-inch flat mill file would be very suitable. Sal amoniac is a white crystalline substance which is used in tinning the soldering iron and an amount sufficient to last a long time can be purchased either in the crystalline or powdered form for 10 cents at any drug store. Tinner's solder, which contains equal parts of pure tin and lead, can be purchased either in the form of bars weighing about one and one-half pounds and selling at about 60 cents each, or in the form of wire solder, which sells at about 40 cents a pound.

A flux is any cleansing material which will remove grease from the article to be soldered and prevent the formation of oxides on the latter. The kind of flux to use will depend upon what you are going to solder. For sheet tin or sheet lead, rosin or tallow may be used. For rusty materials and for iron, zinc chloride is the best flux. For copper or brass, sal amoniac gives the best satisfaction. The best "all around" flux for farm use and one that will work well on all metals except aluminum, is a zinc chloride solution. This can be prepared by puting a few chips of zinc into some hydrochloric acid, adding the zinc gradually and a little at a time until the bubbling which goes on in the acid has stopped, allowing an excess of zinc to remain in the solution. The hydrogen gas coming off is explosive and should be kept away from flames. It is best to make this flux in a jar with a wide mouth, say a pint fruit jar. Ten cents' worth of acid is sufficient to last a long time, and the zinc can either be gotten from some old zinc washboard, or from the outside of an old dry-cell battery, or it can very often be gotten in scrap from the local tinner. The soldering copper can be heated over any flame such as a blow torch or gas flame, a gasoline or kerosene burner, or even on a coal fire.

Principles of Soldering

The general principles to be remembered in doing soldering are these: The article to be soldered must be free from dirt and iron oxides or rust, otherwise the solder will not stick to it. The article itself must be hot enough to melt the solder in order to do the best work. If this is not observed, the solder will be suddenly chilled when it strikes the article and will soon come off. Light pieces of metal can be most easily raised to this temperature by puting a drop of solder on them and then transmitting the heat to them from the iron thru the solder. Heavy objects such as castings, pipes, etc., must be heated over a fire before they are soldered.

All the common metals become oxidized when exposed to the air, especially when they are slightly heated. As solder will not adhere to a surface that is slightly oxidized, it is necessary to apply something to the surface to be soldered which will guard against this oxidization. The flux is used for this purpose, by rubbing it over the place where the solder is to be applied by means of a stiff brush or soft pine stick.

In order to transmit the heat rapidly from the soldering copper to the article, it is necessary to have the solder in close contact with the copper with no intervening film of copper oxide or carbon. This is why soldering coppers are tinned before putting them into use.

The copper should be placed squarely into the flame or fire, so that it becomes evenly heated. When it is hot enough to melt solder rapidly, (not red hot) file the copper bright on two adjacent sides to a distance of about 1½ inches from the point, as shown in Fig. 1. Do this rapidly so that the iron does not become too cold. Next rub these sides lightly on some sal amoniac to reduce the oxide which has already formed. Then pick up your solder and melt a few drops of it onto the sal amoniac, rubbing the copper on the two together at the same time. You will now notice that the two filed sides have a bright coating of solder on them which enables the copper to pick up globules of solder. If at any time the iron becomes red hot the tinning will be burned off and it will be necessary to re-tin it. Care should be taken therefore, not to overheat it. When using a gas flame, do not put the point of the copper into it, but heat only the thick part. This will help to keep it in good condition and prevent the point from getting too hot.

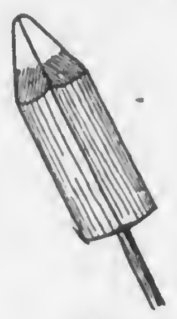
FIG. 1.

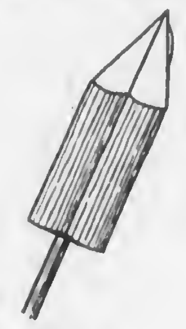
FIG. 2

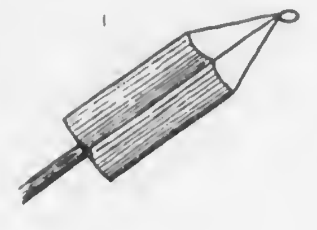
FIG. 3

Bright tin, copper, brass, zinc and lead need not be tinned before soldering, but sheet iron and rusted metals should be carefully tinned so as to insure a strong joint. This is done as follows: All paint, rust or soot should be removed by scraping, filing or sandpapering. Now apply zinc chloride flux freely, after which rub the brightened surface well with the hot iron at the same time applying the solder. It may be necessary to apply flux and solder several times before the article is properly tinned. The article is now ready to be soldered. With the soldering iron melt a few globules of solder from the larger bar, and allow them to cool.

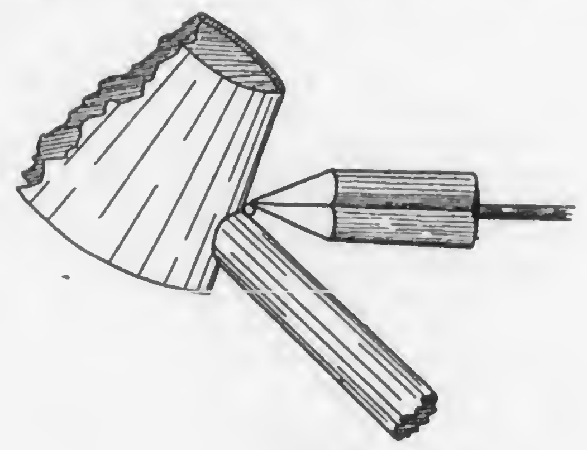
FIG. 4

If this is not done it will be necessary to take the solder from the large bar continually. This soon transmits the heat from the iron to the bar, leaving the bar too hot to be handled and often leaving the iron too cold to do good soldering. If your iron is not much hotter than the fusing point of solder you will not be able to get the solder to flow well into place, but will simply cover the work with a thin film. This is called skin soldering and altho it looks good, it should be avoided because it makes a weak joint.

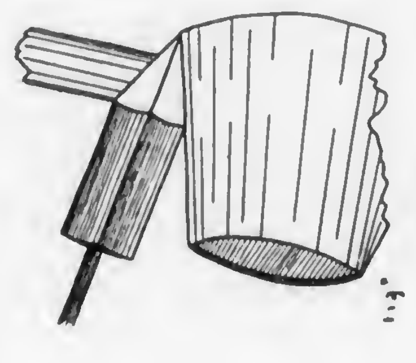
FIG. 5.

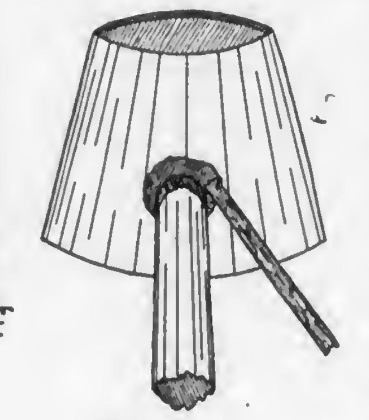
FIG. 6

Now with the iron well tinned and hot, pick up a globule of solder, holding it in position as shown in Fig. 2. The globule will adhere to the iron and can be placed just where it is wanted by slightly tilting the iron forward as shown in Fig. 3. By holding the iron in this position the globule runs to the point and readily drops from the iron. Care should be taken therefore to hold the iron as shown in Fig. 2 while picking up the globule, and carrying it to the work. In order to explain the following steps more clearly, we will take up the specific problem of soldering a handle to a tin dipper:

Fig. 4 shows the position of the work after the latter has been well fluxed and just as the solder is being applied. You will notice how the iron is tilted and that only the point touches the work. One drop of solder is usually enough to hold the handle to the dipper temporarily. It is well, however, to apply several globules in three or four places to "tack" the work, as this process is termed. The next step is to apply plenty of the zinc chloride flux, rubbing it well over the surfaces as shown in Fig. 6. Then pick up another globule of solder and place it on the dipper so that it will flow into place by gravity.

The iron must now be held flat against the work as shown in Fig. 5, so that the dipper itself becomes hot enough to melt the solder and allow it to flow well under the seam like so much mercury, not pushing it into place like soft putty. By turning the dipper slowly and holding it in such a position that the solder flows into the seam and not out, an excellent joint can be made. Do not try to solder with the point of the iron, but use as much of the flat tinned surface as possible. It is well not to turn the iron over the place that has once been soldered, as this only tends to make rough appearing work. Never rest the soldering copper on iron or stone, as this rapidly withdraws the heat and wastes time. Put it back into the fire at every opportunity.

Leaks in wash boilers, pails, etc., should be soldered shut from the inside. In some cases where a great deal of solder is necessary to make the joint, as in soldering a new bottom into a milk pail, it is common practice to apply the solder by rubbing the bar on the soldering iron directly above the place where it is to be applied, and allowing the molten solder to flow into place.

A New Clover

During the past two years I have received a great many samples of clovers from Pennsylvania farmers. They say that clover is coming in naturally in the meadows and pastures of that state and express the opinion that it will become a considerable factor in agriculture.

I have examined carefully the samples that have been sent and have gone over some of the pastures and meadows and saw the clover growing. It is not an alfalfa as some who have seen it seem to believe. It is one of the true clovers commonly called "hop" clover, its technical name being Trifolium Agrarium. It grows to the hight of ten or twelve inches and has a compact yellow blossom, very attractive in appearance, which probably accounts for the large number of samples that have been sent in. As it has not heretofore been found in large quantities in Pennsylvania, I cannot account for the increased growth of this clover in that state, unless it is because of the excessive moisture of the past two years. It grows very freely on light soils especially in the Adirondacks and on Long Island in New York State, appearing in waste places as does the sweet clover. I am advised that in Colorado it is used considerably for pasture and in a few cases I believe for hay, but outside of that section I do not know where it is being commercially used. Being a clover it is, of course, a nitrogen gatherer with a comparatively high content of protein. It would, therefore, seem that it would make a most excellent plant to mix with the pastures. Apparently it needs less lime than do the other clovers and grows without cultivation, thus greatly enhancing its value to the pasture. So far as I know the seed is not available in a commercial way. In order, then, to help the pasture it would be necessary to gather the seed from the plots of the clover as found naturally and spread it over the pasture; or perhaps a more effective way, entailing less labor, is the same plan recommended for seeding sweet clover, i.e., cutting the plant when the seed begins to ripen and distributing plant and all over the pasture. This plant will have a considerable advantage over others except the sweet clover in dry light soils which oftentimes covers a considerable area of pasture land. In fact, wherever it is possible, I would advise spreading both this plant and the sweet clover on such types of soil. Some lime, however, will be helpful, especially with the sweet clover.

I am sorry to disillusion those who thought this is new alfalfa growing naturally in non-limestone regions. I wish it were. I also wish it might promise greater value, but at present I see no great value for it except as I have indicated.—F. R. Stevens, Agriculturist, L. V. R. R.

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Horticulture

Timely Fruit Notes

By Dr. J. P. Stewart

Rose Chafers and Their Control

"Will you be kind enough to let me know what I should do to preserve my plum trees? I enclose leaves showing how they are eaten. Will you also let me know the best destroyer of rose bugs?" F. E. P., Franklin Co., Pa.

In this case, it is evident that the plum leaves are being eaten by a chewing insect, probably the rose bug or rose chafer, if it is abundant. This beetle is rather difficult to control, especially on sandy soils on which grass is growing, as the larvae develop on its roots.

The most promising method of control is with strong applications of arsenate of lead, sweetened with molasses or glucose. The rate of application should be at least 5 pounds of arsenate of lead paste and 1 gallon of molasses to 50 gallons of spray material. The first application should be made as soon as possible after the first appearance of the beetles, and should be repeated about a week later,if the beetles should continue abundant.

It is often possible to reduce the number of these beetles by thoro cultivation while the insect is in the pupal stage, but it is a little late to do that this year, since this stage is usually passed the last week in May and the first half of June. Where the pest is especially troublesome, the grass area should be restricted as much as possible by cultivation, and this is especially needed on sandy soils.

Persian Walnuts, Care of Peach Orchards, etc.

"We have planted about five hundred English or Persian walnut trees and would like to know if there are any commercial orchards in this state that I could look up and look over their system. Would also like to know what is the best fertilizer I could put around our peach orchard consisting of 1300 trees. The peach orchard is in clover now, will make a cutting and will plow it down this fall.

"Also have about 1500 apple trees and about 500 pear and would like to know what to fertilize them with this year. They are also in clover. These trees are all three years old. What would be the best fertilizer for the walnuts. They are planted in a wheat field. We have about 3000 pounds of nitrate of soda. Could we use this to any advantage?" A. M. S., Butler Co., Pa.

In reply to this inquiry, I would say that the most important commercial orchard of Persian walnuts within easy reach of the correspondent is the Selkirk walnut grove at Northeast, Penna. I would advise extra care in the general management of the Persian walnut in the general section of the correspondent, in order to secure moderate growth and well-ripened wood before winter, so as to reduce the danger of winter-killing as much as possible.

In regard to the proposed plan of handling the peach orchard, I would say that it is not advisable, in my opinion, to cut the crop of clover and wait until fall to plow. If the clover is to be cut at all, it should be done very soon, and the plowing should be done very shortly afterwards. It is probable, however, that if you would turn the present stand of clover under and follow it with proper harrowing until the middle or latter part of July, no fertilization would be needed. In case the hay crop is removed, it might be possible to repair the damage to the fertility, by the use of about a pound of nitrate of soda and 2 pounds of acid phosphate to the tree, assuming that the trees are of normal size for the age indicated. This application should be made before the 20th of June, if possible, and if it is cultivated lightly into the soil, the results should be better.

LIMA BEANS ON LONG TRELLIS.

This application and the attendant operations should also be satisfactory for the apple trees at the age indicated. In the case of the apples, however, you could use part of the clover as a mulch and avoid the cultivation, if so desired. If this is done, however, thoro protection should be provided against mice. The maintenance of a clear space for approximately a foot about the trees and a slight mounding up of the soil will probably accomplish this under ordinary circumstances.

I would not fertilize either the pears or the walnuts, altho a little mulching might be done, along the line just indicated. This omission is to reduce the danger of blight on the pears, and to reduce the possibility of winter-injury on the walnuts.

A Small Red Beetle Now Abundant on Cherries and Peach

"Enclosed you will find a cherry leaf and a sample of the small red bugs that are eating up the tree. They leave nothing but the stock. Please tell me what it is and what to do for it." T. F., Centre Co., Pa.

The insect referred to here is the cherry leaf-beetle, Galerucella cavicollis. This is the third season in succession in which they have been especially numerous and injurious in this general section. They affect chiefly the cherry and peach, but may also attack the apple when especially abundant.

If the trees are large, practically the only treatment that will make any impression on these insects is a thoro spraying with lead arsenate, at the rate of at least 4 pounds of the paste, or 2 pounds of the powder, in 50 gallons of water. It is also advisable to add a little lime-sulphur, or similar material, to increase the repellent and sticking qualities of the spray. The first application should be made as soon as possible after the beetles appear, and should be repeated in about a week, if needed.

On cherries, this lime-sulphur can be added at the rate of about one part of the best commercial materials to forty parts of water, which should result in a density of 1.0075. On peaches, the lime-sulphur should be used at a dilution of about one to a hundred, or so as to give a final density not greater than 1.003. It may be well to add 2 or 3 pounds of well-slaked lime in the latter case. The apples may be sprayed the same as cherries.

Either the lime-sulphur or the lead arsenate should be added as late as possible, preferably just before the spraying is started, in order to reduce the solvent action between the lime sulphur and lead arsenate as much as possible, and thus reduce the liability of burning the foliage.

Where both the number and size of the trees are small it is often entirely practicable to get rid of these beetles simply by jarring them onto a sheet or a large piece of paper, and then burn them or dip them into a contact insecticide, such as kerosene emulsion diluted so as to contain about 15 percent of kerosene.

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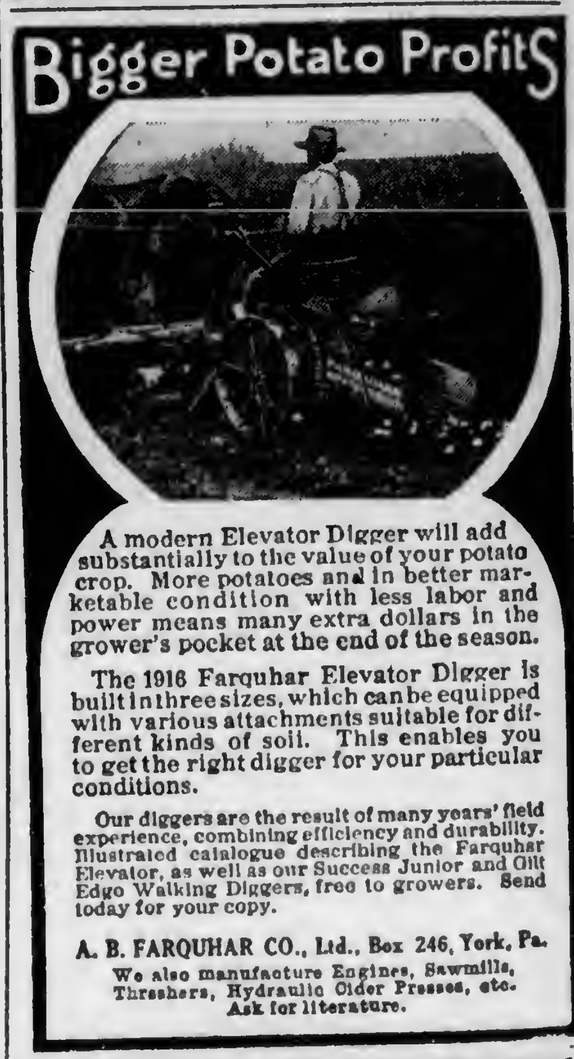
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BEES AND POISON SPRAYS

Referring to article in May 20 issue, on garden insects and their control, I wish to enter a protest against the remedy given for "Rose Chafers", consisting of lead arsenate, molasses and water. Do you realize that this mixture would be very deadly to the honey bees, which are the fruit growers' best friends? Even if the farmer does not keep bees of his own, he should be careful about injuring his neighbor's.

Those who write articles on insect destruction are not careful enough as to what they advise.—J. A. Allard, Clearfield Co., Pa.

("Safety First" is a good motto under all circumstances and we comment our correspondent's thoughtfulness, but we may allay his fears by stating that no spraying is done by intelligent fruit raisers until after blossom petals have fallen. No honey is available and bees do not visit the blossoms at this time.—Editors.)

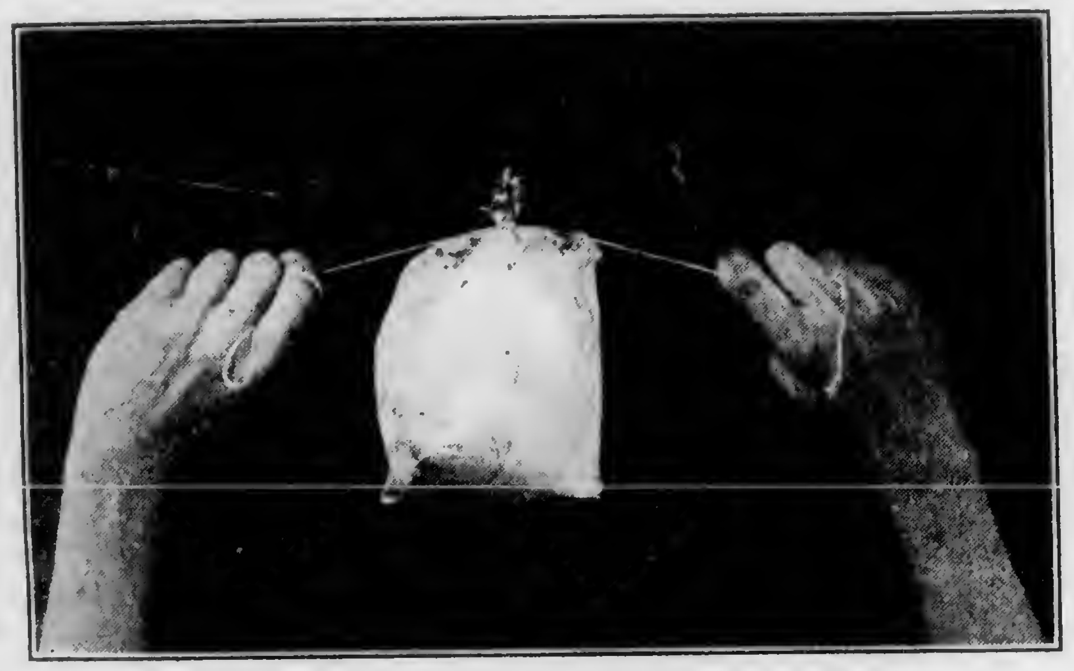
BAGGING GRAPES

The usual crop of grapes from the average vine is far from perfect, fully 50 percent of the yield being spoiled by vermin. Such grapes do not sell readily on the markets.

There is a very simple way to insure a perfect crop from any vine: Simply exclude the damaging vermin. While the grapes are still small and green they are placed into paper bags and the top of the bags tied securely around the stem with strong cord or the corner turned over and pinned. This should be done with all the bunches on the vine, with the exception of a few, which are left in the open to enable one to determine when the crop is ripe. The bags exclude the vermin and also protect the grapes from birds. A perfect crop of grapes much larger than ordinarily is the result. Grapes raised in this manner are in great demand by hotels and other markets, and bring the very highest prices.—Chas. I. Reid, Dauphin Co., Pa.

EVER-BLOOMING ROSES

Nothing in the line of flowers gives me more satisfaction than a bed of ever-blooming roses. Roses require a rich, well drained soil to do their best work. If all the old wood was not cut away last fall when the plants were prepared for winter, it should be done now, as the blooms must be expected from new wood.



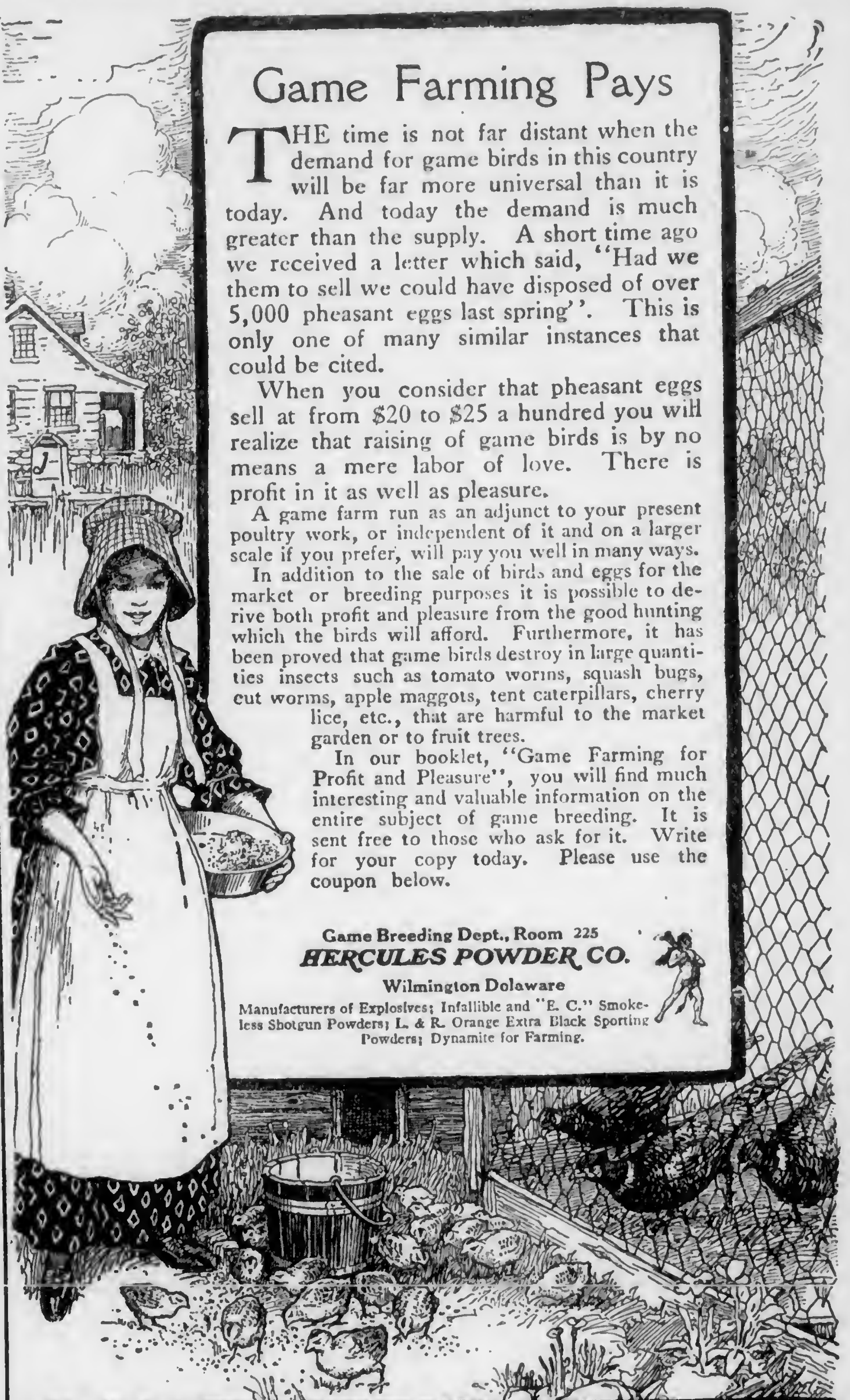
TYING PAPER BAG ON GRAPES TO PROTECT FROM INSECTS AND DISEASE.

High fertilization, good cultivation and pruning are essential to the growing of good roses. Several times during the season, well-rotted manure should be worked into the soil about the roots of the plants. When the last flower on a branch has developed, the branch should be cut back half or two-thirds to a strong bud. A new branch will develop from this bud, which will develop more flowers. Severe pruning causes the growth of new wood, and new wood favors the development of flowers.

In purchasing rose bunshes it is much better to purchase bushes two years old, for these will give good results the first season.—Olive Richey.

TIE UP POLE LIMA VINES

The vines of pole lime beans will soon be reaching out to run up the poles. If a small amount of aid at the start is given by tying up the vines, they will continue to climb the poles without further assistance. The extension specialist in market gardening of the New Jersey State Agricultural College states that the vines should be wound in the direction they take when growing naturally. The vines invariably turn to the left, that is, the direction opposite to that taken by the hands of a watch when one looks down upon it, or the direction that a cork screw turns when pointed upward.


Game Farming Pays

THE time is not far distant when the demand for game birds in this country will be far more universal than it is today. And today the demand is much greater than the supply. A short time ago we received a letter which said, "Had we them to sell we could have disposed of over 5,000 pheasant eggs last spring". This is only one of many similar instances that could be cited.

When you consider that pheasant eggs sell at from $20 to $25 a hundred you will realize that raising of game birds is by no means a mere labor of love. There is profit in it as well as pleasure.

A game farm run as an adjunct to your present poultry work, or independent of it and on a larger scale if you prefer, will pay you well in many ways.

In addition to the sale of birds and eggs for the market or breeding purposes it is possible to derive both profit and pleasure from the good hunting which the birds will afford. Furthermore, it has been proved that game birds destroy in large quantities insects such as tomato worms, squash bugs, cut worms, apple maggots, tent caterpillars, cherry lice, etc., that are harmful to the market garden or to fruit trees.

In our booklet, "Game Farming for Profit and Pleasure", you will find much interesting and valuable information on the entire subject of game breeding. It is sent free to those who ask for it. Write for your copy today. Please use the coupon below.

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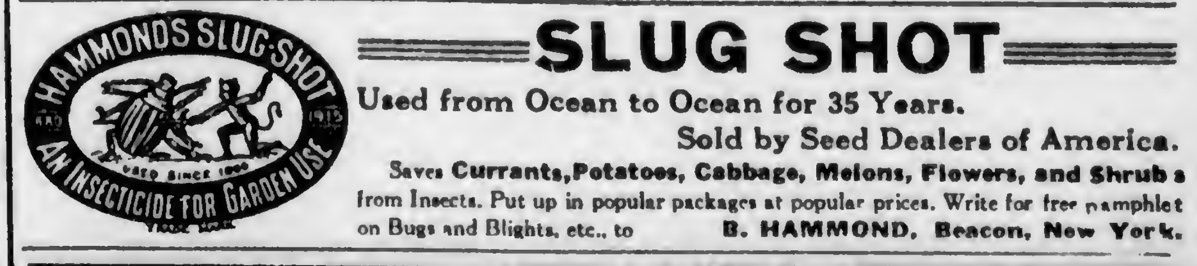
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Philadelphia, Pa., June 24, 1916.

FINANCE AND INVESTMENT SECURITIES

Realizing that quite a large number of our readers are accumulating some surplus capital and naturally are seeking some safe and remunerative investment, in accordance with our policy of progress we will inaugurate in our next week's issue a department under the above heading. It will be devoted exclusively to giving information on investment securities, and expert advice in answer to queries on this subject from our subscribers.

After much careful investigation we have engaged to conduct this new department Mr. John R. Milligan, who has a wide acquaintance with high-class securities. His articles will be worthy of being clipped and preserved by all who contemplate an investment. The department will be much more useful to all if our readers will ask questions about securities and investments in general. The plan is to furnish information on which the prospective investor may base his judgment.

A PLACE FOR MULES

Dr. Marshall, State Veterinarian, reports upon his return from the warring European country that mules are proving as popular for war service there as they did in our own past wars. And they are popular for the same reasons: Hardiness under heavy work, ease of maintenance, freedom from disease, steadiness in service. These qualities just about answer the requirements of the farm team. The mule has made good as an efficient and faithful worker every time he has had to meet the test of careful comparison with the horse. But he has not made good against the prejudice of the average farmer.

HURRYING THE CORN CROP

With few exceptions as to crops or localities the present season is, like the last, unfavorable to the best growth and development of farm crops. Perhaps the most seriously retarded to date is the corn crop. How can a recurrence of last year's result when tens of thousands of bushels were caught by frost before it was ripe be prevented? Perhaps nothing that will insure it, but its growth and maturity may be hurried much if the work is begun in time. Let the cultivator be kept going constantly when the soil is dry enough. Aeration of the soil tends to dry and warm it, and helps to liberate plant food, causing more rapid growth. Second, the application of additional fertility by top-dressing with fertilizers is to be recommended. This, when well worked into the soil, affords available plant food and enables the corn to make more rapid as well as stronger growth, insuring earlier maturity. It must not be thought that this additional expense and labor contributes only to early maturity. In most instances the increased yield will more than pay the expense.

AN INEFFICIENT RURAL CREDITS BILL

The real purpose of those who have been boosting rural credits legislation has been to make it possible for real farmers and home makers to obtain such credit as would enable them to succeed. To this end a bill was drawn and introduced, but as it advanced it has been amended so that it discourages thrift on the part of farmers, and also makes it possible for land speculators and absentee landlords to take advantage of its provisions, and in the end make it still harder for real farmers to buy or improve farm homes. The operations of land speculators, and landlordism, are today the greatest bane to the development of a progressive and permanent agriculture and anything that would tend to extend their hold should be avoided. A rural credits bill should not exempt from taxation bonds issued for such loans unless the loans are limited to actual, resident farmers. The original bill did encourage thrift among farmers by accepting deposits from farmers. This has been stricken out. It would be better to have no legislation on this subject than to pass such a law as would increase the present difficulties.

CROP ADAPTATION

The various breeds of live stock are gradually finding the sections of the country where their peculiar characteristics are best suited to climatic and economic conditions. In dairy cattle, the Holsteins are generally recognized as the market-milk breed, the Jerseys and Guernseys as the cream and butter breeds, the Ayrshires as the hardy foragers for rough lands, etc. In hogs, the quick-fattening lard types are found generally in the corn belt while those of the bacon type extend out into areas where pasture and small grains are more widely used for fattening. Sheep were distributed according to climatic adaptation but changing market conditions affecting mutton and wool selling are bringing changes. The point is that breed adaptation has been recognized and is made a factor in profitable production. But this principle has not been extended with equal care and study to varieties and types of farm crops. Studies in stock breeding are far in advance of studies in plant breeding, but investigators are learning that breeding principles are similar in both classes and plants are subject to as marked and much more rapid improvement as live stock. They are also learning that breed adaptation is as important with plants as with live stock, but the field of investigation is newer. The article on the first page of this paper reports on an interesting study of breed or type adaptation with alfalfa. The results suggest the possibilities of extension of the study to other crops. We have not learned all there is to know about the standard farm crops, and it is probable that the next decade will find greater attention centering on improvement of crop production thru improvement of seed and adaptation of varieties just as the last decade has specialized on cultural methods. Improvement gained thru selection of seed is the cheapest improvement possible as it means no additional expense in cost of sowing and cultivation.

THE POLITICAL CONVENTIONS

The big conventions held for the purpose of nominating candidates for the presidency are a thing of the past. Their purpose was accomplished and the country may once more return to its daily business and prepare to be saved in November. In many ways, all conventions were unique. There were no thrilling speeches—that is, none that stampeded the conventions and stirred the nation. In fact the key-note speeches were pronounced weak by party organs. There was a strenuous endeavor by each convention to evolve a national issue, one that would appeal to and attract the loyalty of all sections of the country. Seemingly they all failed. "The mountains labored and brought forth a mouse." There is a striking similarity between the platforms. When placed side by side they are as like as a parallel column edition of the Scriptures. In fact the planks in the platforms were sawn from logs taken from the same tree, and the tree was furnished by one man. It is to be hoped that the uniqueness of the situation may be carried thru to the end and the coming campaign be free from personal animosities and the intrigues of petty politicians. There is now an opportunity for a universal campaign of education in political economy and good citizenship. But who shall conduct it? It would seem from the occurrences of the present and the recent past that the people rather than the politicians are leading the parties in thought and action, and are shaping the policies of the nation. Oratory and partisan newspaper editorials no longer sway the multitude as they once did. The open forum composed of neighborhood meetings; the personal discussion between citizens; the expressions by thoughtful, learned men outside of politics; the influence of women; the open discussion and study in colleges; the honest analyses by writers in independent magazines, these agencies have a greater influence in developing and crystallizing public thought than have political leaders. And it is well so if the country is to measure up to the critical demands it will need to face in the next four years.

LOOK AHEAD

It is perhaps right that little publicity is being given to the restlessness and ominous agitation in the labor world, existing almost everywhere. The present prosperity, due in a large measure to the European war, has caused an almost unprecedented demand for labor. The munition making firms, owing to their great orders and self-made prices, have been able to offer such wages as caused all industries to pay more. In consequence the prices of nearly every manufactured article have of necessity been advanced. This active bidding for labor has apparently developed an independent, dictatorial disposition on the part of laborers and labor unions to such an extent as to make present conditions unsatisfactory and the future uncertain. If the conditions found in the Philadelphia district by the Federal Reserve Agent are general, they are disquieting to say the least. The investigation shows that there is an almost universal complaint that as wages increased a large class of wage earners became less productive—less reliable. Instead of taking advantage of the prosperous times, they are not netting much more than formerly when wages were lower, and the whole country is suffering an economic loss thru our failure to produce as much as the market demands. One report says that every increase in wages was followed by a decrease in efficiency until the only thing to do was to close the plant. Many employes take advantage of the demand for labor to be more careless, to slow down in their efforts and take days off, and, on slight pretext, pick up and walk off to other works. The point we wish to make is this: The effect of this condition is to boost wages to an abnormal point, and raise the price of goods manufactured to such a degree as to make it impossible to compete in the markets of the world at the close of the war. When that comes there is bound to be a readjustment of prices—possibly a curtailment in buying; how, then, are American goods to meet the conditions if the cost of production is far above what the rest of the world can produce them for? How then can labor be employed and paid on present basis?

PRICE OF PUREBREDS

A new record for average price in auction sale of dairy cattle is claimed for the National Holstein-Friesian sale held at Detroit, June 7-9. A total of 140 animals sold for $152,365, making an average price of $1,088.32 per head. Eighteen bulls sold at an average of $3,084.72 each, while 122 cows averaged $793.77 each. An eight-months-old bull calf topped the sale at $20,000, while the top cow sold for $4,600. These individual prices do not compare with the previous records held by the same breed, but the average for the sale sets a new high mark. It is an achievement for the breeders and a rare mark of the popularity of the breed. But there is another side to these records when viewed from the standpoint of dairy farmers. Of course these prices are paid by breeders who look for profits from the sale of purebred animals rather than from the products of the animals. But they must sell their cattle to dairymen, and the progeny of these high-priced animals must pay a return. This means higher prices on purebred stock. Dairying, and particularly the production of milk, is now operating on a very narrow margin of profit. Indeed, it is well known that many milk producers are making little or no profit. Improvement in conditions is sought in two directions, increased prices for products and decreased cost of production. The former is possible only thru a readjustment of distribution and selling methods and higher prices from consumers; all of which require time and none of which are absolutely certain of desirable results. Reducing the cost of production is more largely in the hands of the individual producer. In this effort he has been looking to purebred cattle, well bred and well cared for. Increased profits come from the economical producers of milk and cream and this usually means purebred cattle, but only up to a certain point. Cost of cows is a large factor in the cost of production and purebreds are profitable only so long as they can pay a profit on their purchase price. With the spread of cow-testing associations the dairymen will be in position to keep an accurate check upon costs and production but the balance between cost of cows and value of their products is the final test. Any effort to over-value purebred stock must be short lived and will eventually result in decreased sales. There may be good advertising for the breed and for individual breeders in the exhorbitant prices paid in recent sales, but the animals must measure up in performance.

HARRISBURG NOTES

The Capitol Shake-up.—Signs indicate that there will be an early use of the official axe on Capitol Hill and that same shake-ups of departments are due, which, candidly speaking, would not be a bad thing. The only difficulty is that in paying his political scores the governor and those who are advising him may throw out some men of ability and put in men who will not know the special lines and who will take months to find out. The change contemplated at the Capitol is following out time-honored custom, but if the selection of men to replace those who come under political displeasure is not made with care there will be some interference with the executive announcement that efficiency is to be the watchword. Some of the men named to place in the Public Service commission offices, not on the board, are hardly what would be picked out for special qualification. The appointments to be made, when the decapitations are over, will be interesting to study.

Commission Holds On.—Time has established that there was nothing to the report that members of the State Commission of Agriculture contemplated resigning and if all rumors are correct the commission will have a meeting shortly to hear reports on some of the problems upon which its members have been asked to report. The commission has not been heard of much lately, but there are a number of opportunities arising wherein it can shine. It is expected that if in the changes which will be made on the Hill any happen to be contemplated in the Department of Agriculture that the commission will be consulted. The commission has also to make up the budget for the next legislature.

The Crop Outlook.—The prospects for the fruit and grain crops of the state are now being much talked about and while there has been some conflict in the statements made at the Capitol, the general impression appears to be that the wheat, rye and hay crops are going to be excellent, but that corn and other late crops will be more or less dependent on the weather. The report on the wheat indicates a condition of 98 percent as compared with an average of ten years. It is estimated that there are 1,333,540 acres of wheat to be harvested this year and that only 4,400 acres were plowed down this spring. A crop of 27,000,000 bushels is expected by some observers. The rye crop is equally good in outlook altho the acreage is nothing like that of wheat. Oats reports are not favorable to a crop like that of 1915 and the corn planting was so late that data is hard to obtain.

Big Hay Crop.—The first cutting of alfalfa is under way in a number of southern counties and efforts are being made to get a line on the acreage. In general, the prospects for the hay crop are good and in some localities it is said they were never better. The official rating on the hay crop at the Capitol is that it now stands above the average for a decade and in some districts very far above. An estimate of 4,300,000 tons is made at the department of Agriculture, which at the present price will mean quite a considerable source of revenue for the farmers.

Fertilizer Violations.—The number of arrests for violations of the fertilizer laws this year has been greater than for a long time and is attributed by some people more to neglect than anything else. Except in the matter of abolishing sliding guarantees the fertilizer people have generally tried to meet state requirements. The arrests have been made where dealers ignored notices about filing registration or guarantees and in some cases flagrant disregard of notice was shown. Over 50 arrests were ordered on June 1 and there have been more since, the latest ones including instances where the stuff did not meet guarantees in regard to potash and other ingredients.

Will Maintain Office Here.—The men active in the various organizations of people interested in agriculture and its branches have determined to handle their legislative observations the same as do other interests. At a meeting held here they decided to establish an office here during the session of legislature and to have clerks keep tabs on every bill affecting agriculture, live stock or dairying or anything else from the time it is introduced. It is believed this will result in ability to head off some troublesome matters in committee and save difficulties later on. Incidentally, it will afford a clearing house for ideas and a place to draft legislation.

More Tobacco.—Reports from Lancaster County are to the effect that more acres are being devoted to the tobacco plant than in the last five years. In some townships land which was in oats has been planted with tobacco.

Want the Sheep.—The announcement in this letter some time ago that the state interests were preparing to put out some thousands of sheep to demonstrate that wool and mutton can be grown profitably in this state has resulted in quite a few demands for sheep. Farmers have offered to take charge of flocks and to make monthly reports as well as to permit inspections to be made.

After Law Violators.—The State Live Stock Sanitary Board has started after the men who disregarded the restrictions against moving hogs about without proper precautions and who are held responsible for some outbreaks of hog cholera. Warning was given in the winter that hogs should not be moved unless a veterinarian examined premises and infection could be minimized, but it appears that in Franklin and Cumberland these warnings were flouted and the time has come to make some examples. The difficulty appeared to be that men gathering hogs for sales did not care a rap whether the hogs had been infected or not.—Hamilton, Harrisburg, June 19.

NEW YORK LETTER

Milk Investigation Committee.—The joint legislative committee appointed by the last legislature to investigate milk, butter, eggs, and poultry conditions, has at last had a meeting for organization. Assemblyman H. E. Machold, of Jefferson County, was made chairman and it was decided to hold another meeting in Albany late this month and then the investigations will begin. The committee will visit various cities in the state to make their investigations. It is said that much of their time will be devoted to the matter of combinations of dealers in New York City that seek to control the supply of articles of food and regulate the prices thereof. The committee is made up of four senators and five assemblymen, only two of whom are classed as farmers.

Cattaraugus Farm Bureau Trip.—The auto trip made by and under the auspices of the Cattaraugus County Farm Bureau last week was a notable success. The procession started with about 50 autos and in a short time nearly as many more joined the "parade" and at noon 700 people took lunch at the Dow Farms. Here short talks were made and a quick auction sale of Holsteins was held. The speakers of the occasion were former Senator Godfrey, Miss Martha VanRennselaer, State Commissioner Wilson, and H. W. Collingwood. A similar trip will be held about July 1 by the Chautauqua County Farm Bureau.

About The State Fair.—At a recent meeting of the state fair commission it was announced that better railroad rates had been secured for certain days of the state fair than ever before. The lowest is a one-day rate for Wednesday of fair week, while other low rates are announced for a three-day period and another for a one-week period. Plans were laid for the entertainment of two distinguished guests at the fair (provided they attend) namely, President Wilson and candidate Hughes. Tuesday and Friday will be presidential days, Wednesday grange day and special railroad rate day, Thursday governor's day and Saturday sport day.

Auto Registrations—Autos are getting to be quite common in this state. The secretary of state has just announced that for the first time in this or any other state the auto registrations have passed the quarter million mark. The actual enrollment is 251,432 and the total fees collected amount to $2,110,109. The secretary predicts that the enrollment will reach 300,000 this year. Up to this time last year the fees collected amounted to $1,575,180. There are 2,235 dealers in the state.

Department of Foods and Markets.—The Department of Foods and Markets announces that the outlook for small fruits generally is very good. State growers are indicating a larger interest in the New York markets this year for cherries and small fruits generally. The numerous distributors are now ready to take hold of the offerings and it is up to the growers to ship their cherries and strawberries to the Department in as large quantities as possible. Large volume and a steady supply thru the season is what the Department desires in order to make best returns.—D.

COUNTY NOTES

Lebanon Co., Pa., (S.E.) June 14.—Weather has been cool and wet, greatly retarding corn and vegetables. Wheat and potatoes are, however, doing fine. Wheat is $1.10 a bu.; corn, 85c; oats, 55c; old potatoes, 80c per bu. Milk is selling at $1.35 per cwt. Hay and straw are selling at $22 and $16 per ton respectively. Eggs are 22c doz. Live poultry, 16c; broilers, 26c lb. Farmers are busy planting tobacco. With the exception of corn, all crops are doing well.—Leonard F. Strickler.

Warren Co., N. J., (N.W.) June 17.—The weather for the past two weeks has been very stormy, a hindrance to cultivation of corn and potatoes which look good. Potato bugs have made their appearance. Wheat is well headed and looks good, altho storms have done some damage. The hay crop will be heavy. The yield of strawberries was good, prices averaging about 10 cents per quart to retailers. Good Holstein cows are in demand, bringing $100 to $125. Butter, 28c; eggs, 24c. Farm work behind but general conditions are good.—B.

FARMERS' NATIONAL CONGRESS

The 36th annual session of the Farmers' National Congress will be held in Indianapolis, Ind., Oct. 17 to 20, inclusive. A program of representative speakers of national reputation and acknowledged ability has been arranged. The discussion of the American banker in relation to farm development work and talks on marketing and distribution of farm products.

FARM MEETING CALENDAR

American Forestry Association, Reading, Pa., June 26-27.

Pennsylvania Summer School, State College, Pa., June 26-August 2.

New Jersey State Poultry Association, New Brunswick, N. J., July 28-29.

International Apple Shippers' Association, New York City, August 2.

National Fertilizer Associaion, Hot Springs, Va., July 10.

Farmers' Mutual Protective Association, Indian Fields, N. Y., September 5.

New York State Fair, Syracuse, N. Y., September 11-16.

Farmers' National Congress, Indianapolis, Ind., October 17-19.

National Dairy Show, Springfield, Mass., October 12-21.

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You can get a Saginaw for filling time if you act quickly. Right now our factories are humming with business. But we are prepared to take care of your orders.

Of course you want a Saginaw. It's the Silo with the famous Steel-Built construction—the silo that is known for its superiority in materials. Get a Saginaw and you'll be sure of big returns from silage feeding.

See Saginaw salesman or write us for new silage literature. Address Dept. 135

The McClure Co.
Saginaw, Mich., Cairo, Ill., Ft. Worth, Texas, Des Moines, Ia.
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Man and Wife Wanted Ambitious farmer and wife on small farm. Man must be sober, willing and capable. Wife to do housework in small family; must be good plain cook. German preferred. No heavy washing. All conveniences in house. Good home; permanent position for active intelligent couple. Highest references required. Box 186, Boonton, N. J.

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W. D. POWER & CO., 601 W. 33rd St., New York are the largest handlers of commission hay in Greater New York. If you have hay to dispose of communicate with them.
HAY

For Sale: 114 ACRE HILL FARM, all in grass except 4 acres wheat and 3 acres corn. 20 acres meadow, balance fine bluegrass pasture. Good buildings. 1 mile from village, 1-4 mile from school. $36 per acre. HERBERT PYLE, Blue Rock, Ohio

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Cabbage Plants All varieties, 5 dz. 25c: 1000 $1.50 Postpaid. 5,000, $5.75, 10,000 $10, Express prepaid. Ask for prices on Celery, Cauliflower, Pepper, Beet, Cabbage, etc., in large quantities. Glick Plant Farm, Smoketown, Pa.

Plants, Strawberries & Vegetables All vegetables and strawberries including everbearing. Get my catalog, read why I sell choice plants sent prepaid at half price of others. C. E. FIELD, Sewell, N. J.

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Plants Celery and Cabbage, leading varieties. Strong plants ready for the field. 1000, $1: 10,000, $8.50. Send for price list. J. C. Schmidt, Bristol, Pa.

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THE TORNADO SILO FILLER

If you want your Silo filled with silage, which will produce good, rich milk and plenty of it also silage which will produce fat rapidly, fill it or have it filled with a TORNADO, on account of the fact that the TORNADO reduces it to a very fine condition.

By having it cut fine, you get much more in the Silo, it will settle closer, eliminating mould pockets, thus resulting in a much better and sweeter feed.

Another reason why you should have it cut fine is that cattle eat every particle, thus eliminating any waste.

By cutting it fine the cattle eat that part which contains the largest percentage of food qualities, which is the stalk.

The TORNADO will be the means of bringing about these results.

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"It's quite a relief to be able to turn my New Sharples Separator *slower* and yet feel that I am getting *all the cream.* I do not think I ever had a man who would turn at the same speed from start to finish." That's what Lewis A. Osborn, Litchfield, Conn., writes about his new Sharples Suction-feed Separator. And he is right. Whenever the speed is lowered, every old-style separator will lose from 7 to 13 pounds of butter yearly from each cow. The New Sharples, however, skims equally clean at high or low speed. The

SHARPLES SUCTION-FEED CREAM SEPARATOR

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It is the only separator which skims clean at any speed.

It is the only separator which increases its capacity when you turn faster.

It is the only separator which you can turn either fast or slow and get cream of the same even thickness.

The milk is drawn into the bowl in proportion to the skimming force, exactly as needed for perfect skimming.

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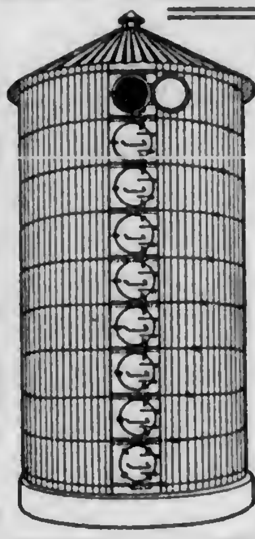

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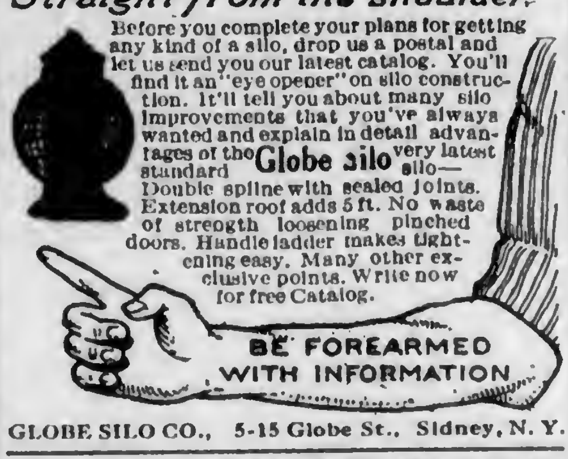

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One Year to Pay!

$24 Buys the New Butterfly Jr. No. 2. Light running, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in four larger sizes up to 5 1-2 shown here.

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Closed elbow pipe with a distributor saves one man in the silo and puts the silage where you want it. The Climax will save you money. Ask a user. Write today.

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Stocks carried in all different centers for quick shipment. Write for name of nearest distributor.

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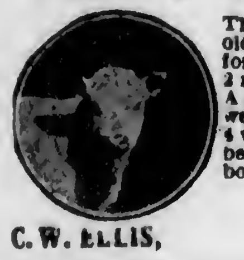

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MAPLE LAWN FARM,

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SPOT FARM

Supply sold to August 1st. Place your order now for ⅞ Holstein heifer calves $15 each. Express paid in lots of 5 to deliver in Sept., Oct. & Nov. 12 registered heifers $150 ea. 11 registered heifer calves $100 each. Registered bulls $25 up. 2 carloads of high grade heifers, registered and high grade cows, and Berkshire pigs.

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Holstein Herd of 20 head of the highest grade Holsteins. Each cow has a complete cow testing association record. Registered Pure Bred Bull calves for sale at all times. PLUMLYN FARM, Fairview Village, Pa. near Norristown

Holsteins A few Registered cows bred to a son of $50,000 bull. Also bull calves. Prices right. DAVIS BROS, Seven Valleys, Pa.

The Dairy

NATIONAL HOLSTEIN BREEDERS' MEETING

The 31st annual meeting of the Holstein-Friesian Association of America, which was also the 45th anniversary of the foundation of the herd book of this breed, was held at Detroit, Mich., June 5. Fully 750 enthusiastic supporters and breeders of the "Big Black and Whites" were gathered together. The Holstein-Friesian Association is the largest association of purebred dairy stock in the country, having a total membership of 8,885. Of this number 2,683 membership votes were represented at this meeting. There were no spirited contests on any subject, which went to show that all present were agreed on the ways and means of furthering the interests of this great breed.

After the formalities of opening, Hon. D. D. Aitken, President of the Association, gave his annual address. He said that it was a fitting tribute to the organization that the attendance was the largest in its history, and that the transactions of the association in the year past were unequalled in volume. He urged a national census of the Holstein-Friesians in this country taken at stated intervals. He advocated local clubs to be organized and a corps of speakers made available to point out practical ways of improvement in breeding, feeding and marketing stock. He pointed out that as there is a large number of new converts to the breed joining the association's ranks, educational work must be done which will instill into the minds of these new members the ideal breed type. High production, size, vigor and hardiness which are natural qualifications of the Holstein may be rapidly deteriorated by carelessness in breeding, therefore work must be done which will continually remind the members to keep the type constantly in mind.

There has been great progress in the testing of cows for Advanced Registry, and the results of selection in breeding and skillful care have made themselves so apparent that a mature cow, in order to be the champion, must produce more than 44.42 pounds of butter in seven days and more than 1,506 pounds in a year. The competition for records and the desire for higher production has brought rapid increase for service fees, so now from $100 to $200 is readily paid.

The Treasurer's report shows that the Association has over $300,000 in money and property. Such a large reserve is a visible sign of the prosperity of the Association, and assured the permanency and progress of the Holstein-Friesian interests of the country. The total disbursements for the year was $172,992.26, while the total receipts amounted to $388,383.14.

Organizations and co-operation are the greatest needs of the dairy industry. Along this line two events of the past year stand out prominently; these were the organization of the National Dairy Council and the strike of the Chicago milk producers for a fair price for their milk. The Dairy Council will be the greatest factor in informing the general public as to the value of dairy products, while the success of the Chicago milk producers will add $1,500,000 to their income while at the same time increase the measure of their self respect and self confidence.

Secretary F. L. Houghton's report showed that by comparison with other dairy breed associations, the Holstein-Friesian is the leader over all. It contains in number over 7,000 more members than all of the dairy cattle associations together. In growth by states New York led with 2,435 new members, Wisconsin second with 1,289, Ohio third with 838, and Michigan and Pennsylvania following in line with 618 and 601 respectively.

The literary committee showed in its report that the registrations and transfers have increased from 42,271 in 1908 to 141,431 in 1915. The applications for membership in 1908 were only 466, but during the past seven years the average has been 908. The average auction price of the Holstein has increased from $156 in 1908 to $202 in 1915. The high yield in the seven day class in 1908 was 28.17 pounds while at present the record is 35.54 pounds of butter fat, which is held by Ormsby Jane Segis Aaggie. Of its $25,000 appropriation the literary committee spent for advertising in farm papers $9,412.38, in medical journals $520.85, and in general magazines $7,109.83.

The proposition presented by John B. Irwin, of Minneapolis, to provide in the Advanced Registry classification for a 305 day test under the same regulations as those now governing the 365 day test was passed without a dissenting vote; the proposal for a 270 day test under the same conditions having been withdrawn in favor of the 305 day test.

President D. D. Aitken, Secretary Frederick L. Houghton, Treasurer Wing R. Smith, Superintendent of Advanced Registry Malcolm H. Gardner and Directors A. A. Cortelyou and John B. Irwin were unanimously re-elected. Col. French, of Maryland, was elected to fill the office of Vice-President left vacant by the death of Dr. H. B. Favill, and Wm. Bishop of the state of Washington was elected to fill the vacancy on the board of directors caused by the death of C. A. Dimoc.

After a spirited but friendly contest between Buffalo, Syracuse and Worcester, Mass., the latter city was selected as the meeting place for the next annual convention.

THE MILK PRICE PROBLEM

Oversupply and Low Prices

I was much interested in what Chas. Mathew Morgan says in this week's Pennsylvania Farmer, under the head of "Timely Notes Among Producers" (of milk). After a forcible statement of the conditions at present existing he asks: "Who has a logical and feasible solution of this question of milk prices?"

I assume that unsatisfactory milk prices for farmers are caused by an overstocked market. Farmers themselves are directly responsible for this condition. It is also indirectly promoted by the feed trust, railroads and the large milk dealers. The organized feed dealers have their assured profits. The railroads cart the feed to the farmers from all parts of the country East of the Rocky Mountains at a good profit, and it is said that "the milk train is the best paying train on the road." And it goes without saying that the large milk dealers who are the price makers can dictate terms to producers only while the market is overstocked.

All of these interests unite in spurring on the farmer to increased production of milk. And it must be said that in general he responds nobly to the stimulus and proudly drives up to the creamery or receiving station with a two-horse wagonload of milk from a one-hundred acre farm that would not, without the help of purchased feeds, produce more than one-half of the quantity. He has made two cans of milk to grow where one grew before, and if all other farmers sending milk to the same market did likewise, they would get no more money for two cans than they would receive for one before the quantity was doubled.

When milk is produced in excess of the capacity of the farm the business ceases in part to be farming and becomes, to that extent, manufacturing. The purchased cows correspond to the machines of a factory. Into these machines is fed all manner of raw material from the valuable oil meal down, in quantities that in the total are truly amazing. Let us suppose, if it is not too great a strain on the imagination, that the manufacturers of shoes sent their whole output to wholesale shoe dealers on a monthly statement from the dealers as to what they would pay for the different grades. How long would it be before shoe factories would be "abandoned by the score" as Mr. Morgan says milk dairies are in some districts under his observation?

The Dairyman's League has been in existence ten years or more and so far has not solved the problem of milk prices. During the Civil War President Lincoln is said to have remarked to his secretary of war "If Gen. — is not going to use his army, I would like to borrow it." I would suggest that some good energetic man borrow the Dairyman's League and after subdividing it into suitable sections proceed to eliminate the manufacturing part of the milk-producing business of dairy farmers. That is, the milk producer must be persuaded to limit his feed-buying propensities to the amount of his sales of farm products other than milk. In other words, make the farm a real farm, not part farm and part factory. As it now stands many producers are within the limit suggested, and this fact enables those who exceed the limit to make more profit by producing the surplus that gives the price makers their power and enables health boards to be meddlesome and fussy about unimportant matters. A small percentage of producers may, under extra favorable conditions find the present situation satisfactory, but judging by reports of unrest thruout the whole milk-producing territory the majority of producers are not satisfied that they are getting a square deal.

This is not offered as a complete solution of the problem submitted by Mr. Morgan, but if adopted it would be an important preliminary step. — Samuel Warbasse, Sussex Co., N. J.

MARYLAND HOLSTEIN BREEDERS MEET

The spring meeting of the Maryland Holstein Breeders' Club was combined with an auto tour of Holstein farms in the Green Spring Valley, Baltimore County, May 25. The Club was organized in 1912 by G. H. Hibberd, with a charter membership of 12. At the meeting just held there were 150 members, representing 23 counties of the state.

The business session was held at the farm of J. M. Dennis. It was voted to affiliate with the American Holstein-Friesian Breeders' Association. It was also decided to hold an auction sale of Maryland Holsteins the last day of the Frederick Fair, under the management of the Club. An inspection of the Dennis herd followed the business session. The Club moved on to the Captain Isaac E. Emerson farm for luncheon. G. H. Hibberd exhibited the Emerson cattle, with especial attention to five A. R. O. cows. The leading cow was Lily Lyons Fifth Hengerveld 102175, having a milk record of 23,551.66 pounds and 718.14 pounds of butter fat in 365 days.

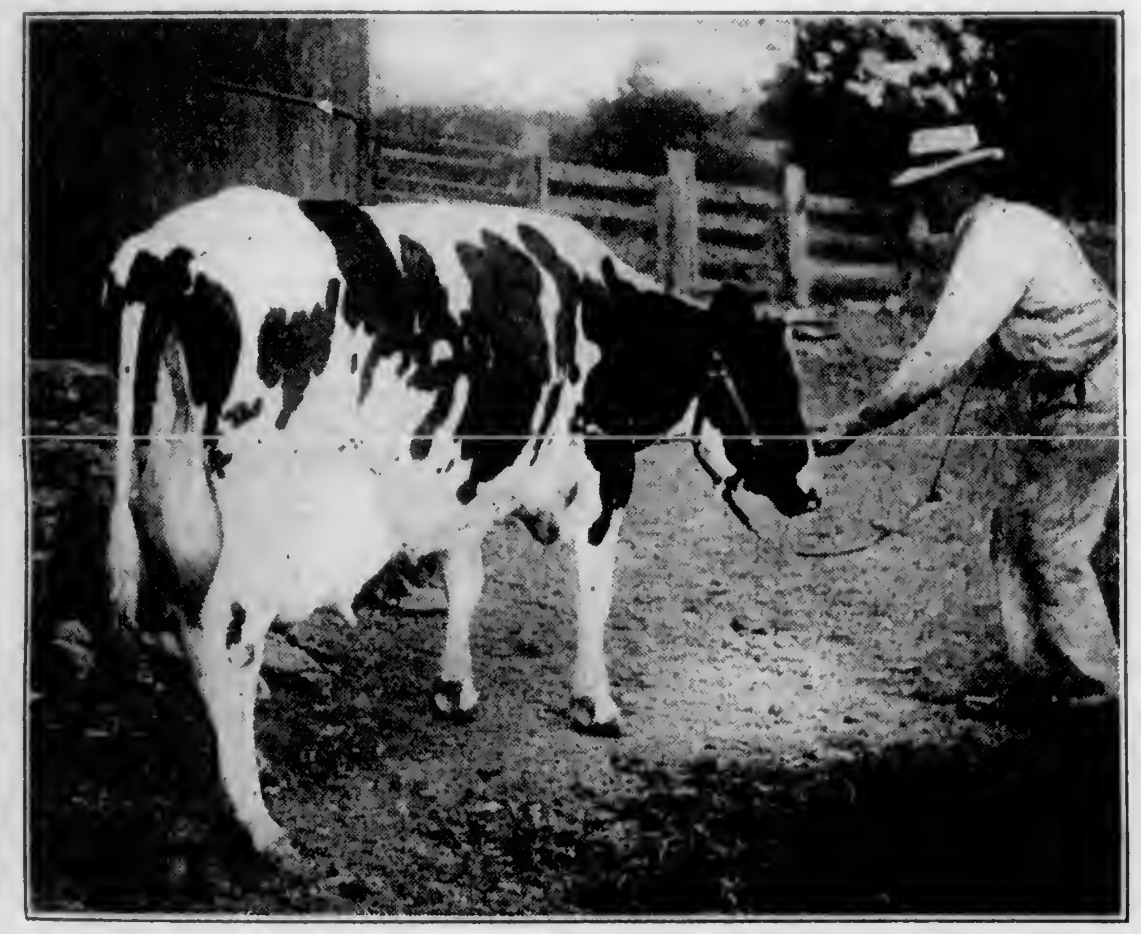
The next visit was at the farm of S. M. Shoemaker where a herd of 148 milking cows is kept. These cows are not pastured but are kept in stables and exercising yards and fed on the corn, hay and alfalfa produced on the 168-acre farm.—Marylander.

COOPER JERSEY SALE

The average price per head at the 1916 sale of cattle held at the Linden Grove Farm, at Coopersburg, was $641. One hundred and twenty-six head of cattle were sold, bringing a total of $80,765. The sale, which was conducted by T. S. Cooper and Sons, proved the biggest event of its kind at the Linden Grove Farm in forty years.

Buyers from all over the country attended and bid upon the high grade cattle, descended from the bluest blood that the English Isle of Jersey produces. The sale brought Mr. Cooper's total for sixteen years up to 1,995 head, which has realized the staggering total of $1,033,000.

Col. H. E. Colt, the munition maker purchased five animals for $10,750. Among other buyers were William Ross Proctor, Second Vice President of the Equitable Life Assurance Company; T. DeWitt Cuyler, of Philadelphia, a director of the Pennsylvania Railroad. This trio made things lively when Oxford Spot and You'll Do's Champion Ivy, five and a half and four and a half year-old cows, respectively, were offered, and the latter, the champion cow in the Island of Jersey in 1915, over 76 entries. The bids for these prize animals rose by leaps and bounds and they were finally knocked down to Mr. Proctor at a total cost of $6,000, the high mark of the sale.—Harrington.



ROENA KORNDYKE NETHERLAND DEKOL, OWNED BY C. W. ELLIS, JR., CORTLAND, CO., N. Y., HAS 7-DAY A. R O. RECORD OF 22.11 LBS. BUTTER AND 467.22 LBS. MILK.

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Distillers' Grains

ATLAS FEED & MILLING CO. Distillers' GRAINS PEORIA, ILL.

Atlas Distillers' Grains are the cheapest on the market, and yet contain three times the protein and fat that is contained in corn, oats, barley, bran, etc.

Atlas Distillers' Grains will increase your milk and butter-fat production and the increase is obtained at a lower cost.

ATLAS ANALYSIS

The following represents the Atlas Analysis—no other feed can approach this percentage:

Protein - 27% to 30%
Fat - - - 8% to 10%

Corn costs $26.00; Oats costs $26.00; Bran costs $21.00 and Barley costs $27.75. These analyze at about 10 per cent. protein and 3 per cent. to 4 per cent. fat, while ATLAS DISTILLERS' GRAINS contain 27 per cent. to 30 per cent. and cost only $22.00 per ton, bulk, f. o. b. Peoria.

Why pay more than $22.00 per ton and get only one-third of the results? Find out all about Atlas Distillers' Grains Today

FREE

Mail a postal TODAY. We will forward without charge a FREE SAMPLE of ATLAS DISTILLERS' GRAINS, also a circular explaining in detail everything about "ATLAS" as a Dairy Feed.

Do not delay—the sample is yours for asking.

ATLAS Feed & Milling CO.,
P. O. Box 54 PEORIA, Illinois

Built To The Measure

Guaranteed Capacity

WE build Sturges Cans to be more than just good milk containers. Each Sturges Can is built to be true to rated capacity. This is a big advantage in daily service. Saves work and time, forestalls disputes with city sealers—insures pleasing your trade more. Only highest grade steel plate is used. Carefully tinned, seams soldered smooth—easy to keep clean. Write for Catalog No. 43. Estd. 1865.

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Sturges Milk Cans

A Wonderful FEED

THAT'S GUARANTEED

—to produce more milk than any other ration either home mixed or purchased and do it without giving your cows constipation or udder trouble. Ready to use right out of the sack without any mixing.

Larro-feed

Absolutely free from adulterants and fillers. Just like the feed you would mix for yourself, is a special combination of choice cottonseed meal, dried beet pulp, gluten feed, corn distillers' grains, wheat bran, wheat middlings and a little salt, that's all; each ingredient weighed by automatic scales and all thoroughly mixed in huge power driven mixers, so that it is always absolutely uniform, and always good. An extra quart or two of milk daily from each cow may turn a loss into a profit. Try LARRO-FEED for more profits. Sold on "money back if not satisfied" plan, the decision being entirely up to you. LARRO dealers almost everywhere; write if none near you.

THE LARROWE MILLING CO. 1155 Gillespie Bldg., Detroit, Mich.

MERIDALE A.J.C.C. JERSEYS

Meridale Jerseys

A choice lot of breeding bulls, ready for service in the fall, are offered from the Meridale herd at attractive prices during the summer months. They are sired by bulls of wide reputation, and out of Register of Merit dams. The blood lines back of them are described in "Meridale Jerseys," a copy of which will gladly be mailed on request.

AYER & McKINNEY
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Holsteins Improve your herd. The Bull is half. Superior Holstein bull calves of excellent ancestry offered at attractive prices.
IDEAL FARM, Conyngham, Penna.

FIRST CHECK $75.00 TAKES HIM

Holstein-Friesian Bull born February 22d, 1916. The sire is by a son of King of the Pontiacs from the two-times 32-lb. cow, Flamboro Witzyde De Kol. Dam is a 17.45-lb. 2-year-old.

STEVENS BROTHERS COMPANY,
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Registered A. R. O. Holstein Bull

CALF, born January 30, 1916, more white than black. Average A. R. O. record of dam, sire's dam and sire's granddam 7 days, 537.3 lb. milk, 26.28 lb. butter; 30 days 2,354.3 lb. milk, 105.9 lb. butter; semi-official, 1 year, 19,991.9 lb. milk, 953.52 lb. butter; average fat per cent for the year 3.8 percent. First check for $125 takes him. Catalogue for stamp.

Geo. E. Stevenson & Sons, Clarks Summit, Pa.

Holstein Bull Calf, $35

Beautiful individual, born April 9, 1916. Just the thing to use in breeding up a grade herd. Registration and transfer papers, crating and delivery to express office for price named.

H. B. SWEET, Clarendon Bldg., UTICA, N. Y.

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But wheat last year was worth over 25c more per bushel than in times of peace. As the average yield for this section is 20 bushels per acre, it meant $5 more profit from every acre in wheat. If you raised 40 bushels to the acre it meant $10 more profiit per acre. Isn't it a wise move to spend 50c per acre and make $5 to $10 more profit on each acre?
To keep the plants busy manufacturing Nitrogen, Phosphoric Acid and Potash into wheat use

OBER FERTILIZERS

They not only feed digestible plant food to the crop in various forms available from seed time 'til harvest, but they have another distinctive property—an exclusive Ober quality— —They are mixed by OBERMETHOD— a process that makes every little rivulet of fertilizer that goes thru your drill just like the other in analysis.
Write today for full information about OBER BRANDS that fatten crops—that nourish every plant alike.

G. OBER & SONS CO.
BALTIMORE, MARYLAND (1)
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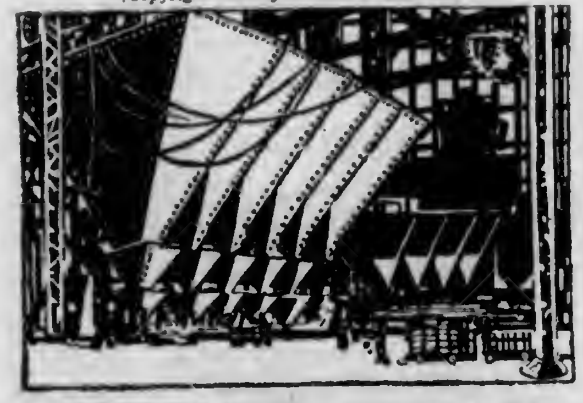

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TANKAGE for HOGS

Every experiment station test shows *Tankage* the cheapest and best feed for hogs and growing pigs. Build big frames to carry fattening. Use Roberts *Tankage* and *buy direct* from manufacturer. Write for prices.
Ellwood Roberts Co., 675 Drexel Bldg., Phila.

50-Acre Farm $2,200

Cottage house, barn and other buildings, fine orchard, $400, oak timber, tools and stock. 80 acres $2,500, good buildings, oil and gas goes. 206 acres $7,000, good one, buildings cost $4,000, don't pass this. I can sell your real estate. Write for catalogue.
H. H. MASTERS, Agt., Cambridge, Ohio

Electric Lighting Plants

For every purpose to suit every particular need. All sizes. Reasonable prices. Write for booklet & prices
ELECTRIC EQUIPMENT CO., Lancaster, Pa.

Boy Wanted A bright country boy about sixteen, who really likes farming and poultry, on small farm having modern poultry plant. Permanent position for a willing, ambitious worker. Give names of references. Box 186, Boonton, N. J.

BERKSHIRE PIGS March farrow
EDWIN B. MAULE, Coatesville, Pa.

Duroc-Jersey Pigs Distinctly high class in blood and individuality. Write
GROVER C. ANDREWS, Conneaut Lake, Pa.

O. I. C. Swine 50 choice Mar. and Apr. pigs, pairs & trios, not akin; also 200 lb. gilts to farrow in Aug. Clover Leaf Stock Farm, Monroe, Mich

Berkshires Young boars and gilts for sale. Two sows bred Aug. farrow. Price $35 each
Sussex Berkshire Farm Dagsboro, Del.

Aberdeen-Angus Cattle Choice registered young bulls for sale. A. W. ROOT R. D. 1. Manheim, Pa.

Reg. Berkshires Prize winning herd. Bred sows, boars and pigs at bargain prices.
George F. Adams, R.R.1, Powhatan Point, Ohio

Live Stock

THE MULE HAS MANY GOOD FEATURES

By many who are not familiar with the traits and dispositions of the mule, the belief is that they are always on the watch to kick their attendant or to run away. From my experience with these animals, I believe that nothing could be further from the truth. The average mule is not vicious unless he has been spoiled by careless or brutal treatment. On the whole, I think mules are more easily startled than our draft horses, but their only impulse is to get out of the way. They are more cautious and timid than horses. They are also more intelligent than horses, and for this reason rely upon their own minds rather than that of their caretaker to a greater extent than horses. Their timidity and caution does not make them more liable to run when frightened, but as a rule they do not frighten at sight of things as do horses. It is the sudden movement of something that startles them most frequently.

They comprehend a situation, however, far more readily than a horse, and for this reason seldom do any injury when they run; usually stopping as soon as they discover that they are not in any danger. And they will generally stop sooner if left alone than when a frightened driver is yelling and jerking at them. A team of horses, especially if young, is often ruined after running away, at least so far as being reliable to stand. Not so with mules. Getting fast in harness or stables does not excite them as it does most horses.

The greater advantage of the mule over the horse is in his having great endurance of heat and hard labor, and ability to subsist upon less food. It has been found that a team of mules doing the same work as a team of horses will keep up on 20 percent less grain. And their skin seems to be more tough and not so liable to harness and collar abrasions. For every-day use they will outwear the horse, but most of them need to be used every day in order to have them pleasant and agreeable to handle. This is one objection; a holiday makes them mischievous. Another objection is the size of their feet. Being small, they can not travel so well upon plowed ground or in deep mud, but their feet are tougher than those of horses.—V. M. Couch, Tompkins Co., N. Y.

EXPORTING PUREBRED BEEF CATTLE

International Judges

Since the outbreak of the European war, there has been a growing request for purebred beef cattle for shipment as breeders to South American countries. A shipment of Shorthorns was recently made to Argentina and an order has just been placed by Brazilian breeders for 25 head of tick-immune Shorthorn bulls at a price of $500 per head.

As indicative of the cordial relations existing between South American breeders and cattlemen of this country, Sonor Carlos M. Duggen and Ricardo F. Pearson, of Argentina, have accepted invitations to act as cattle judges at the 1916 International Live Stock Exposition. Further, the Directors of the Breeders' Show at Argentina have asked for four American judges to tie the ribbons at their show in August. Directors of the International Live Stock Exposition have selected the following: Prof. C. F. Curtiss, of Iowa, to judge Shorthorns; Frank VanNatta, of Indiana, to judge Herefords and Angus; Robert Miller, of Ontario, to judge Lincoln sheep, and Robert B. Ogilvie, of Illinois, to judge draft horses.

VETERINARY

Pigs Cough.—I have some pigs which seem to cough a great deal. Their eyes water at first and they must itch for the pigs are inclined to rub. They are only three months old. A. N., Williamstown, N. J.—Dissolve 40 grains borate of soda, 40 grains of boracic acid in ½-pt. boiled water and apply to sore eyes, twice a day. Mix some powdered licorice, cooking soda and ginger in their feed, twice a day.

Shoulder Lameness.—I have a mare that is very lame in shoulder, besides, the muscles are sweenied. C. E. M., Troy, Pa.—Apply equal parts tincture cantharides, turpentine, aqua ammonia and raw linseed oil to shoulder two or three times a week. She should be rested and well fed.

Injured Back.—My 12-year-old mare, while running at full speed 10 days ago, fell and turned a somersault, landing with great force on her back, upside down. Since then she has great trouble in backing and cannot hold back a light buggy when going down even a slight grade. Her hind legs got crossed. Her appetite is good. Would appreciate your advice. L. H. C., Oaks, Pa.—Give her 1 dr. ground nux vomica, 1 dr. acetate of potash at a dose in feed, 3 times a day, and apply alcohol to back and hip, twice a day.

Foot Soreness.—I recently purchased a heavy draft horse that appeared to be stiff in both fore legs. I supposed that he soon would improve on the farm. We cut all the long hair from his legs and find the trouble is in his feet rather than in legs. The hoofs are dry and brittle, sore in frog, with some festering, and I am inclined to believed he will be difficult to cure. We have applied salt and peroxide of hydrogen with no results. F. H. H., Wernerville, Pa.—Apply calomel to frogs as he may be suffering from thrush; also apply equal parts turpentine, aqua ammonia and raw linseed oil to coronet, every two days.

Indigestion. — I have a cow that calved 6 weeks ago that is not thriving, besides, her udder is caked; furthermore, she is giving very little milk and inclined to go dry. Have applied hot water, also lard, witch hazel and alcohol, but it fails to help her. S. E. J., Williamstown, N. J.—Apply 1 part fluid extract phytolacca, 1 part fluid belladonna and 10 parts wool fat to udder, twice a day. Give her 1 dr. fluid extract nux vomica and 1 dr. potassium iodide, twice a day.

Poll-evil.—I have a horse, 8 years old, that has a hard bunch on his head, just back of the crown piece of bridle. This bunch has been there since May 12. Can you tell me what to do for it? I took him to our local veterinarian and he wanted to cut it out. Would you advise me to have him operated on? V. W. S., Granville Summit, Pa.—If the bunch is not painful or doing any harm, you had better postpone surgical operation until it is necessary. Apply equal parts tincture of iodine and spirits of camphor, once a day.

Lice on Cat.—Kindly give some remedy for lice on cat. I would like something that will not hurt the cats if they eat it off themselves. D. C. W., Doylestown, Pa.—Lice killing remedies when taken into the stomach by cats will surely sicken them; furthermore, if a sufficient quantity is swallowed, it may produce death. Dust on some Persian insect powder or apply a small quantity of mercurial ointment to back part of head where the cat is unable to reach with its tongue. In my practice I frequently recommend the use of a small tooth comb, and by its use nearly all the lice can be quickly removed.

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"Enclosed find check for $2 for 5 years' renewal subscription to Pennsylvania Farmer. It is an excellent paper. There are a larger number of high-grade, well-written articles in Pennsylvania Farmer than in any of other farm papers I take. As I write, three come to my mind—the recent one on Lime and some time ago (perhaps a year) the one on "Seed Potatoes" and the one on "Horse Breeding." They were fine."—A. J. Wells, Riverhead, Long Island.

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Poultry

SUMMER HATCHING

While chicks hatched during March, April and May lay the bulk of the fall and winter eggs, it should not be considered that chicks hatched during the warm months are unprofitable. June and July chicks of the smaller breeds, if forced for all there is in them, can be made to lay by Christmas, and will usually lay better during late winter and early spring than the chicks hatched earlier. Late chicks can also be profitably grown for the market. Chicks hatched during the summer months will be in prime condition for marketing in late winter when prices are always satisfactory.

In incubating eggs under hens during the summer months the best results will be obtained if the hen is set on the ground. A good method is to line the nest with inverted pieces of freshly-dug sod. The sod should be lightly covered with straw or hay. The sod is used and the nest made on the ground to assist the hen in supplying the eggs with moisture. If incubation is done in an incubator, moisture should be applied after the first week.

Many claim that they cannot grow chickens during the warm months on account of the so-called "sleeping" sickness. The "sleeping" sickness is just another name for one of two things—lice or heat. To guard against lice the hen should be dusted with a good insect powder at least three times while sitting on the eggs.

Too great a temperature is debilitating to baby chicks. During the summer months the temperature should be kept down to at least 90 degrees. The coop should be kept under the shade of trees if possible, and if the temperature soars around the 100 mark during the middle of the day, it would be a good idea to throw two or three buckets of cold well water on the floor of the coop and the ground of the run.

Baby chicks require tender green food, not the tough vegetation usually supplied during the summer months. Lettuce or sprouted oats make the best green food for chicks during the warm months.—T. Z. Richey.

GUINEAS ON THE FARM

A few guineas should be kept on every farm. They will prove very profitable if one can sell breeders. The price of breeders ranges from 75 cents to $1 apiece to $2.25 per trio. The sale of a few breeders occasionally means a snug little profit and besides, in this region, one can sell market guineas for $1 a pair and upward, according to the season. So there is profit in raising them either as breeders or for market. They are also a sort of watch dog in the poultry-yard as they give quick and loud warning if anything unusual happens in their vicinity. While last, but far from least, they lay so many eggs.

These eggs appear small but a person who has never used one for cooking purposes will, on first sight, be astonished at the size of the egg out of the shell. The appearance of the eggs is very deceptive as, really, they are as large as the ordinary hen's egg when in the frying pan.

And as the guineas commence laying in May when the yield of hen's eggs is daily dropping lower, a few guineas will furnish sufficient extra eggs to fill this deficiency. They are splendid layers of table eggs as they lay almost every day from May until November.

As I usually keep five or six hens and often two or three use the same nest, while sometimes they hide the eggs so well that they are never found until the leaves fall, I could not, of my own experience, state accurately how many eggs they lay in a season. But an acquaintance who had a pair of guineas one summer, who always left three eggs in the nest so that the hen laid in that one nest all summer, told me that she got 155 eggs from the nest. As she had only one hen, that hen laid 155 eggs, which is a far larger number than the average farm hen lays, according to the census. From my own experience I know that this is true, as the guineas lay almost every day after they once start. Lice and mites do not trouble guineas once they are full grown. In this they are unlike chickens. Every poultry keeper knows how these pests cut down the yield of eggs, if they are not fought constantly. So from the standpoint of an economical production of table eggs the guinea-hen is a winner.

If given free range they eat very little grain. A light feed in the morning is sufficient and in the hight of the summer they do not bother with that if allowed to get out of the coop and afield early in the morning. They wander abroad all day and at night should be given grain. This grain is more for the purpose of getting them home regularly every night than because they need or demand it.

If allowed to wander at will they will pick up the biggest part of their living but they will also hide some of the eggs so well that they will not be found. As a rule, children on the farm delight in hunting the eggs and soon become expert in knowing just about where the nests are hidden. They can also tell when they are near a nest by the way the guineas act. So there will be few nests so well hidden that the children will not find them.

If, for some reason, it is impossible to allow guineas free range it is merely necessary to clip the feathers of one wing so they cannot fly over fences. It is absolutely impossible to keep them in yards if this clipping of the wings is neglected as they can fly over fences of any hight.

They do very little damage to the usual farm crops. The most I have known them to do is to pick at lettuce a little if it happens to be handy, and help themselves to ripe tomatoes. They do so little damage to other crops that it can't be called damage, in view of the good they do in ridding the farm of harmful bugs and worms.

I prefer to let the guinea hen raise the little guineas as she can do it far better. For one thing little guineas are such shy wild things that they run off when anyone approaches and often get lost that way. The are often so foolish as to go so far that they can not find their way back to the hen and they perish.

It is like looking for a needle in a hay stack to look for a little guinea. The sound of it's "cheeping" always seems to come from a different direction and when you go in that direction it seems that the little guinea is surely on the spot where you stood originally. And they always go into the tallest grass and weeds they can find. When frightened they dodge about so quickly and their color makes it so hard to see them when they do run into the open that it is almost an impossibility ever to find them. As so many get lost and die I usually let the guinea hen hatch and raise them.—M. A. Herold.

Summer shade insures thrifty chicks.

Remove over-active cockerels to a separate yard.

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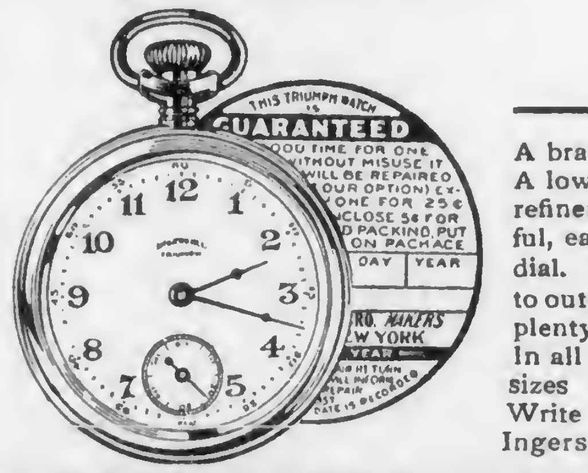

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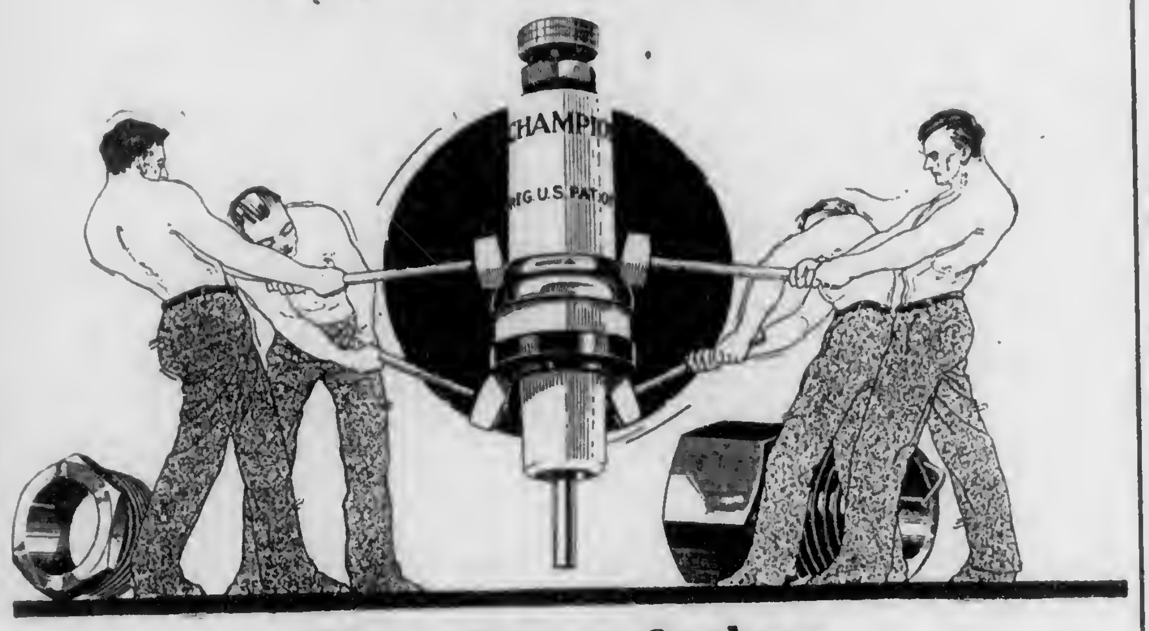

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Grange

A NOTE FROM THE NATIONAL MASTER

National Master Oliver Wilson informs us that he will assist in the organization of the state grange of Oklahoma the last of the month. He is advised that there will be about 25 subordinate granges for the state organization which is ten more than is required by the grange laws. However, Oklahoma grangers are to be congratulated that they have so many granges to start with since organizing granges in that state of "magnificent distances" is quite different from organizing them here in the east where neighbors are not so far separated.

The legislative committee of the national grange has recently sent letters and memorials to every grange in the United States in relation to several measures before Congress. National Master Wilson says that the granges have been very prompt in responding to the calls of the legislative committee. It has sent letters to members of both branches of Congress concerning the conservation of water powers, the grange position being that they should be kept for the good of the people instead of being turned over to corporations. In this matter the legislative committee has favored the Ferris bill and opposed the Shields bill. It is now working on the denatured alcohol bill with some faint hopes of getting some favorable legislation in the matter. The committee has opposed the Moss-Hollis bill on Rural Credits, believing it would not meet the requirements of farmers.—D.

Among the Granges

Delaware County, Pa. — Newtown Square Grange No. 1279 had quite an interesting meeting on May 2, in the High School Auditorium, when the losing team in a contest for membership gave the winning team a supper. Bro. J. G. Thomas presided, and talks were given by Deputy Hammon, Pomona Lecturer Jennie M. Rodgers and Rev. McCullouch and Rev. R. A. Garrison. After the feast the winning team entertained us with sketches and dialogues worthy of the supper.

On May 16 a meeting was held and Deputy Hammon explained some of the unwritten work of the Grange. It was also reported at this meeting that great interest is being taken in the quarter-acre corn contest for boys. — Wm. R. McKnight.

Grange Fair and Picnic.—The members of Richland Grange have appointed the directors for the Eleventh Annual Farmer's Picnic to be held at Lu Lu Park, Quakertown, Pa., September 1 and 2, 1916. We hope all that are interested in the raising of better crops, the making and doing everything in a better way, will help to make the picnic a success by beginning to plan now what they can plant or make to exhibit.

The implement men and business men always have had the new and good things to show us along their various lines.

The farmers, truckers, housewives, needlewomen, girls, and boys all may have a space to show what they can do, and then what a good time when we all go to see what others have to exhibit, and enjoy the games and contests, speaking and music. The president of the directors is Harry S. Johnson, Quaktown, Pa., Vice President, James Clark, Richlandtown, Pa., Secretary, Jacob M. Landis.—M. J.

Montgomery Co., Pa.—Pomona No. 8 was held Thursday, June 1, in the K. of P. Hall at East Greenville, Pa., as the guests of Perkiomen Grange No. 1378.

The reports of the subordinate granges were interesting and encouraging. Keystone Grange No. 2 reported 125 members in good standing and $1500 worth of feed bought during last quarter. Sanatoga No. 25, which was almost dead three years ago, reported 43 members and $325 worth of business during the last quarter. Cold Point No. 606 has had a great misfortunte. On May 8, 1916, the Narcissa Creamery burnt to the ground. The Grange Hall was situated on the fourth floor of this building. All furniture and everything in the hall belonging to the grange was destroyed. The farewell dinner given in honor of Bro. Thomson in April was a farewell to everything. The grange had met in that hall for thirty-eight years. One member has very kindly fitted up his truck shed with electric lights and made things very comfortable for the grange free of charge. Harmony No. 891 reported 88 members and interesting meetings. Their feed and flour bills during the last quarter amounted to $9,386.38. Perkiomen Grange reported 112 members, only 34 of these being sisters.

Bro. H. T. Smith from Bucks County was present and explained about the Philadelphia public school boys working on farms during the summer vacation.

The literary program consisted of recitations, music and questions. The question "Your Opinion of a Tractor" referred to Worthy Master E. A. Nelson aroused a great deal of interest. Bro. Nelson's first remark was "They are all right."

"What can we do to help make the state grange in Philadelphia a success?" Bro. Frank Shultz. A plea for "Agricultural Education in the Rural Schools" was discussed by Bro. W. H. Rothenberger. "How to get rid of the caterpillars that destroy our fruit trees" was answered by County Agriculturist A. K. Rothenberger. He said the best method was to put on gloves, take a rake and pull them off and tramp on them. The meeting concluded at 4.45, everyone feeling that the day had been well spent. The next meeting will be held September 7, in the Farmers' Hall at Center Point.—I. G. C.

THE FARMERS OF TOMORROW

Before the Maryland Bankers' Association in session recently at Atlantic City, N. J., Reuben Brigham, one of the instructors at the Maryland Agricultural College, spoke on the Maryland Farmers of Tomorrow. "The farmer of tomorrow," he said, "is in the truest and most practical sense an educated man, who has learned much from practical experience and on his own farm. He is neither the kind that swallows every new idea nor the type that is against progress of any kind. Our farmer of tomorrow knows the soil and its possibilities; he knows the crops best adapted to his farm and he knows how to grow them with the least cost, and where to market them at the best advantage. He is a sound business man and knows how to get a dollar for every dollar's worth produced. He is the kind of man that makes a fight for better market conditions; who gets his fellow producers into an organization then goes to work to come to a better understanding with the people he supplies.

"He is an active leader in neighborhood affairs and is interested in getting good roads thru his section. He makes it his business to share his knowledge with his less progressive neighbors, and realizes that little is to be gained simply by making his own way,

---

Household

THE GOOD THAT CURRANTS DO US

Welcome to the fresh ones again. In too many families they are used only as jelly or pie in spite of the fact that they are good served raw as sauce, and that the big clusters of large luscious red and yellow ones are delicious eaten "out of hand" as dessert or first course for breakfast or lunch. The dry or solid matter of currants is about one-twelfth tissue building material and the rest energy and heat making food, chiefly sugar, with some mineral salts —calcium, magnesium, potash, sodium, phosphorus, a little sulphur and a trace of iron. These salts do a very important service in our bodies by neutralizing the acid accumulations in our systems from a high protein or meat diet, which cause rheumatic pains or kidney trouble. When we crave currant jelly or spiced currants with our meats it is a well-directed craving based on good dietetic principles. Therefore the acid of currants is not really acid in its reaction or result in our bodies; on the contrary it is alkaline and therefore an acid neutralizer. Nearly all fruit acids are similarly alkaline in their digested effects. The acid of currants is chiefly tartaric, the same as the tartaric acid of grapes; it is particularly laxative, and thus is a good mechanical conditioner as well as a chemical balancer in our systems. Be sure to can a goodly quantity of currants for next winter's use; do not make them all into jelly.—The Editor.

Ways to Use Currants

Currant Jelly Sauce.—Into a granite pan pour one glass of currant jelly; to this add 2 tablespoons boiling water, 1 teaspoon dry mustard, a pinch of cayene pepper, 1 teaspoon lemon juice, 1 tablespoon cornstarch rubbed smooth in a little water. It is ready to serve as soon as it boils.

Currant Jelly Punch.—To 1 glass of currant jelly whipped to a froth, add 1 pint of boiling water, ½ cup sugar and the juice of 1 lemon. Put away to cool, and when ready to serve add 1 quart of cold water. Crushed ice adds much to this on a hot day.

Currant Pies.—Into a buttered piepan lay very thinly rolled pastry; fill with ripe red uncooked currants, sprinkle on plenty of sugar, dust a little flour over and add 2 tablespoons water. Wet the edge of the pie dough, cover with pie crust, press edges together and bake about 45 minutes.

Iced Currants for Breakfast.—Wash bunches of large red currants and drain dry. Dip each bunch into stiffly beaten white of egg, lay by themselves and sift pulverized sugar thickly on them. Let dry, chill and serve.

Bananas with Currant Juice.—Prepare for breakfast the night before, and put in the refrigerator. Cut the bananas in thin slices and sugar slightly, using about 1 tablespoon to 4 bananas; cover with the juice from 1 cupful of currants.

Currant Ketchup.—To 4 lb. of currants (after they are washed and stemmed), add 2 lbs. of brown sugar, 1 pint of good cider or wine vinegar. Simmer gently until thick. Add 1 teaspoon each of cloves and ground pepper, boil 5 minutes, strain and bottle.

Spiced Currants.—To every pound of stemmed currants, add 1 cupful sugar and ½ teaspoon each of cinnamon and cloves; cook until thick and add 1 tablespoon of vinegar.

Currant Pudding.—Pour over 1 cupful tapioca 2 cups boiling water, cook in double boiler until clear, add pinch of salt and stir often. Into a dish put 1 quart of ripe red currants, stemmed and washed, sugar bountifully; pour the tapioca when partly cooled very slowly over the currants. When cold set on ice to chill. Served with cream, this is a dainty dessert.

Currant Sherbet.—Boil 1 lb. of sugar and 1 quart of water together half an hour. Add the juice of 1 lemon and 1 pint of currant juice. When cold, freeze.

Currant and Raspberry Ice Cream. — Rub thru a sieve, 1 quart of red raspberries and 1 pint of currants, add 1 lb. of sugar and let them stand one-half hour. Add 1 quart of cream and freeze.—Elizabeth Jean, Baltimore Co., Md.

PENNSYLVANIA FARMER PATTERNS

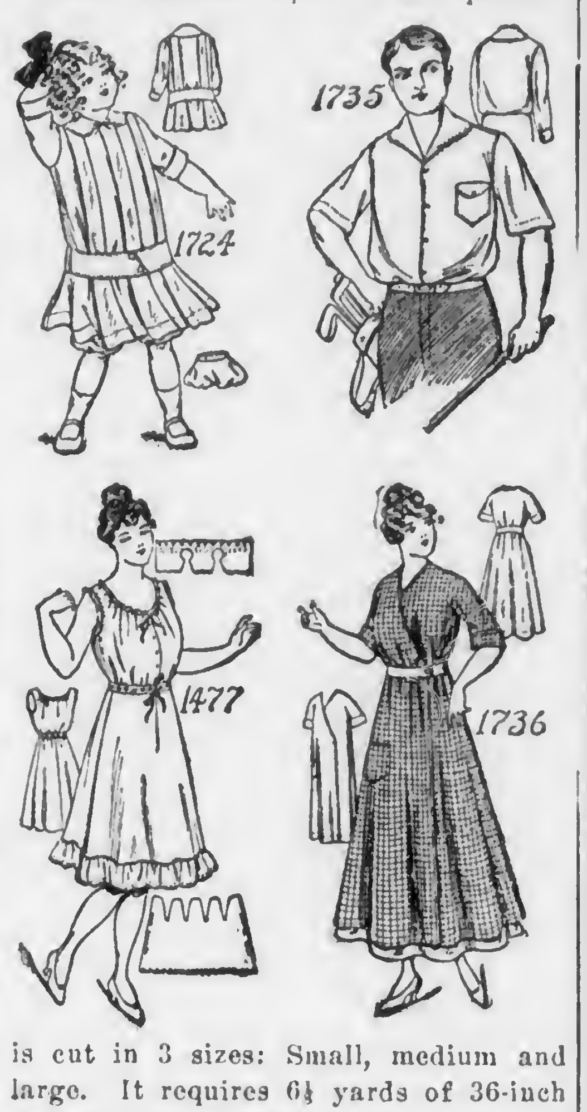
Be sure to give the figures and letters of each pattern exactly as printed at the beginning of each description. We will not be responsible for correct filling of your orders unless you do so. Also give bust measure when ordering waist patterns, waist measure for skirt, and age for children's patterns. Address Pennsylvania Farmer, 261-263 So. Third Street, Philadelphia, Pa.

1724.—Child's Play or School Dress. —Cut in 4 sizes: 2, 4, 6 and 8 years. It requires 2¾ yards of 36-inch material for the dress, and 1¼ yards for bloomers for a 4-year size. Price of pattern, 10 cents.

1735.—Men's Negligee or Outing Shirt.—Cut in 7 sizes: 38, 40, 42, 44, 46, 48 and 50 inches breast measure—neck measures to correspond in sizes 15, 15½, 16, 16½, 17, 17½ and 18. It requires 3½ yards of 36-inch material for a 17-inch neck size. Price, 10 cents.

1477. — Ladies Combination Corset Cover and Skirt.—Cut in 3 sizes: Small, medium and large. It requires for corset cover, 1 yard and for skirt with ruffle 2⅜ yards of 36-inch material for a medium size. Price, 10 cents.

1736.—Ladies' Apron.—The pattern is cut in 3 sizes: Small, medium and large. It requires 6¼ yards of 36-inch material for a medium size. Price, 10 cents.



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THE FUR BRINGERS

By Hulbert Footner

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CHAPTER XXV

The watchers at the house saw a man running toward them.

Ambrose knew the runner by his rakish, broad-brimmed hat and flying sash. His heart leaped into the race. Tole was gaining.

“Go it! Go it!” Ambrose cried.

Tole was not bringing his pursuers back to the big house, but led the way off to one side by the quarters. Only a few yards separated him from the all-concealing darkness.

“He's safe!” murmured Ambrose.

At the same moment half of Tole's pursuers stopped dead and their rifles barked. The flying figure spun around with uptossed arms, and plunged to the ground.

Ambrose groaned from the bottom of his breast. Nerved by a blind rage, his own gun instinctively went up. He could have picked off one or two from where he stood. Macfarlane flung a restraining arm around him.

“Stop! You'll bring the whole mob down on us!” he cried. He looked at Ambrose not unkindly. The sacrifice of Tole obliged him to change his attitude.

Ambrose turned in the door, silently grinding his teeth. At the end of the passage he found a chair, and dropped upon it, holding his head between his hands.

The face of Tole as he had first beheld it—proud, comely, and full of health—rose before him vividly.

He remembered that he had said to himself then: “Here is one young, like myself, that I can make a friend of.” And almost the last thing Tole had said to him was: “I am your friend.”

It was his youth and good looks that made it seem most horrible. Ambrose pictured the bloody ruin lying in the square, and shuddered.

Gordon Strange offered to go out in order to make sure that Tole was beyond aid. It seemed like a kindly impulse, but Ambrose suspected its genuineness.

Even from where they were, a glance at the huddled figure was enough to tell the truth. None of the others would hear of Strange's going. Colina and Giddings forbade him. Strange with seeming reluctance finally gave in.

Whenever he witnessed such evidences of their trust in the half-breed Ambrose's lip curled in the darkness. He was more than ever convinced that Strange was a blackguard.

Evidence he had none, only his warning intuition, which, among the male sex at least, is not considered much to go on.

It gave Ambrose a shrewd little twinge of jealousy to hear Colina begging this man not to risk his life by leaving the house.

About three o'clock it began to seem as if they might allow themselves to relax a little. The madness of the Indians had burned itself out. There had not been enough whisky perhaps to maintain it for more than a few hours.

In any case, since the whites had been spared at the hight of their fury, it seemed reasonable to hope they might escape altogether. The yelling had ceased.

Most of the men were now engaged in carrying flour and other goods down to the york boat. The watchers from the house wondered if they dared believe this signified an early departure.

As the tension let down it could be seen that John Gaviller was on the verge of collapse. Colina strove with him to go to his room and rest on his bed.

He finally consented upon condition that she lay in her own room up-stairs. Colina and Gordon Strange half led, half carried the old man up-stairs.

Strange, returning, relieved Macfarlane's watch at the side door. Macfarlane, Ambrose, Giddings, and Pringle lay down on the sofa and on the floor of the library.

Three of them were almost instantly asleep. Not so Ambrose. As soon as he saw the half-breed left in sole charge his smoldering suspicions leaped into activity.

“If he's meditating anything queer this is the time he'll start it!” he thought. He took good care to choose his position on the floor nearest the door. He left the door open.

From the outside only occasional sounds came now. The Indians were busy and silent. Within the house it was so still that Ambrose could hear Gordon Strange puffing on his pipe.

The half-breed was sitting in the doorway outside, with his chair tipped back against the wall. By and by Ambrose heard the front legs of the chair drop to the floor, and an instinct of caution bade him close his eyes and breathe deeply like a man asleep.

Sure enough Strange came into the library. He was taking no pains to be silent. Stepping over Ambrose he crossed to the mantel, where he fumbled for matches, and striking one made believe to relight his pipe.

Now Ambrose knew that Strange had matches, for when they took John Gaviller up he had seen him light the lamp at the foot of the stairs and return the box to his pocket.

This then must be a reconnoitering expedition. Ambrose had no doubt that when the match flared up the half-breed took a survey of the sleeping men.

He left the room, and Ambrose heard the chair tipped back against the wall once more.

A little later Ambrose became conscious that Strange was at the library door again, tho this time he had not heard him come.

He paused a second and passed away as silently as a ghost—but whether back to his chair or farther into the house Ambrose could not tell.

Rising swiftly to his hands and knees he stuck his head out of the door. There was light enough from the outside to reveal the outlines of the chair—empty.

Without a thought Ambrose turned in the other direction and crept swiftly and softly thru the passage into the stair hall. He did not know what he expected to find. His heart beat thick and fast.

He scarcely suspected danger to Colina, who was strong and brave. Was it her father? Reaching the foot of the stairs he heard a velvet footfall above.

He hastened up on all fours. The stairs were thickly carpeted. Gaining the top his strained ears detected the whisper of a sound that suggested the closing of Gaviller's door.

He knew the room. It was over the drawing-room, and cut off from the other rooms of the house. To reach the door one had to pass around the rail of the upper landing.

Arriving at the door he did indeed find it closed. Under the circumstances he was sure Colina would have left it open.

He did not stop to think of what he was doing. With infinite slow patience he turned the knob with one hand, holding his electric torch ready in the other.

When the door parted he flashed the light on the spot where he knew the bed stood. The picture vividly revealed in the little circle of light realized his unacknowledged fears.

He saw Strange kneeling on the bed, his face hideously distorted, his two hands at the old man's throat.

Strange yelped once in mingled terror and rage like an animal surprised —and with the quickness of an animal sprang at Ambrose.

The two men went down with a crash athwart the sill, and the door slammed back against the wall. There was a desperate struggle on the floor.

Strange was nerved with the strength of a madman. He could not have seen who it was that surprised him, but in that frantic embrace he learned.

“It's you is it?” he snarled. “I've got you now!”

Forthwith he began to shout lustily for help. “Macfarlane! Giddings!”

Colina was already out of her room. She did not scream. The three men were on the stairs.

“Bring a light!” gasped both the struggling men.

It was Colina who lit a lamp and carried it out into the hall with a steady hand. Ambrose was seen to be uppermost. Recognizing the two men her face darkened with anger.

“What does this mean?” she cried. “Get up instantly!”

Ambrose wrenched himself free and stood up.

“Don't let him escape!” cried Strange.

Ambrose laughed a single note.

“He tried to kill your father!” panted Strange. “I arrived in the nick of time!”

Ambrose gasped and fell back in astonishment. Such stupendous effrontery was beyond the scope of his imagination.

“It's a lie!” he cried. “It was I who discovered him in the act of strangling your father!”

Then for the first Colina swayed. “Oh, God!” she murmured, “have we all gone mad!”

Macfarlane seized the lamp from her failing hand. Colina ran unevenly into her father's room. They heard her cry out within. Giddings ran to her aid. He made a light in the room and closed the door. The little parson moaned and wrung his hands.

Macfarlane had drawn his revolver. “If you make a move I'll shoot you down!” he said to Ambrose—thus making it clear whose story he believed.

“You can put it up,” said Ambrose coolly. “I'm going to see this thing thru.”

Strange had got his grip again. His smoothness was largely restored. He actually laughed. “He's a cool hand!” he said.

“You darned black villain!” said Ambrose softly. “I know you now. And you know that I know you!”

It did not improve Ambrose's case to say it, but he felt better. The half-breed changed color and edged behind Macfarlane's gun.

Colina presently reappeared, showing a white and stony face. “Mr. Pringle,” she said, “go down and lock the side door and bring me the key. The rest of you go to the library and wait for me.”

Ambrose flushed darkly. That Colina should even for a moment hold the balance between him and the half-breed made him burn with anger. Passionate reproaches leaped to his lips, but pride forced them back.

Turning stiffly he marched downstairs before Macfarlane without a word. She should suffer for this when he was exonerated, he vowed. That he might not be exonerated immediately did not occur to him.

In the library Strange and Macfarlane whispered together. When Pringle rejoined them all were silent. For upward of ten minutes they waited, facing each other grimly.

The strain was too great for the nerves of the little parson. He finally broke into a kind of terrified, dry sobbing.

“For God's sake say something!” he faltered. “This is too horrible!”

Macfarlane glanced at him with a contemptuous pity and stood a little aside from the door. “Better go into the front room,” he said. “You can't do any good here.”

The little man shook his head, and going to the window turned his back on them and endeavored to master his shaking.

Shortly afterward Colina came downstairs. At her entrance all looked the question none dared put into words.

Colina veiled her eyes. “My father only fainted,” she said levelly. “Dr. Giddings says he is little worse than before.”

A long breath escaped from her hearers.

Strange cunningly contrived to get his story out first. As he spoke all eyes were bent on the ground. They could not face the horror of the other eyes.

Pringle was obliged to sit on the sofa to control the trembling of his limbs. The others stood — Macfarlane, Colina, and Strange near the door —Ambrose facing them from in front of the desk.

“You will remember,” Strange began collectedly, “it was I who advised that this man should be admitted to the house. I thought we could watch him better from the inside. I have never ceased to watch him from that moment.

“When you all turned in and I was left at the side door I kept my eye on this room. The last time I looked in I saw that he had disappeared. He had slipped so softly down the hall I had not heard anything.

“I instantly thought of danger to those up-stairs, and crept up as quickly as I could without making any sound. I found the door of Mr. Gaviller's room closed. I knew Miss Colina had left it open. I opened it softly, and saw Doane on the bed with his hands at Mr. Gaviller's throat.”

A shuddering breath escaped from Colina. The little parson moaned.

“He sprang at me,” Strange went on. “We rolled on the ground. I called for help, and you all came. That is all.”

Ambrose was staggered by the breed's satanic cleverness. After this his own story must sound like a pitiful imitation. He could never tell it now with the same assurance.

“Surely, surely they must know that a true man couldn't take it so coolly,” he thought. But they were convinced; he could see it in their faces.

He felt as powerless as a dreamer in the grip of a nightmare.

When Strange finished there was a significant silence. They were waiting for Ambrose to speak. Stiffening himself he told his story as manfully as he could. Conscious of its weakness he told it with a hang-dog air.

(Continued next week.)

Markets

PHILADELPHIA PRODUCE

Philadelphia, Pa., June 19, 1916.

A certain brisk movement in the markets is evidenced this season which greatly differs from the tone and conditions of one year ago. Prices continue more steady and with less fluctuation than was evidenced last season, due to stronger demands on practically every line of fruits and produce. In a very large measure the commission houses are sold out of perishables daily and at the freight depots larger quantities are being sold on arrival. Thru organized effort the produce merchants of this city are reducing their hours for selling and this is believed to be an important factor toward maintaining good prices as it allows retail buyers less time for trading and “forcing” prices down, especially when the market is heavily supplied.

Receipts of new potatoes have been very heavy in the past week but the market has been quite active and the demand very good. Upward to 100 cars have been on the tracks daily and on some days the receipts run as high as 150 cars, including those from the Eastern Shore, Norfolk and the Carolinas. The Norfolk and Eastern Shore potatoes sold on Thursday of last week at an average price of $4.50 per barrel and on Friday the price dropped to $4 and on Monday morning the beginning of this week's market, sales were started at $3.75 to $4. It is believed that they will continue at this latter price as the crop is not excessive and the market continues very active under these prices. One hundred forty-two cars were disposed of this morning at the prices quoted and from the movement in the past week it is evident that these large quantities will continue to be consumed daily.

Old potatoes have been “cleaning-up” for the past four or five weeks. An ocasional car-load appears from various sources in Pennsylvania and New York state and meets with exceptional high prices. The Pennsylvania potatoes are selling as high as $1.40 per bushel and New York State, $1.25 to $1.30. The continued high prices of new potatoes have brought to the large markets quantities of old potatoes which in other years have been sold locally.

Near-by Vegetables

The pea market has been one of great interest especially to those who hauled large quantities during the season of last year. It will be remembered that at this time one year ago the price declined to 10 and 15 cents per basket. This year they have continued steady and the large stock has not fallen below 60 cents per basket. The market on Gradus and the best varieties of large pess on Friday was 60 to 65 cents per basket; on Saturday morning and at the beginnings of this week's market the price has advanced to 90 and 95 cents per basket for the same stock with the supply adequate to meet the demand.

Jersey green beans are making their appearance this week and have begun sales around $1 per basket. The new crop of Jersey cabbage is also on the market and selling at 50 to 60 cents per basket. There has been a fair quantity of early beets marketed in the last week, the price ranging around 3 to 3½ cents per bunch. Good, clean carrots well bunched sold freely at 3 to 4 cents per bunch. Asparagus continues in fairly heavy supply and the price on this stock has held remarkably thruout the season. The fancy grades are selling at $1.75 to $2.25 per dozen bunches; medium grades, $1.50 to $1.75 and the smaller sizes 75 cents to $1.25. It is generally expected that the market on asparagus will suddenly terminate with the appearance of fresh peas, especially when the latter will sell at low figures. It is probable that within another week receipts of asparagus will be greatly lessened.

Lettuce packed in bushel boxes is selling at 50 to 60 cents per box. Spinach in boxes is selling at about 50 cents per box and $1 to $1.25 per barrel. A few growers continue to haul rhubarb to the market but the demand is very limited and a great deal has been wasted because of the lessened demand.

Southern Vegetables

Mississippi tomatoes are arriving in rather poor condition at the present time. The stock which is fancy is meeting with good demand and is selling promptly at full quotations. Florida tomatoes are about thru for the season and their quality at this time is running poor. Florida tomatoes are selling at $1.50 to $2 per crate for fancy and $1.25 to $1.50 for choice. The Mississippi stock generally is well colored and in the flat crates the first grades are selling at 90 cents to $1 and seconds 65 to 75 cents.

Very few onions are now arriving from Texas and the bulk offered on the market are from quantities placed in storage earlier in the season. Number one grades are selling at $1.65 to $1.80 per bushel crate and number two $1.50 to $1.65. Cabbage from the Eastern Shore and Norfolk is selling at $1 to $1.25 per barrel. Beans from North Carolina in 1-3 barrel baskets are selling at 75 to 90 cents for green stock and $1 to $1.25 for the wax beans. Small quantities of Virginia lettuce are being marketed at from 50 cents to $1 per basket, depending on the quality. Corn from Florida is arriving packed in crates which contain about 100 ears. The average selling price is about $2.25 per crate. Florida cucumbers are selling at $1.50 to $2 per basket.

Fruits

Jersey strawberries reached their highth at the opening of this week's market, practically every grower in the southern section of the state has marketed his heavy picking for this season. Champions and Success berries are selling today at 4 to 5 cents per quart; Gandy and Chesapeake are selling at 5 to 7 cents and a few exceptional fancy marks are selling at 8 cents. The condition of strawberries has been rather poor thruout this season probably owing to the excessive amount of rain which made them of poor carrying quality. Blackberries and dew berries are coming from North Carolina and seling at 8 to 10 cents per quart. Huckleberries are selling at 12 to 14 cents.

The supply of near-by cherries appears to be far in excess of the demand for this year. It is claimed by many that the price of sugar is having much to do with the tardy sales on cherries and the fact is generally accepted that the quality of the cherries, that is, the color and size, is not equal to that of other years. Most of the cherries arriving are lacking in color and are rather small. Prices range fom 3 to 4 cents per pound and on the better quality of cherries packed in quart boxes sales are made at 6 to 7 cents per quart.

Cantaloupes from California are arriving at the rate of one or two cars per day. Today there were six cars of California cantaloupes sold here, the fancy marks packed in standard crates containing 45 lopes sold at $3 to $3.75 per crate; the smaller sized cases sold at $2.50 to $2.75 and the flat cases containing 12 to 15 lopes sold at $1 to $1.25. From 5 to 8 carloads of watermelons are arriving here each day from Florida, most of which are selling around $325 per car. The demand has been somewhat limited by the cool weather prevailing. Peaches from Georgia are selling as quoted last week, Uneeda variety, $2.50 to $2.75; Greensboros, $2.25 to $2.50.

First grades apples are still in demand and sell at high figures. Most of the stock is scalded and generally in poor condition. Baldwins are selling at $2.50 to $3.50 per barrel for the general run and on fancy stock as high as $5 is being secured. Winesaps are selling at $3.50 to $4 per barrel; Ben Davis, $2.25 to $3.

Poultry

The market on live poultry has remained quite steady and the prices on live fowl today are ½ cent in advance of those quoted last week. Fowl of desirable size (4 to 5 pounds apiece) are selling at 20 to 21 cents per pound. Spring chickens of best quality weighing 1 to 2 pounds apiece sold at 24 to 30 cents per pound. White Leghorns were in demand at 22 to 24 cents. Spring ducks sold at 14 to 16 cents.

On dressed poultry the prices have varied by ½ cent from last week and a steady demand has kept the market well cleaned up. Fancy selected fresh-killed fowl sold at 22½ cents and stock of lighter weight sold at 20 to 22 cents. Jersey broilers when fancy were sold promptly at 40 to 45 cents; near-by broilers averaging about 2 pounds sold at 38 to 40 cents. Spring ducks are selling at 19 to 20 cents.

Eggs

A good demand for fresh eggs has kept the market in good order with quotations identical with those furnished last week. Near-by extras are selling at 26 cents per dozen; firsts 23½ cents; current receipts, 22 to 22½ cents. Candled and graded eggs are jobbing at 29 to 30 cents per dozen.

—Selmarad.

YORK PRODUCE MARKET

York, Pa., June 19, 1916.

The beginning of the week showed a glut in the strawberry market. It was partly relieved by shipping to nearby towns. Butter is difficult to dispose of. Eggs are off a cent. Old potatoes are eagerly hunted up at advanced prices. Reports indicate that tho sweet cherry crop is destroyed by rot.

Eggs.—23@25c per dozen.

Butter.—Country, 28@32c per lb. Milk, 6 cents per quart.

Poultry.—Hens, 13@15c lb.; springers, 25c lb.; dressed, 50c@$1 each.

Vegetables.—Potatoes, 18@20c per ½-pk.; new, 18@25c per ½-pk. Lettuce, 3@8c per head. Cabbage, 2@8c per head. Radishes, 1@3c per bunch. Beets, 4@5c per bunch. Onions, 3@5c bunch. Lima beans, 16@18c quart. Soup beans, 12@15c quart. Lard, 14@15c a lb. Peas, 30@35c ½-pk. Beans, 30c ½-pk.

Fruit.—Apples, 15@40c ½-pk. Strawberries, 5@15c a box. Cherries, 5@10c a box. Currants, 8@10c a box.

Retail Grain Market.—Wheat, $1.02; corn, 90c; oats, 65c; rye, 90c; bran, $1.40 cwt; middlings, $1.65 cwt.

Wholesale Grain Market.—Wheat, 92c; corn, 76c; oats, 47c; bran, $27 per ton; middlings, $32 per ton.

NEW YORK PRODUCE

New York City, June 19, 1916.

The butter market opens quiet and somewhat unsettled. Prices about one cent lower than last week. Cheese barely steady, little export demand. Fairly good demand for eggs with prices steady. Nearby whites in light supply. Apples firmer with best fruit higher.

Butter.—Creamery, extra, (92 score) per pound, 29½@29¾c; higher score, 30¼@30¾c; thirds to firsts, 25@29c; state dairy, 24@29c; packing stock, 21@23c.

Cheese. — Whole milk specials, 15½@16c; daisies, 16½c; skims, 10½@12½c.

Eggs. — Fresh gathered, extra, 24½@26c; dirties, 18@21c; nearby white, fine to fancy, 27@28c; ordinary to good, 25@26c; browns, 25@26c.

Dressed Poultry.—Philadelphia and Long Island, fancy 3 to 4 pounds to pair, 35c; Philadelphia fancy roasters, 26@30c. Fowls, 19@22c; old roosters, 14½c; squabs, $2@4.25 dozen. Spring ducks, per lb. 19c. Turkeys, fresh killed, 26c. Broilers, 12 to box, milk fed, 18 to 20 lbs., —@—c; milk fed, 25 to 29 lbs., —@—c; corn fed, 26c.

Asparagus. — Jersey and Pennsylvania green fancy, dozen, $2.75@3.00; do., green, extra, $2.25@2.50; do., green prime, $1.50@2.00; do., gren culls, $1.00@1.25.

Vegetables and Greens.—Lettuce, per bbl., 50@75c; radishes, 100 bunches, 50@75c; water-cress, per 100 bunches, —@—; peas, large per basket, $1.50@2; small, $1@1.25. Strawberries, Jersey, fancy, 10@13c; do., average, 6@9c.

Apples.—Greening, bbl., $2@3; Northern Spy, $2@5.50; Baldwin, bbl., $2@5.50; Ben Davis, bbl., $1.50@3.50.

Country Dressed Veals.

Choice	@17½
Prime	16½@17
Fair to good	15@15½
Coarse, heavy	15@15½
Common	13@14
Buttermilks	12½@13
Grassers	11½@12

PHILADELPHIA LIVE STOCK

Philadelphia, Pa., June 19, 1916.

Receipts for the week ending Saturday evening, June 17:

	Beef Cattle	Sheep and Lambs	Hogs
Total for week	3,362	6,892	4,415
Previous week	2,905	5,524	4,901

Calves.—Total receipts of calves for this week were 1,874 against 1,542 last week.

Beef Cattle.—There was a fractional advance on all desirable dry-fed cattle, with grass stock ruling easy, and particularly the common and medium under grades. Pennsylvania, Illinois and Maryland brands were in evidence and demand was seasonable. Bulls and cows of the better class were steadily held, and the choicest calves showed an upward revision.

Best steers	$10.25@10.50
Choice	9.75@10.00
Good	9.25@9.50
Medium	8.50@8.75
Common	8.00@8.25
Bulls	6.00@8.25
Fat cows	5.00@8.00
Thin cows	3.25@4.50

Veal Calves.—

Exceptional lots	$12.50@12.75
Good to choice	11.00@12.00
Medium	8.50@8.75
Common	7.75@8.25
Southerns and barnyards	6.00@7.50

Sheep and Lambs.—Clipped sheep realized well-maintained value, with lambs in liberal supply inclined to be concessional, especially early spring stock, which was gradually lowering. Inquiry was fairly normal. Quotations are on clipped stock.

Extra wethers	$7.75@8.00
Choice	7.25@7.50
Good	7.00@7.25
Medium	6.00@6.75
Common	4.00@5.00
Ewes, heavy, fat	6.00@6.25
Lambs, extra	9.75@10.00
Good to choice	9.00@9.25
Medium	7.25@7.50
Common	5.75@6.00
Early spring, per pound	9@11¾

Hogs.—The butchers and slaughterers' strike, tho not fully settled, has curtailed arrivals somewhat and interfered with selling to a certain extent. Quotations: Westerns, $11 gross weight, $13.75 net weight.

PITTSBURGH LIVE STOCK

Pittsburgh, Pa., June 19, 1916.

Cattle.—The supply of cattle on sale Monday was 65 loads compared with 77 loads the week before; the market ruled active and higher on all fat grades of the dry-fed order and stronger on the best grass cattle, especially where there was weight while the plain grassers were easier. Not many weighty dry-fed cattle on sale. Heifers in fair supply and sold stronger while cows were in liberal supply and sold lower on all grades from bolognas to choice. Bulls in fair supply and sold steady. Fresh cows in liberal supply and sold from $5 to $7.50 per head lower. Today's cattle receipts totaled 110 loads; market slow and lower on all grades.

Good to choice	$10.45@10.75
Good, 1300 to 1400 lb.	10.20@10.40
Mediums to good, 1200-1300 lb.	9.40@9.85
Tidy, 1050 to 1150 lb.	9.40@9.80
Fair to medium, 1000-1100 lb.	8.75@9.30
Fair, 900 to 1000 lb.	7.75@8.25
Common, 700 to 900 lb.	6.50@7.50
Rough, half-fat, 1000-1300 lb.	7.00@8.00
Common to good fat oxen	6.00@7.75
Common to good fat bulls	5.00@8.50
Common to good fat cows	4.50@7.50
Heifers, 700 to 1100 lb	4.75@9.25
Bologna cows	4.00@5.00
Fresh cows and springers	$25@75.

Calves.—Receipts of veal calves fair and during the week the market ruled 50c per cwt. higher than Monday's prices. Receipts of calves today reached 1,200 head; market lower.

Veal calves	$9.00@12.00
Heavy and thin calves	5.00@7.00

Hogs.—The supply of hogs on sale this week has been light and with a good demand the market has ruled higher and the close for the week was 45 to 50c per cwt. above Monday's prices. There were 60 double-deck loads of hogs in supply today; market lower than last week's close.

Prime heavy	$9.90@
Heavy mixed	9.90@
Prime medium weights	9.90@
Best heavy Yorkers	9.90@
Light Yorkers	9.75@
Good pigs	9.50@9.65
Common to good roughs	8.35@8.75
Stags	6.50@7.00

Sheep and Lambs.—The supply of sheep and lambs during the week has been fair and with a good demand sheep have ruler firmer while the handy weight lambs closed 35c per cwt. lower than Monday's prices. Spring lambs in fair supply all week and market ruled steady. Sheep and lamb receipts today numbered 12 double-deck loads; market steady to strong on sheep and yearlings. Supply of spring lambs liberal and a few choice sold at $12, but the bulk sold lower.

Prime wethers	$7.60@7.75
Good mixed	6.25@7.25
Fair mixed ewes and wethers	5.50@6.75
Culls and common (clipped)	3.00@4.50
Spring lambs	7.00@11.50
Clipped lambs	5.50@9.75

PHILADELPHIA HAY AND GRAIN

Philadelphia, Pa., June 19, 1916.

Hay and Straw.—The hay market is dull with ample offerings at unchanged prices. Straw is quiet at lower prices.

Grains.—Wheat is still on the decline, reaching the lowest point of the season. The demand is light and there is little interest in the market. Corn is quiet but steady under moderate offerings. Offerings of oats only moderate and prices are steadily held but there is little trading.

Hay.—No. 1 timothy, medium bales, $24@24.50; No. 2 do., $21@23; no grade, $10@13. Light mixed clover, $22@23; No. 1 do., $20@21. No. 2 do., $17@18.

Straw.—No. 1 straight rye, $15@15.50; No. 2 do., $14@14.50; No. 1 tangled rye, $12.50@13; do., No. 2 $11.50@12. No. 1 wheat straw, $10.50@11; No. 2 do., $9.50@10; No. 1 oat straw, $10.50@11; No. 2 do., $9@9.50.

Wheat.—No. 2 red 95@97c; No. 3 red, 95@97c; rejected A, 92½@94½c; rejected B, 91@93c.

Corn.—No. 2 yellow, 83@84c; steamer yellow, 82@83c; No. 3 yellow, 80@81c; No. 4 yellow, 77@78c; ear corn, 81@82c per 70 pounds.

Oats.—No. 2 white, 47@47½c; No. 3 do., 44½@45½c; No. 4 do., 41@42c; standard white, 46@46½c; sample oats, 38½@39½c.

Feed.—Winter bran, 100-lb. sacks, $25.50@26; spring bran, do., $23@23.50.

Flour.—Car lots, winter clear, $4.60@4.80; straight, $4.85@5.15; patent, $5.25@5.50; do. city mills, patent, $5.90@6.25; regular grades, $4.60@4.80. Rye flour, $5@5.50 per bbl.

PITTSBURGH HAY AND GRAIN MARKET

Pittsburgh, Pa., June 19, 1916.

Hay.—Receipts of hay to this market are exceedingly heavy altho there is an active demand which is taking care of all arrivals at reduced prices. This is especially true on the off grade hay. Market will probably rule lower between now and the new crop. No. 1 timothy, $21@21.75; No. 2 timothy, $18@19; No. 3 timothy, $15@16; No. 1 light mixed, $17.50@18.50; No. 1 clover mixed, $15@15.50; No. 2 clover mixed, $11@13; No. 1 clover, $12@13; No. 2 clover, $8@10; No. 3 prairie, $13@13.50; No. 4 prairie, $9.50@10.

Straw.—Receipts liberal; demand light; market lower. No. 1 oats, $9@0.25; No. 2 oats, $8.50@8.75; No. 1 wheat, $8.75@9; No. 2 wheat, $8.25@8.50; No. 1 rye, $9.75@10.25; No. 2 rye, $8.25@8.75.

Ear Corn.—Demand for ear corn very light while receipts are likewise; market steady. New stock. No. 2 yelow, 80@81c; No. 3 yellow, 75@77c; No. 2 high mixed, 78@79c; No. 2 mixed, 76@77c.

Oats.—Receipts more than equal the demand; market declining. No. 2 white, 44½@45c; Standard, 43½@44c; No. 3 white, 42¼@42¾c; No. 4 white, 40@41c. Rejected, 35@38c.

NEW YORK HAY AND GRAIN

New York City, June 19, 1916.

Hay and Straw.—The hay market is without material change since last week. Offerings continue heavy at all harbor points. The demand is light and outside quotations are becoming more extreme and only possible at the more favored harbor points. Mixed clover is especially slow sale, heavy mixed being almost impossible to sell at any price and even light mixtures are slow except at buyers' prices. Rye straw is barely steady.

Grains.—Wheat is selling at the lowest point of the season. There is little or no export demand and milling demands are very small. Crop reports are more encouraging, and all factors combine to depress prices. Corn is more active. Oats are easy and prices practically unchanged.

Hay.—Large bales.—No. 1 timothy, $29@30. No. 2 $26@27.50; No. 3 $21@23; fancy mixed clover, $25@26; lower grade clover, light mixed, $15@19; No. 1 clear, $18@19.50; lower grades, $12@16.

Straw.—Per ton, No. 1 rye, $15.50@16; do., No. 2 $14@15.

Wheat.—No. 1 Northern, $1.22¾; No. 2 $1.21¾; No. 2 hard winter, $1.12.

Corn.—No. 2 yellow, —c; No. 3 yellow, 84⅞c.

Oats.—No. 3 white, 44½@45c; No. 4 43½@44c; ordinary to fancy, 44@46c.

Rye.—$1.06½.

Mill Feed.—Coarse Western spring one hundred-pound sacks to arrive, $21.50@22. Standard middlings, $23.80@24.25; flour, do., $28.60 to arrive. Red dog, to arrive, 140-pound sacks, $23.50. Oil meal, $31@32. City feed bulk bran, $22.60. Heavy feed in bulk, $24. Red dog, $32.50. Flour middlings, $32.00.

PHILADELPHIA DAIRY MARKETS

Philadelphia, Pa., June 19, 1916.

The market for solid-packed creamery butter is quiet but steady. There is some buying of high grade goods on speculative account but receipts are running ahead of the demand and much of the supply has to be stored. Good grades are in fair demand for immediate consumption but under grades are quiet and irregular in value. Ladles and packing stock are dull and unchanged. Strictly fancy prints are kept well cleaned up at top prices but much of the current make is of poor quality and must be moved at buyers' prices. Trade in cheese is quiet. It requires strictly fancy stock to bring outside rates. Offerings are moderate but ample.

Butter.—Solid packed creamery, fancy specials, 32c; extras, 30@31c; extra firsts, 29@29½c; seconds, 27@27½c; ladle packed, 23@25c; nearby prints, fancy, 33c; average extras, 31@32c; do., firsts, 28@30c; do., seconds, 27@27½c; special fancy brands of prints, 36@39c.

Cheese.—New York full cream, fancy, new, 16¼@16½c; fair to good, new, 15½@16c; do., part skims, 9@14c.

ELGIN BUTTER MARKET

Elgin, Ill., June 17, 1916.

Butter today sold at 28½@29 cents per pound.

WOOL MARKETS

The Boston “Commercial Bulletin” of June 17 says:

“The position of the local wool market is still a strong one, altho no further advances of moment are reported. The manufacturing situation is healthy, altho the National Association of Wool Manufacturers reports a slight lessening in active machinery on June 1 as compared with a canvass of three months ago. Activity in the West continues steadily and at firm prices.”

Ohio and Pennsylvania fleeces: Delaine washed, 37@38c; ½-blood combing, 37@38c; ⅜-blood combing, 40@41c; delaine unwashed, 34@35c. Michigan and New York fleeces: Fine unwashed, 27@28c; delaine unwashed, 31@32c; ½-blood unwashed, 35@36c; ⅜-blood unwashed, 40c. Wisconsin, Missouri and average New England: ¼-blood, 38½@39c; ⅜-blood, 39@40c; ½-blood, 33@34c. Kentucky and similar: ½-blood, unwashed, 38c; ⅜-blood unwashed, 41@42c.

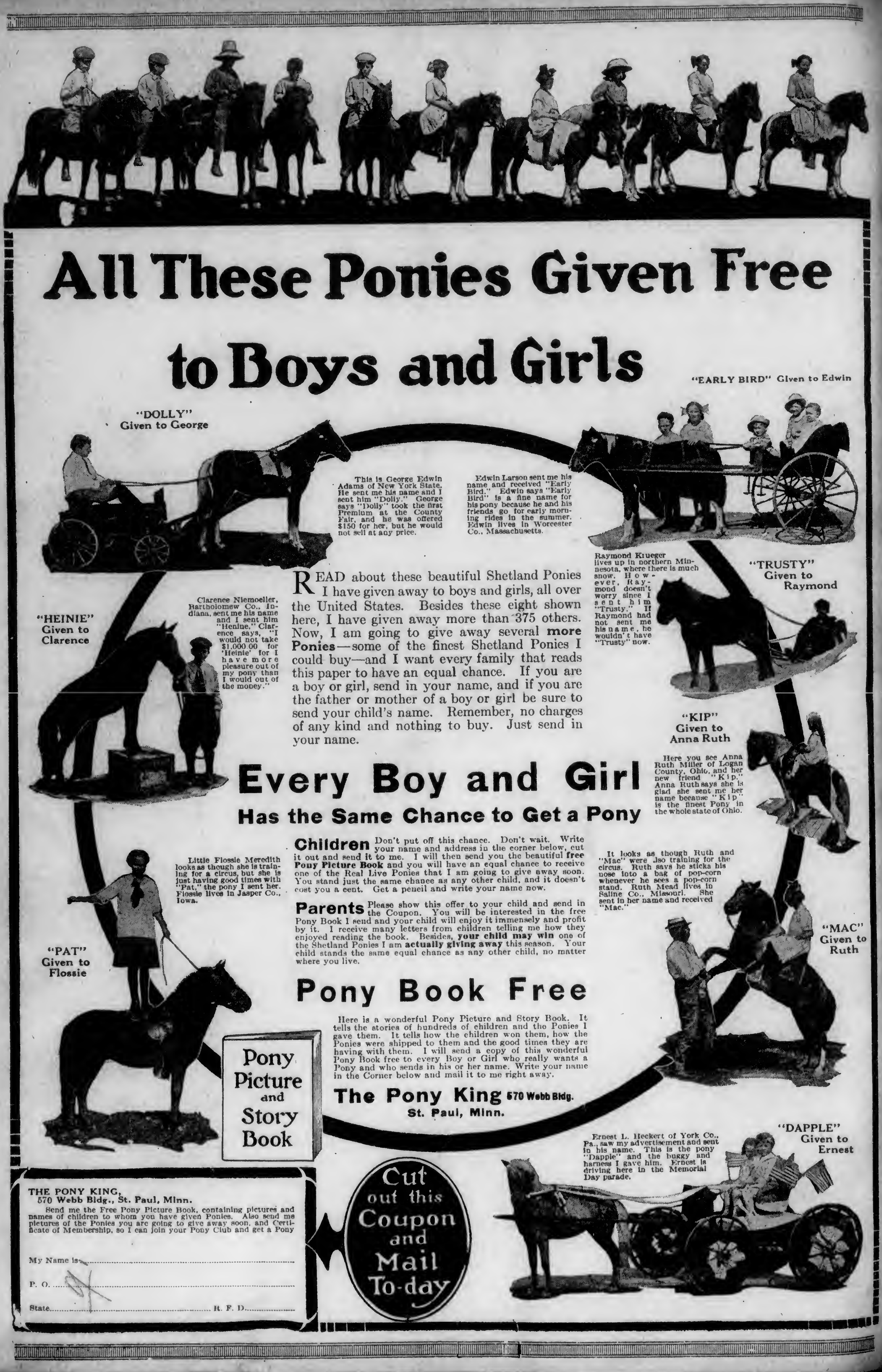
NEW YORK MILK MARKET

New York City, June 19, 1916.

The continued cool weather has served to keep the demand below normal for the month, particularly for cream. The surplus is greater than some dealers thought it would be at the beginning of the month. In fact, owing to the great amount of rainfall, the crest of the wave of milk production, which is usually reached in May has just been attained. Production is enormous. For this reason, the estimate of the market value has fluctuated somewhat. At the present time it appears to be approximately 3 cents a quart for Grade B to the producer in the 26-cent zone, and about 3½ cents to the shipper. There is little prospect that the Borden company will pay a bonus above its contract rate for June.

The receipts of milk and cream in 40 quart cans for the week ending June 17 were as follows:

Railroad	Milk	Cream
Erie	50,198	3,012
Susquehanna	7,850	692
West Shore	15,572	1,433
Lackawanna	64,960	3,110
N. Y. Central (long haul)	99,687	4,017
N. Y. Central (short haul)	23,885	45
Ontario	38,875	5,708
Lehigh Valley	45,797	3,677
Homer Ramsdell Line	4,035	46
New Haven	5,652	21
Pennsylvania	13,520	475
Other sources	1,340	37
Totals	371,371	22,273
Same week last year	353,254	20,028



All These Ponies Given Free to Boys and Girls

"DOLLY"
Given to George

This is George Edwin Adams of New York State. He sent me his name and I sent him "Dolly." George says "Dolly" took the first Premium at the County Fair, and he was offered $150 for her, but he would not sell at any price.

"EARLY BIRD" Given to Edwin

Edwin Larson sent me his name and received "Early Bird." Edwin says "Early Bird" is a fine name for his pony because he and his friends go for early morning rides in the summer. Edwin lives in Worcester Co., Massachusetts.

READ about these beautiful Shetland Ponies I have given away to boys and girls, all over the United States. Besides these eight shown here, I have given away more than 375 others. Now, I am going to give away several **more Ponies**—some of the finest Shetland Ponies I could buy—and I want every family that reads this paper to have an equal chance. If you are a boy or girl, send in your name, and if you are the father or mother of a boy or girl be sure to send your child's name. Remember, no charges of any kind and nothing to buy. Just send in your name.

"HEINIE"
Given to
Clarence

Clarence Niemoeller, Bartholomew Co., Indiana, sent me his name and I sent him "Heinie." Clarence says, "I would not take $1,000.00 for 'Heinie' for I have more pleasure out of my pony than I would out of the money."

"TRUSTY"
Given to
Raymond

Raymond Krueger lives up in northern Minnesota, where there is much snow. However, Raymond doesn't worry since I sent him "Trusty." If Raymond had not sent me his name, he wouldn't have "Trusty" now.

"KIP"
Given to
Anna Ruth

Here you see Anna Ruth Miller of Logan County, Ohio, and her new friend "Kip." Anna Ruth says she is glad she sent me her name because "Kip" is the finest Pony in the whole state of Ohio.

Every Boy and Girl

Has the Same Chance to Get a Pony

Children Don't put off this chance. Don't wait. Write your name and address in the corner below, cut it out and send **it** to me. I will then send you the beautiful **free Pony Picture Book** and you will have an equal chance to receive one of the Real Live Ponies that I am going to give away soon. You stand just the same chance as any other child, and it doesn't cost you a cent. Get a pencil and write your name now.

Parents Please show this offer to your child and send in the Coupon. You will be interested in the free Pony Book I send and your child will enjoy it immensely and profit by it. I receive many letters from children telling me how they enjoyed reading the book. Besides, **your child may win** one of the Shetland Ponies I am **actually giving away** this season. Your child stands the same equal chance as any other child, no matter where you live.

"PAT"
Given to
Flossie

Little Flossie Meredith looks as though she is training for a circus, but she is just having good times with "Pat," the pony I sent her. Flossie lives in Jasper Co., Iowa.

"MAC"
Given to
Ruth

It looks as though Ruth and "Mac" were also training for the circus. Ruth says he sticks his nose into a bag of pop-corn whenever he sees a pop-corn stand. Ruth Mead lives in Saline Co., Missouri. She sent in her name and received "Mac."

Pony Book Free

Here is a wonderful Pony Picture and Story Book. It tells the stories of hundreds of children and the Ponies I gave them. It tells how the children won them, how the Ponies were shipped to them and the good times they are having with them. I will send a copy of this wonderful Pony Book free to every Boy or Girl who really wants a Pony and who sends in his or her name. Write your name in the Corner below and mail it to me right away.

The Pony King 570 Webb Bldg.
St. Paul, Minn.

"DAPPLE"
Given to
Ernest

Ernest L. Heckert of York Co., Pa., saw my advertisement and sent in his name. This is the pony "Dapple" and the buggy and harness I gave him. Ernest is driving here in the Memorial Day parade.

THE PONY KING,
570 Webb Bldg., St. Paul, Minn.

Send me the Free Pony Picture Book, containing pictures and names of children to whom you have given Ponies. Also send me pictures of the Ponies you are going to give away soon, and Certificate of Membership, so I can join your Pony Club and get a Pony

My Name is....................

P. O. ....

State.................... R. F. D. ....

Cut out this Coupon and Mail To-day

End of Volume